

CREATIVE INPUT

Film makers

Dan Ford & Gibson Blanc, [StoryScreen](#)

Game design

Funcertain Futures: Building New Worlds game design by [Jo Lindsay Walton](#). *Funcertain Futures: Building New Worlds* is a hack of [Kampala Yénkya](#) by Jo Lindsay Walton, Dilman Dila, Polina Levontin, Maurice Ssebisubi, Jana Kleineberg and others. *Funcertain Futures: The TTRPG* is a hack of *Kampala Kampala Yénkya Multiverse*. All these games are inspired by [The Quiet Year](#) by Avery Alder. With additional thanks to Keith Perera.

Illustrations

Individual images include credit and licence details.

Cover artwork: Sophie Standing (2023), [Sophie Standing Illustration](#), under a CC BY NC ND 4.0 licence.

Guide to topic content graphic (Introduction); **header images:** Louise Harvey, [Chimney Design](#).

Please note particularly the following illustration which is excluded from the CC BY NC ND licence, and should not be re-used without permission from the artist as copyright holder:

Sacha Taki: Voices and songs of the forest, Topic 3: Encountering Environments. Copyright [Sozapato](#) 2021, Sozapato Ilustración. All rights reserved. Used with kind permission.

If you are a teacher and wish to access a digital copy of this image for printout for classroom use/educational purposes only, please email Perpetua Kirby at the email below.

This resource builds on a project supported and jointly funded by the Higher Education Innovation Fund (HEIF) and Sussex Sustainability Research Programme (SSRP) aimed at reconfiguring education in ways that embrace a creative engagement with uncertainty: one that is necessary to meet modern sustainability challenges. More information on the HEIF/SSRP-funded project can be found here: <https://www.sussex.ac.uk/research/centres/sussex-sustainability-research-programme/research/uncertain-pedagogies>

It also comes out of a project supported by PASTRES (*Pastoralism, Uncertainty and Resilience: Global Lessons from the Margins*), a research programme that aims to learn from pastoralists about responding to uncertainty and resilience, with lessons for global challenges. See: www.pastres.org

For further information or to give feedback, please email: Perpetua Kirby (p.kirby@sussex.ac.uk) and Rebecca Webb (r.c.webb@sussex.ac.uk)

<https://www.transformineducation.org/>

Creating with uncertainty

Creating with uncertainty:

Sustainability education resources for a changing world

Resources that are adaptable for all students of all ages in formal and informal education

SSRP
SUSSEX SUSTAINABILITY RESEARCH PROGRAMME

TRANSFORM-*in* EDUCATION





Creating with uncertainty Copyright © 2023 by Perpetua Kirby; Rebecca Webb is licensed under a [Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License](https://creativecommons.org/licenses/by-nc-nd/4.0/), except where otherwise noted.

CONTENTS

Acknowledgments	ix
Foreword	xii
Professor Sasha Roseneil	

Part I. Introduction to the educational pack

1. Introduction to the education pack	17
Perpetua Kirby and Rebecca Webb	
2. Creating with uncertainty: educational benefits	23
3. Creating with uncertainty: education purpose for sustainability	25
4. Teacher and student roles in spaces of uncertainty	28

Part II. The resources

Topic 1: Adapting to new challenges	35
Topic 2: My object, my story	45
Topic 3: Encountering environments	55
Topic 4: Food shopping	65
Topic 5: Apples	74
Topic 6: Water	87
Topic 7: Kelp	97
Topic 8: Wind energy	109
Topic 9: Forests	119
Topic 10: Storytelling	132
Topic 11: Menstrual health	152
Topic 12: Nature conservation	166
Topic 13: The Commons	180

Topic 14: Gifting	192
Topic 15: Creating a global agreement	203
Appendix: FUncertainty - further guidance	215

ACKNOWLEDGMENTS

Editors

Perpetua Kirby, Lecturer in Childhood and Youth, University of Sussex; Rebecca Webb, Senior Lecturer in Education, University of Sussex

Managing Editor, University of Sussex Library

Catrina Hey

Research project developed by:

Perpetua Kirby, Lecturer in Childhood and Youth, University of Sussex; Rebecca Webb, Senior Lecturer in Education, University of Sussex; John Parry, Senior Lecturer in Education; Michael Jonik, Reader in English and American Literature; Simon Thompson, Professor of Education; Marcelo Staricoff, Lecturer in Education and consultant (JONKTM)¹ [all University of Sussex]

Authors

All University of Sussex, except where otherwise noted.

Foreword

Sasha Roseneil, Vice Chancellor, University of Sussex

Introduction to the education pack

Perpetua Kirby and Rebecca Webb

Topic 1: Adapting to new challenges

Vinita Damodaran, Professor of South Asian History; Perpetua Kirby; Andy Lowe, Lecturer in Education (Education); Peter Newell, Professor of International Relations; John Parry; Marcelo Staricoff; Adam Vaughn, Environment Editor, *The Times*; Rebecca Webb

Topic 2: My object, my story

Fliss Bull, Doctoral Researcher, Department of Education; Perpetua Kirby; Andy Lowe; Odi Oquosa, artist and Doctoral Researcher, Department of Education; Marcelo Staricoff; Rebecca Webb

Topic 3: Encountering environments

1. JONK Thinking and Learning Ltd.

Alice Eldridge, Reader in Sonic Systems (Music); John Parry

Topic 4: Food shopping

Perpetua Kirby; Andy Lowe; John Parry; Marcelo Staricoff; Rebecca Webb

Topic 5: Apples

Will Abberley, Senior Lecturer in Victorian Literature; Perpetua Kirby; Michael Jonik, Andy Lowe; John Parry; Beth Nicholls, Research Fellow (Evolution, Behaviour and Environment); Marcelo Staricoff; Paul Wiggins, Brighton Permaculture Trust; Brighton Edible Gardening; University of Sussex Partnership Manager; Rebecca Webb

Topic 6: Water

Emma Bernagozzi, Key Stage Two Lead, St Bernadette's Primary School, Brighton; Perpetua Kirby; Andy Lowe; John Parry; Marcelo Staricoff; Rebecca Webb

Topic 7: Kelp

Perpetua Kirby; Andy Lowe; John Parry; Mika Peck, Professor of Conservation Ecology (Evolution, Behaviour and Environment); Marcelo Staricoff; Rebecca Webb

Topic 8: Wind energy

Augusto Corrieri, Senior Lecturer in Drama, Theatre and Performance; Perpetua Kirby; Andy Lowe; Alexandra Pearson, Senior Lecturer in Management; Lisa Peck, Senior Lecturer in Theatre and Performance Practice; Marcelo Staricoff; Rebecca Webb

Topic 9: Forests

Will Lock, Lecturer in Anthropology

Topic 10: Story telling

Jo Walton, Research Fellow in Arts, Climate and Technology

Topic 11: Menstrual health

Chi Eziefula, Senior Lecturer in Infection, Anne Gatuguta, Senior Lecturer in the Department of Global Health and Infection, Perpetua Kirby, and Rebecca Webb

Topic 12: Nature conservation

Perpetua Kirby, Christopher Sandom, Lecturer in Biology, and Rebecca Webb

Topic 13: The Commons

Perpetua Kirby, Andy Lowe, Nathan Oxley, Research Communications Manager at the Institute of Development Studies, and Rebecca Webb

Topic 14: Gifting

Kathleen Theresa Bailey, doctoral researcher in the School of Education and Social Work, Perpetua Kirby, and Rebecca Webb

Topic 15: Creating a global agreement

Perpetua Kirby, Joanna Smallwood, Rebecca Webb

These materials also draw on research and uncertainty workshops in schools and informal education organisations (2022), in association with the following colleagues:

All University of Sussex, except where otherwise noted.

Chris Bates, Doctoral Researcher, Department of English; Jonathan Cooper, consultant – co-leading sustainability, climate change and environmental education in Brighton and Hove schools; Elsa Dahlberg, Undergraduate Student, School of Education and Social Work; Katie Eberstein, Environmental Education Officer, Consultant – co-leading sustainability, climate change and environmental education in Brighton and Hove schools; Lucy Edwards, Undergraduate Student, School of Education and Social Work; Will Greensides, Undergraduate Student, School of Media, Arts and Humanities; Karen Hall, Lecturer in Drama Education; Francesca Knight, Lecturer in Education; Stella Knight, Associate (Education) Daphne Lambert, eco-nutritionist and School Tutor, Department of Education; Odi Oquosa, artist and Doctoral Researcher, Department of Education; Rachel Mercer, Undergraduate Student, School of Life Sciences; Citlalli Morellos-Juarez, Co-founder and Director, Tesoro Escondido Reserve, Ecuador; Beth Nicholls, Research Fellow (Evolution, Behaviour and Environment); Keith Perera, Lecturer in Education; Tara Ridley, Undergraduate Student, School of Life Sciences; Anindita Saha, Consultant on conservation of cultural and national heritage, India; Katie Scalan, Visitor Centre Manager, Rampion Offshore Wind; Anke Schwittay, Professor in Anthropology & International Development; Ian Scoones, Professorial Fellow, Institute of Development Studies.

FOREWORD

Professor Sasha Roseneil

Stilling the voices that know, cultivating those that don't know

We are living through a period of polarised certainties. Amplified by social media, and informed by the algorithmic push of like-minded content, individuals and groups seem more ready than ever to shout their firmly held opinions into echo-chambers. Ambiguity, ambivalence, doubt and nuance are side-lined. Careful listening, dialogue across difference, and recognition of the multiplicity of world-views and the complexity of human experience are all too rare in the public square. There is little or no space for not-knowing.

Yet, paradoxically, the recent past has underlined just how uncertain the world is, and how little we know about what might come next. A global pandemic has up-ended our lives, forcing us to rapidly re-invent practices of daily existence, with no blue-print to follow. There is widespread political turbulence and conflict within and between nation-states. Economies and markets are unsettled, prices are rising, millions are cast into poverty. And across the world, climate change is destroying homes and livelihoods, and biodiversity is disappearing. What all this means, what the future holds, we cannot know for sure. Indeed, it might be suggested, if we follow the argument on which this collection rests, that our ability to shape our shared future rests on our ability to acknowledge and lean into the uncertainty.

In this context, this education pack is an inspirational manifesto and a textbook for our times – an intervention in the contemporary cultural and ecological moment that provides an exciting array of provocations and resources for those who want to open up possibilities for people of all ages to learn to live and work with uncertainty.

Coming from a wide range of disciplinary and interdisciplinary backgrounds, the contributors share a commitment to education as a creative process that seeks to develop what the early nineteenth century poet John Keats called, in a letter to his brothers in 1817, ‘negative capability’. Keats explained this as the capacity to be ‘in uncertainties, Mysteries, doubts, without any irritable reaching after fact and reason’.¹ Keats regarded negative capability as a key attribute of the great writer, and subsequently, psychoanalysis has expanded on the idea that the ability to sit with uncertainty, to not rush to close down uncomfortable experiences of not knowing, is important both in the therapeutic relationship, and to psychic health and well-being.

The exercises and projects that are suggested by the authors in this pack are designed to elicit experiences of uncertainty, and to cultivate tolerance of the discomfort that invariably accompanies encounters with

1. [Selections from Keats's Letters](#) by John Keats, Poetry Foundation

new material. Grounded in an empathetic recognition that engaging with unfamiliar ideas and with different perspectives can be unnerving, or even deeply disturbing, there is a profound humanity underpinning the pedagogy presented here. At the same time, the approach also rests on an understanding of the fundamental entanglement and interdependence of human beings with the natural world, of people and planet. Taken together, the resources seek to develop students' capacities for rational, emotional, embodied, and relational ways of knowing, alongside the capacity to abide in a state of non-knowing. In so doing, they support the development of the skills of innovation and invention needed for research, entrepreneurship, and creative practice, as well as attitudes of mind that might enable us to survive and thrive in a fast-changing world.

In 1961 the University of Sussex adopted its founding motto: 'Be still and know'. In the light of the wisdom of this text, we might today, amidst the sound and fury of the present, look to still the voices within and amongst ourselves that (always) know (best), and to cultivate those that don't, encouraging us all to 'be still, and know and know-not'.

Professor Sasha Roseneil

University of Sussex

Falmer, Brighton, UK

June 2023

About the author



Professor Sasha Roseneil
UNIVERSITY OF SUSSEX

Professor Sasha Roseneil is Sussex's ninth Vice Chancellor and its first female VC.

Previously, Sasha was UCL's first Pro-Provost for Equity and Inclusion and Executive Dean of the Faculty of Social and Historical Sciences. Before that, she was Executive Dean of the Faculty of Social Sciences at the University of Essex, and held leadership positions at Birkbeck, University of London and the University of Leeds.

Over more than 30 years as an academic, Professor Roseneil has developed an international reputation for her pioneering research on intimate relationships, citizenship, and social movements. Originally trained

as a sociologist, and later as a group analyst and psychotherapist, she has played a leading role in establishing the interdisciplinary fields of Gender Studies and Psychosocial Studies.

She is a Fellow of the Academy of Social Sciences and a Principal Fellow of the Higher Education Academy. She is also a member of the Institute of Group Analysis and a Founding Scholar of the British Psychoanalytic Council.

PART I

INTRODUCTION TO THE EDUCATIONAL PACK

1.

INTRODUCTION TO THE EDUCATION PACK

Perpetua Kirby and Rebecca Webb

What is meant by creating with uncertainty?

We all live with uncertainties. There are no clear answers, and yet nonetheless we must arrive at our own positions about what to think and what to do. This includes how we might live our lives differently and more sustainably, even if sustainability itself throws up many uncertainties about what might happen, what to do and how best to live our lives in ways that mitigate the damage humans are causing to the planet.

This set of resources is designed to support students to attend closely, dig deeply and engage with the complexities of climate change and biodiversity loss in their everyday lives. It consists of fifteen on-the-ground sustainability topics, each offering different activities that can be used to enrich teaching across the curriculum. They engage students philosophically and practically to work towards a more sustainable world.

But what is key is that this pack offers opportunities to be creative with uncertainty, so that students and their teachers can draw on their own and curricular knowledge, to see what new things they might discover. The invitation is to be uncertain together, where neither the educator nor the student does not (and cannot) know *the* answer in advance. After all there will not be *‘one right answer’!*

By encouraging students to use things they already know—whether learned at school or elsewhere—they find out something not yet known. This is why the activities can work (and be easily adapted) for students of any age, aptitude and level, including those in early years, primary, secondary and special schools. Some have even been co-created and used with our own higher education students.

Encountering complex sustainability issues alongside a supportive and attentive teacher offers students the opportunity to stick with the challenge of working through something to consider where they stand on an issue, which might be difficult to do but also deeply satisfying, as well as charting a possible way forward.

Students are supported to be creative with uncertainty to:

- Explore and deliberate diverse knowledge and perspectives.
- Experiment with different ways of knowing, including the intuitive, experiential, multisensory, and emotional, as well as the rational.
- Tolerate the difficulty of ‘not knowing’ and ‘getting lost’ and to explore alternative possible pathways.
- Be attentive to the world and to encountering it anew, so as to interrupt ‘business as usual’ ways.

- Identify how to live with responsibility and justice for others – including other species – as well as oneself, on a planet with limited resources.

Encounters and opportunities: Student target group and activity guidance

The pack is for teachers and other educators working in any educational context whether formal or informal. It is appropriate for all students of any level from early years through to secondary school age (or beyond).

The pack is organised around 10 topics: the sustainability and subject areas covered by each topic are presented in the table below.

The topics include four activities, as follows:

- **Brief encounter:** this is designed to be short activity that can slot into a lesson related to the topic.
- **Deliberative encounter:** this is a longer activity and involves students engaging with different perspectives and experiences in a more sustained way.
- **Visual or sensory encounter:** these activities require students to attend to visual stimuli or engage in other sensory sources.
- **Beyond the classroom encounter:** these activities are designed with the intention that students will do them at home possibly with the support and engagement of their family and friends. The exception is Topic 2. *My Object, My Self*, in which this last activity is a collaborative class exhibition for families/others to view. All other *Beyond the classroom encounter* activities can also be adapted for use in the classroom.

The exception to the pattern set out above is the final storytelling topic, which includes an activity, *Funcertainty*. This is designed to work best either with a smaller group (e.g. an eco-council) or when there is more time to engage with larger group (e.g. during an enrichment week or holiday club).

For every activity within each topic, teacher guidance is provided. This focuses on the following:

- **Opportunities for embracing uncertainty:** Guidance is offered on how the specific activity fosters an engagement with ideas of uncertainty explored in this introduction.
- **Opportunities for all students:** Many of the activities can be adapted to be used with *all* students, regardless of age and level. Guidance is given on how this might be done but respects teachers' knowledge of what works with their own group. The language therefore avoids 'age' or 'ability': the assumption is the inclusion of all students and is less concerned with 'right' answers. What is important is the ongoing engagement, in whatever form is applicable for each student in their diverse contexts.
- **Opportunities for creative thinking:** The activities allow for a creative focus that enables students to surface and acknowledge the many ways that they might respond to the subject-matter, that they

might not otherwise have been so aware. Guidance is offered on how to extend this for each activity.

- **Opportunities for linking to climate justice:** This includes how to extend the activities to include a focus on social justice and diversity, and multilingual and multicultural matters.

Education resource development: co-creating with uncertainty

The development of the activities was led by academics in the Department of Education, University of Sussex, including experienced schoolteachers, together with a team of colleagues with sustainability expertise from across the university and partner organisations. It includes input from those working in the following disciplines: Life Sciences, Media, Arts, Humanities and Global Studies.

The pack offers students the opportunity to engage with current academic research, through the inclusion of links to films of their work and other resources.

Most of the activities have been trialled with students, but others are adaptations of activities that have been used; none have been trialled with students of all ages and levels. We acknowledge our own uncertainty about how the different activities will work with diverse groups of students, across multiple contexts. We welcome feedback from teachers and students about how the activities have gone and any adaptations made to your specific context. Please do email the team to let us know.

The film *Creating with Uncertainty – TRANSFORM in EDUCATION* highlights examples of practice with students from primary, secondary and special schools in the UK.





































































































[<https://www.youtube.com/watch?v=AbTKw5WA38o>]



One or more interactive elements has been excluded from this version of the text. You can view them online here: <https://openpress.sussex.ac.uk/creatingwithuncertainty/?p=56#oembed-1>

[creatingwithuncertainty/?p=56#oembed-1](https://openpress.sussex.ac.uk/creatingwithuncertainty/?p=56#oembed-1)

Guide to topic content linked to curriculum topics

Activity key	TOPIC														
	1. Adapting to new challenges	2. My object, my self	3. Encountering Others	4. Food shopping	5. Apples	6. Water	7. Kelp	8. Wind energy	9. Forests	10. Storytelling	11. Menstrual Health	12. Nature Conservation	13. The Commons	14. Gifting	15. Creating a Global Agreement
 Brief encounter															
 Deliberative encounter															
 Visual encounter															
 Sensory encounter															
 Beyond the classroom encounter															
ACTIVITY CONTENT															
Sustainability Theme															
Energy															
Water															
Food															
Transport															
Consumption															
Biodiversity															
Climate & ecological justice*															
Global/Global South/indigenous															
Subject/discipline															
Policy / International Relations / Politics / Economics															
Science															
History															
Geography															
Arts and performance															
Language & literature															
Maths															
Design & technology															
Religion															
Health															

* All activities have guidance on how to address climate justice, captured in the teachers' guidance on 'Opportunities for linking to climate justice'.

About the authors



Dr Perpetua Kirby
UNIVERSITY OF SUSSEX

<http://www.transformineducation.org/>

Dr Perpetua Kirby is a Lecturer in Childhood & Youth in the School of Education and Social Work. Her research interests are children and people's rights, participation and agency, including democratic approaches to education, as well as ethnographic and multimodal methodologies. Her PhD explored young children's agency in primary schools, using ethnographic and creative multimodal approaches. She has also researched child and youth participation with multiple and diverse public and third sector organisations. She has a strong research collaboration with Dr Rebecca Webb on transformative models of education that engages conceptually and empirically with children's rights and subjectness, in schools and informal education contexts, with a particular focus on sustainability education in both the Global South and North (see www.transformineducation.org).

Her research has gained national media attention, including on BBC Radio 4's Women's Hour, Financial Times, Huffington Post and BBC Newsround.



Dr Rebecca Webb
UNIVERSITY OF SUSSEX

Dr Rebecca Webb is a researcher and teacher academic in the Department of Education.

Rebecca's research and teaching interests primarily focus on the theory/practice intersections of the purposes of education; especially in relation to the democratic, transformative and sustainability possibilities of education for uncertain times. These interests encompass a focus on qualitative methodologies and ethics; ideas of subjectivity, 'voice' and participation; creative and provocative approaches to pedagogies and practices of education, encompassing all age-groups and systems of schooling, including nurseries.

2.

CREATING WITH UNCERTAINTY: EDUCATIONAL BENEFITS

At the University of Sussex, we are researching the benefits of working with uncertainty, where teachers alone cannot know the answers. This includes:

- **Deep learning:** providing students with the space to explore uncertainty that can make for deep learning. Students are not simply concerned with identifying correct answers, but engage with home, general and curricular knowledge by asking questions, sharing opinions and exploring different ways of looking at things.
- **Self-awareness and being changed:** students may experience themselves as participants in the world, have an enhanced awareness of their own different intelligences, and a recognition of their ability to know something deeply; to *besomething* other than that which they had been previously. Examples of the latter might include: to be moved by a line in a poem that intrigues them; to be captivated by sounds they might hear outside; to be one who speaks about something that matters to oneself; and to be one who does something for oneself and for the common good. Such transformations might be momentary (but still important) or longer lasting.
- **Embracing difference and complexity:** rather than shying away from differences of perspectives and opinions, working with uncertainty engages with these head on. Such opportunities help to avoid the 'good/bad' polarisation and moralising (as evident in populist movements and some media representations of environmental actions, for example). This is necessary to live respectfully and compassionately with others, in ways that embrace difference.
- **School and wider structural change:** working with uncertainty opens the possibility that students may question or even reject curricular knowledge and taken-for-granted school and wider community practices. This might be later in their adult lives or possibly now. Some students, for example, are currently rejecting what they see as colonising and patriarchal historical accounts of the world; some are challenging school practices that pose a threat to climate change and biodiversity loss. This possibility is key to schooling within a democracy, where something considered to be of worth is offered with integrity on the basis that it may be

taken-up or rejected, now or at some future date. Students may challenge the way things have always been done, and identify ways to transform aspects of their school, the wider local and global community, as well as their own lives.

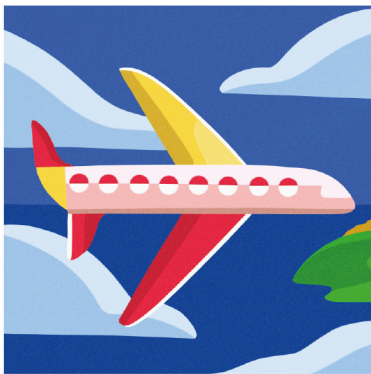
In the film [Teaching with Uncertainty](https://bit.ly/teachingwithuncertainty-film) three teachers from the UK (primary, secondary and special schools) talk about why they teach with uncertainty. [<https://bit.ly/teachingwithuncertainty-film>]



One or more interactive elements has been excluded from this version of the text. You can view them online here: <https://openpress.sussex.ac.uk/creatingwithuncertainty/?p=60#oembed-1>

3.

CREATING WITH UNCERTAINTY: EDUCATION PURPOSE FOR SUSTAINABILITY



Mastering Knowledge



Discovering Knowledge



Not knowing

Thinking about the purpose of education is important when considering how we might support students to live now and in the future with ongoing and emerging sustainability challenges. These include severe weather events and infrastructure damage; biodiversity loss; threats to food security; technological change; altered lifestyles; mass migration; polarisation and weakened democracies.

The curriculum is important for ensuring students have the knowledge and skills to respond to change. So too is fostering a capacity to embrace uncertainty as an inevitable and important part of living in the everyday world of family, school and work. Creating with uncertainty fosters transformative possibilities that might be key to mitigating and adapting to sustainability challenges.

To think about how we might shift between *transformation* and *conformity* in educational provision, we have developed three heuristics: the plane, the train and the seafaring boat.

The first two relate to ideas of ‘conformity’ in knowing things (i.e. knowledge acquisition of curriculum content, such as the causes of climate change, and behaviours understood as important for addressing these challenges, such as recycling). These rely both on ideas of ‘mastering knowledge’ (the fastest route possible, like taking a **plane**, with knowledge communicated by teachers) and ‘discovering knowledge’ (following slower and scenic routes, like taking the **train**, but with the same destination as the plane, and achieved through group discussion, play and inquiry, etc., involving both teachers and students). These are important for ensuring students know and ‘get’ existing disciplinary sustainability knowledge.

A third transformation educational heuristic receives too little attention. This invites students and teachers to think and work *differently*, with ideas of uncertainty, in addition to conformity. Here students

are not simply trying to work out what knowledge is expected of them by their teachers to succeed in homework, tests or exams, for example. Instead, they are enabled to respond to a learning situation by asking questions, sharing their opinions and own areas of knowledge, and querying the way things have always been understood or done. We think of this as being akin to **seafaring**, heading off without a clear destination. We borrow this metaphor from the anthropologist, Tim Ingold, who distinguishes seafaring from the transported traveller; he describes the seafarer as the one that ‘has no final destination, for wherever he is, and so long as life goes on, there is somewhere further he can go.’

With teacher permission, it is in the moments of seafaring that students can encounter the world, in order to work out who they are and what matters to them; how to be versatile and flexible; to shift their response to the existence of other beings and alternative opinions; and to challenge the idea that there is only one way to look at the world, so that they might respond to its limitless demands. This is where they can work out what sustainability means for their own lives, including any action that they might take.

In any education system functioning within a democracy, students must come to their own position themselves; this cannot be dictated or ‘persuaded’ by teachers. A democratic education requires students to have the space and time to grapple intellectually and emotionally with difficult questions and challenges, to see where it is that they might land, always acknowledging that others might see things differently.

We have used the above images with students aged nine and ten to signal to them the shifts being made between the different heuristics. When in the boat, we have invited them to be ‘researchers’ alongside us, to think through what it is that we all do not know.

In the film [Uncertainty in education](#) Dr Perpetua Kirby and Dr Rebecca Webb talk about why this approach matters for education. [<https://www.youtube.com/watch?v=enj5E76jnw8&t=3s>]



One or more interactive elements has been excluded from this version of the text. You can view them online here: <https://openpress.sussex.ac.uk/creatingwithuncertainty/?p=32#oembed-1>



4.

TEACHER AND STUDENT ROLES IN SPACES OF UNCERTAINTY

Creating with uncertainty is highly demanding of effort, to use the different intellectual and emotional resources we each have, whether as students or teachers. It requires us all to cope with unpredictability, to think on our feet, to engage with nuance, and to emphasise the richness of the experience of others (including nonhuman species) who may be very different to us.

This demands a language—**and by this we include a multitude of nonverbal communication**—of considerate challenge and critique that is not simply obedient and pleasing. It requires a mind-set from both teachers and students alike that it is absolutely okay to assume that ‘we are going to think from an alternative perspective’, and that we can ‘approach/do things another way’, by asking questions, pondering and wondering ‘what happens if . . . ?’ It also requires us to take seriously diverse ways of communicating and engaging from all students.

Core questions for creating with uncertainty

- What do you see? hear? sense?
- What emotions do you feel?
- What do you think about it?
- What do you make of it?
- What does this demand of you?
- What role can I play in supporting you?

Teacher role

Teachers play an important role in requiring students to consider what absorbed curriculum knowledge might mean for themselves, as well as how they might engage with others in their communities. What students think, feel or do as a result of undertaking activities should not be dictated; nor can it be predicted. There are four key areas for teachers to attend to:

1. Share your knowledge

- Share what you know with students (where this may be useful) and be clear about what you don't know.
- Draw students' attention to that which you want to preserve and believe is worthy of study.

2. Invite and support all students to share their experiences

- Work from the assumption that every student can engage with uncertainty.
- Listen to what students know, what they don't know, their questions and feelings.
- Support students to articulate – in a way appropriate to them – how they experience the subject matter.
- Use creative and deliberative activities that encourage students to surface/reflect on/communicate their perspectives.
- Require students to listen carefully to others.
- Support students to identify a respectful uncertain language e.g. 'Let's try out another way' 'I wonder whether . . .'
- Be careful not to push your own ideas onto students.
- Attend carefully to what concerns students and what touches them deeply (and where a window of tolerance is shaken).

3. Challenge students to think deeply together and to verify what can be claimed about the topic

- Require students to pay close attention to what has been shared.
- Support students to investigate, speak about, persuade and deliberate together.
- Require students to justify their workings out (while refraining from asserting one right answer yourself).
- Challenge students to question themselves about what their ideas might mean for themselves/others.
- Encourage students not to settle for comfortable but unsatisfying solutions.
- Introduce inconvenient truths and difficult questions in response to contributions that are concerning.

4. Reflect on the possible educational value of engaging with uncertainty

- Discuss what was possible or limited in opening up spaces for uncertainty.

Core verification questions to ask students

- Does what you want/desire affect others (human/nonhuman)?
- How do others experience this?
- What questions would you expect others to ask you about this?
- How can you accommodate different views?
- When others think differently, what more do you need to know? How can we find out? What difference might that make?
- When people act in ways you disagree with (eg buying fast fashion; cutting down trees) can you imagine what they might see/think/feel/imagine?
- What would you like to ask those who think or act differently? What would you like to say to them? How could you do this in a way that they can hear? What might they say to you? What can you teach each other?

Student role in this uncertain space

This demanding work requires students to:

- Listen to what others know, including other students, teachers and others.
- Share what they know, think and feel, as well as their own experiences.
- Ask difficult questions of themselves and others (including of peers, teachers, experts, family).
- Communicate what they think and feel in different ways (e.g. speaking, drawing, writing).
- Reflect deeply and verify their work.
- Negotiate a way forward with others.
- Be open to noticing and being surprised by what they and others can do.

Role of everyone in this uncertain space

- Follow the ground rules or revise them together where necessary.

Core questions for creating with uncertainty for sustainability

- What are your sustainability interests and concerns?
- What do you feel you already know and what do you want to know?
- How do you know? (ie sources of existing knowledge)
- What puzzles, worries, confuses you?
- What do you notice as you walk/look around: what questions/feelings/thoughts does this raise for you?
- What do you hope for and why?



PART II

THE RESOURCES

TOPIC 1: ADAPTING TO NEW CHALLENGES



Brief Encounter

Being Uncertain

Draw what you think or feel about being uncertain. Use the words and phrases below as a source of inspiration.

- Blind alleys
- Disagreement
- Serendipity
- Humility
- Vulnerability
- Meandering
- Wandering and wondering
- Different points of view
- Uncertain world futures
- Doubt
- Failure
- Confusion
- Knockback
- Unplanned or unexpected
- Things not what they seem
- Not knowing
- Engaging with different ideas
- Involving people who see things differently

- Changing our minds

Fostering a vocabulary for working with uncertainty

Opportunities for Embracing Uncertainty

Life, the world and lots of professions are full of uncertainty. This invitation places the unknown at the heart of how our world functions. Students might consider how situations of uncertainty make them feel, and how much uncertainty they feel they encounter on in their everyday lives.

Opportunities for All Students

This invitation is suitable for students of all ages as it can adapt to different levels of complexity when considering how we all have to manage situations of uncertainty. In the early years, it may be used to discuss situations that characters in stories find themselves in – how do these situations make the characters feel? For other students, the example words can represent the launch of a much greater list of words that they associate with uncertainty as they depict these using cartoons as the imagery.

Opportunities for Creativity

The activity can generate discussion about the creative possibilities of uncertainty. Are students able to embrace uncertainty with enthusiasm or only with fear? Can they identify ways in which uncertainty might create something new? Is uncertainty a necessary part of life? Is uncertainty the key to society making progress, searching for new solutions, making new discoveries? Is it possible to create conditions in which we all feel comfortable with being in a position of uncertainty? Students might be encouraged to use a particular medium to draw, such as a cartoon.

Opportunities for Linking to Climate Justice

A focus on uncertainty throws up how some groups experience greater uncertainty in their lives than others due to social and economic precarities. This includes many living in the Global South, but also those locally experiencing food poverty and a lack of appropriately insulated housing, for example. Students could be asked to think how schools can be a place to explore lived uncertainties, in order that they might go out into

the world more equipped to respond to their multiple daily challenges where no trusted teacher is to hand. They might consider whether there are cultural differences in how we embrace uncertainty. This links to themes in Vinita's film about young people in India ([Topic 2](#)), and here is a resource on how pastoralists globally respond to uncertainties: <https://seeingpastoralism.org/an-uncertain-world>



Visual Encounter

Exploring an image



- What do you think might be going on in this image?
- Have you ever been in a situation like this?

- How did you feel, or might you feel in a similar situation?
- What might the person see or be looking for in the distance?
- Where do you think these people are?

Thinking metaphorically using an image

Opportunities for Embracing Uncertainty

There is enough in this image that will be familiar to students but also much that is left open for them to consider ideas of the unknown. To answer the question, they will have to draw on experience, imagine possibilities and engage with their own feelings. They might begin to think of getting lost as a metaphor for feeling one's way through a landscape and how this can offer potential to explore new paths and the unexpected, as well as inducing anxieties. Students will probably have great questions of their own that they may want to offer and/or explore. Useful prompts can include: what, where, why, how, who?

Opportunities for All Students

Younger students might play at going on a journey or an adventure and think about what they might need to pack. This could tie in with related stories, such as *Going on a Bear Hunt* by Michael Rosen and Helen Oxenbury, where children work things out together and support each other along the way. Other students can share stories of their own experiences of getting lost, either quite literally or more broadly, including in their studies or relationships. This can evoke a multiplicity of feelings to be explored. Students might talk about what supports them to navigate these situations in ways that remain open to their possibilities and do not simply respond to felt risks.

Opportunities for Creativity

This activity offers opportunities to expand on the idea of getting lost as a metaphor, that can be developed using different media, including literature and the arts (e.g. a labyrinth). They might speak about getting lost in something they are engrossed in.

Students could also plan to go somewhere where it is possible to get lost for a while, with a supportive teacher nearby. This might be a park or woods. For younger students, this could be an area of the school or outdoors with which they are unfamiliar. Discussing the risks and how to mitigate these would be key to the students' planning.

Opportunities for Linking to Climate Justice

Students can be invited to draw on their own cultural references, including linguistic backgrounds, family stories, films or books, myths or religious parables, that might play on the contradictions of both the possibilities and risks of getting lost. This can lead to a discussion of what might be discovered by getting lost, that otherwise could not be known.



Deliberative Encounter

Little Did I Know...

1. Watch the film by [Vinita Damodaran](#), a professor of South Asian History. She talks about her research with young people living in India who experience climate change in their daily lives. Create a drawing or artwork to reflect your response to the uncertainties mentioned in the film. How can you bring together your own shared or different concerns and uncertainties with those experienced by the young people living in India? [<https://youtu.be/yS5C3NfHiAc>]



One or more interactive elements has been excluded from this version of the text. You can view them online here: <https://openpress.sussex.ac.uk/creatingwithuncertainty/?p=91#oembed-1>

2. Watch the film by [Peter Newell](#), a professor of International Relations. He talks about his work that tries to reduce fossil fuel production globally. Think about:
 - What surprised you? In what ways?
 - What insights did Peter give you about making change happen?
 - What language of uncertainty did Peter use? How did his words link to the list on the Brief Encounter activity? What do they make you think of and feel?

[<https://www.youtube.com/watch?v=uDWM4kSNlg4&t=1s>]



One or more interactive elements has been excluded from this version of the text. You can view them online here: <https://openpress.sussex.ac.uk/creatingwithuncertainty/?p=91#oembed-2>

3. Watch the film by [Adam Vaughan](#), Environmental Editor at *The Times* (previously at the *New Scientist* and *The Guardian*). He talks about trialling an electric car. Discuss:

- What supports Adam to be uncertain on his journey?
- What messages does Adam give, do you feel?
- If you met Adam, what questions would you like to ask him? Why?

[<https://www.youtube.com/watch?v=4B50k1C31cE&t=32s>]



One or more interactive elements has been excluded from this version of the text. You can view them online here: <https://openpress.sussex.ac.uk/creatingwithuncertainty/?p=91#oembed-3>

Uncertainty as a driver of new knowledge

Opportunities for Embracing Uncertainty

The films immerse us in the world of uncertainty through the lens of three very different experts seeking solutions within their roles. It is important that students have opportunities to interrogate knowledge, including that espoused by experts, in order to consider its veracity and relevance to their own lives.

What things stand out as most significant to the students? How do the accounts make them feel? What role does uncertainty play in all our lives, and in the lives of professionals seeking to explore the world and how to change it? Is there any action that might follow from what the students have identified as important to them from the films?

Opportunities for All Students

Younger students might find it easiest to engage with Vinita's film, whereas others could watch them all. More experienced students might engage deeply with Peter's film: they can also discuss whether the experts

convey qualities that enable them to engage with uncertainty in ways that students think might be helpful in their lives.

Opportunities for Creativity

The films offer the opportunity to engage with a range of creative responses. As the students watch, they can be invited to draw, doodle or note take anything that comes to mind. This can help to surface responses (including thoughts, feelings, associations, ideas). The invitation to create an artwork in response to Vinita's film might be supported by enabling students to spend time viewing the pictures drawn by the young people in India.

Opportunities for Linking to Climate Justice

Vinita's film draws attention to the types of uncertainties experienced in one area of the world. It can be used to prompt a discussion of our global connections and responsibilities to those we do not know. What might we learn from these young people living in such climate-challenged environments?



Beyond the Classroom Encounter

Out of uncertainty comes change



Medicine



Architecture



Technology



Environment

Faced with huge challenges and uncertainties, experts across all fields have made significant discoveries that change the way many people live.

Talk with friends and family to identify a discovery in each of the four areas above that you think is interesting to share in some way.

Opportunities for Embracing Uncertainty

This activity encourages students to listen to what others know and value, and to come to their own position on what they think is worthy of sharing with the class. They may need encouragement to think about change as not being purely progressive and positive: change and innovation can benefit some and not others; at first sight things can appear positive but then prove problematic (e.g. oil and the combustion engine; chemical fertiliser); others are disregarded long before they are valued.

Opportunities for All Students

This activity can be used with students of any age. What will vary is the depth of engagement with the ethical implications of the complexity of change.

The activity requires students to give attention to what might appear to be a beneficial change but may also have an environmental consequence. As well as thinking about the benefits of introducing new technologies, they might also consider changes that demand giving up something or using less of something.

Opportunities for Creativity

This activity can allow for philosophical and deliberative focus on the value of change. For example: Are all discoveries good for society? Was it better to live in Victorian times or now? Does social media and the internet improve people's lives? Can technology save the world?

Opportunities for Linking to Climate Justice

This activity can be used to explore issues of social justice in their own communities and around the world. This might include the following:

- Does everyone benefit equally? (e.g. global access to Covid vaccinations – this link might be helpful background reading: [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(22\)00328-2/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(22)00328-2/fulltext));
- Are there problematic outcomes from new discoveries for particular groups? (e.g. electrical equipment requiring the mining of components that might cause environmental damage and community disruption and/or displacement);
- Are there unintended consequences? For an example, see debates about electric cars that the actor Rowan Atkinson has participated in: <https://www.theguardian.com/environment/2023/jun/08/fact-check-why-rowan-atkinson-is-wrong-about-electric-vehicles>

Vinita Damodaran, Perpetua Kirby, Andy Lowe, Pete Newell, John Parry, Marcelo Staricoff, Adam Vaughn, Rebecca Webb

TOPIC 2: MY OBJECT, MY STORY



Brief Encounter

An object that matters to me and to the world . . .



In this photograph, a student in the United Kingdom is taking their time to handle, smell and speak about a pot made from the seed of the 'Guayacán salero' tree, which had been decorated by young people in Ecuador in ways that enhances its intrigue. The tree has strong associations with critically endangered Great Green Macaws.

1. Select an object that says something about what matters to you in relation to a sustainability topic.
 - This could be to do with biodiversity loss, pandemics, climatic change, seasonality, resource scarcity, carbon emissions, energy, etc.
 - Your object could be something found outside or something from your home (including things passed on through the years).
 - If your chosen thing is too large or global, you can choose an image to convey the thing.
2. Tell others about your object and why it matters to you.

Thinking metaphorically using an image

Opportunities for Embracing Uncertainty

Wide ranging discussions can be prompted through objects that tap into students' varied concerns, experiences and imaginaries about issues related to sustainability. This activity offers an opportunity to find out what it is that matters to them. Follow-up activities and input can respond to their concerns.

The choosing of the object prompts students to think about something valuable to them that could be threatened in an uncertain world and/or something that highlights their concerns about threats to the world or perhaps a love for something they want to be preserved for future generations.

Opportunities for All Students

The invitation to share an object is appropriate for students of all ages. Each will bring their unique and diverse knowledge, experiences and attachments.

Opportunities for Creativity

The choosing of objects is itself a creative endeavour as is the telling of the story of the object. Their story may change and build as they re-engage with their object, and as they share it with different audiences over time.

Students may choose something metaphorical or very literal.

They can be encouraged to ask questions of each other beyond the factual. For example, why is this so important to you? How would you feel if you lost it?

Opportunities for Linking to Climate Justice

Students may choose an object that is reflective of their cultural heritage or something that symbolises a connection with other parts of the world or family members present and past. The variety of objects collected offers an opportunity to discuss different experiences, values and cultural diversity.

If the school has links with those in other parts of the local area, across the country or another country, it might be possible to arrange to exchange objects that matter with others. This can provoke curiosity about the commonalities and differences of experiences and what matters. It would draw attention to different zones of experience and influence, requiring students to think about where they are connected to and how others are connected differently to their own zones. They could be invited to think about a web of connectedness within their own space as well as across other spaces.



Deliberative Encounter

Creating something new from what matters to me



1. Take your chosen object and now change, adapt or embellish it to create something new.

- Choose which materials to use to do this. These might be human made things (e.g. tape, string, coloured bits of paper, material, stickers), natural materials (e.g. leaves, stones, sticks), and/or digital technologies (e.g. photography, animation, digital art).

2. Tell a story about what you have created. You might like to describe your thinking:

- Why did you create this?
- How did you create this?
- Why did you choose these materials or processes?

Creating something new to make deeper connections

Opportunities for Embracing Uncertainty

Through creating something new with their original object, students will begin to make further connections and possibly surface previously unacknowledged thoughts, feelings and ideas. These may relate to their own histories and experiences, as well as to wider social and political sustainability concerns. Students might engage with a range and complexity of feelings and thoughts, which may not be (and do not need to be) fully coherent. They might, instead, demonstrate the complexity and uncertainty of sustainability issues.

Opportunities for All Students

The hands-on creative and personal engagement can work with all students. They can adapt the activity to suit their interests, experience and knowledge. It may involve the telling of simple or complex stories.

Opportunities for Creativity

Students create something original from their chosen object, using their preferred media. There are possibilities to extend this activity in multiple ways, including filming, recording, and photographing the objects as well as the corresponding narrative. This draws attention to the aesthetic presentation in order to invite the engagement and comment of an audience.

Opportunities for Linking to Climate Justice

As with the previous activity, the opportunity to create something new can enable students to engage more with their cultural diversity and own histories. This might be transglobal or deeply situated in one location.



Visual Encounter

Creating an exhibition

1. Make an exhibition of all the different artworks that your class have created about what matters to you. Consider these questions when curating your exhibition:

- Who is your audience? (e.g. families, friends, staff, governors, members of the local community, local decision makers, the local press)
- How will you curate all the artworks in your exhibition? What story do you want to tell with your artworks?
- What labels or other writing will you include and why? What message do you want to send?
- How can you share your exhibition with others? How will you advertise the exhibition?

2. Try to find a connection between your own object and another person's object.

Create the story of how they are connected. This might be a made-up story, a shared experience or connection to something bigger.

3. Can you make a link between your exhibition and the different U.N. Global Sustainability Goals?

Might this be of interest to your audience?

Engaging the community with what matters

Opportunities for Embracing Uncertainty

Creating an exhibition requires students to consider further what it is that they want to communicate, and how might they best do so through the curation of their artworks. They must also negotiate how to do this together with their peers. Whilst students may have a clear message that they want to convey, the challenge for them is not to dictate a set meaning or to generate a moralising message (e.g. *you must do this or that*). It is easy to fall into the trap of simply telling people how they should think, feel or behave.

Opportunities for All Students

In primary schools, students can be offered the opportunity to design the exhibition using their whole classroom as a place for exhibits.

Some students will have wider relevant knowledge and experiences that will allow them to think in-depth about how to curate each work of art for the intended audience.

Opportunities for Creativity

The activity could be undertaken alongside a class visit to a public exhibition, which may prompt further discussion of how the students want to curate their artefacts and why.

Students may want to write their own labels and descriptions, which facilitates further thought about the power of language and storytelling. This will require decisions about what to include and leave out, in order to foster the creative interest of the audience.

Opportunities for Linking to Climate Justice

Students could draw on online research of global gallery exhibitions or their own experiences, to think about the design of their exhibition. They could describe their artworks using any language they prefer, as well as the primary language of instruction. This might strengthen connections to the students' own heritage or the global sustainability issues addressed by their exhibits. By engaging with the [UN Sustainability Development Goals](#), they are encouraged to think globally rather than simply locally.



Exhibiting what matters



1. Think about who you have invited to your exhibition.

- How will you welcome and speak with your visitors when they come to the exhibition?
What do you want to ask and tell them?

2. How will you invite your audience to discuss what the artworks mean to them? For example, you might ask:

- What do you see?
- What do you think?
- What do you feel?
- What might you do differently?

Being open to a diversity of community perspectives

Opportunities for Embracing Uncertainty

Having created an exhibition, the students can now consider how to engage the audience more deeply with their artworks.

The challenge will be to remain uncertain and open to hearing how the audience responds, without being too sure about how they *should* respond. It requires them to be open to listening to things that they may not agree with, things they have not thought about themselves, or to responses that are highly unexpected. Are they open to having their own perspectives change by listening to others?

Opportunities for All Students

It may be useful for some groups to send a preview of the work being displayed for a discussion at home before parents/carers visit the classroom gallery. This gives each student the chance to share their object and meaning of it with their family in a more intimate environment. The activity offers all students the opportunity to engage in discussion with their community but some more than others will take up the opportunity both to listen and to deliberate with others.

Opportunities for Creativity

After the exhibition, the students could be encouraged to reflect on the impact that their artworks and their curation had on the audience, as well as on themselves. How did they feel? What was most powerful? How did others engage? What surprised them? Would they change anything next time?

Opportunities for Linking to Climate Justice

The exhibition creates an opportunity for families, carers, friends, and potentially local professionals with relevant expertise and local decision makers, as well as others from diverse backgrounds, to engage with and to respond to the students' concerns through their exhibition. By inviting the response of the audience, and being open to a range of responses, the exhibit signals an embracing of the diversity of the community. The purpose is not to instruct but to inform and to engage with multiple challenges and perspectives.

Fliss Bull, Perpetua Kirby, Andy Lowe, Odi Oquosa, Marcelo Staricoff, Rebecca Webb

TOPIC 3: ENCOUNTERING ENVIRONMENTS



Brief Encounter

Creating networks

You will need a large ball of string or twine:

1. Stand in a circle, facing inwards, with one person holding the ball.
2. Give the ball to someone to start. This person throws the ball to someone else, while holding onto the one end (this is important – don't let go!)
3. As you throw, say something that you are dependent on or else something that is dependent on you. This might include a person, an animal or plant, or something else.
4. Each person takes it in turns to throw the ball to someone else. Each time you throw you must hold on to the end of your bit of string, and say something you are dependent on or that is dependent on you.
5. As you throw the ball, you will notice a web of string being formed between you: keep the string taut to hold the web above the ground.
6. Once you have all had a turn, carefully lower the web down to the ground, keeping it taut at all times. You will need to work together to do this.
7. The web you have created mirrors the hidden underground mycelial networks that link plants and trees to keep them healthy.
8. Close your eyes and use your senses to notice what and how you are connected to other things or people around you. What do you notice?



**Creating an intricate and interconnected network,
using the human and nonhuman**

Opportunities for Embracing Uncertainty

The purpose of this activity is to notice connections and to gain a sense of how we are part of a wider world (requiring human collaboration and *interbeing* connections). Firstly, it relies on group collaboration,

with uncertainty about what happens if someone drops the string. The activity also depends on all those involved attuning their senses, concentrating, quietening the mind, and beginning to soften the boundaries between the 'self' and others. Uncertainty lies in what different students might sense, notice and draw attention to. It also lies in how much students allow themselves to be vulnerable.

Opportunities for All Students

Very young children will require smaller groups, and thicker rope, and they can have a lot of fun getting caught up together. This still allows them to imagine how different beings are entangled in the world in ways that we all depend on. Others might explore in some depth the different ways in which humans are dependent on other beings and things that are not perceived, noticed or valued in a fast-paced daily existence. Listening to sound using cups joined by string would make a good accompanying activity for some students.

Opportunities for Creativity

This activity lends itself to creating art works: this might include string prints, weaving or a montage of found objects to create webs of connection between different sorts of natural materials, and with humans: linking humans with the rest of the living world. To create this work, the students might begin with themselves, and freely associate other humans, precious objects, natural objects or even ideas that are connected to them in some way. They can think how they might represent these as part of an artwork. These links might inspire: <https://www.pinterest.jp/pin/202873158186377126/> or <https://www.pinterest.jp/pin/345369865143876154/>

Opportunities for Linking to Climate Justice

Using all the sense allows for a diversity of ways in which we know the world. Consider adapting as follows:

- **For touch:** students could take it in turns for one person to tug gently and others call out the name of who they think it is (this could get raucous)
- **For sound:** everyone listens for 3 minutes with eyes closed. In this time, the teacher taps 3-5 children on their back. What did you hear, what or who was making the noise? Was it by accident or on purpose? If on purpose, why did they make the noise, for who? How did it make you feel?
- **For smell:** can this only work outside, or what might be smelt inside?



Deliberative Encounter

How can listening help us to explore and appreciate our place in the environment?

1. Listening warm-up

Sound memory

Can you name 5 sounds that you heard on your way to school? Were they made from other living things (biophony)? From weather or natural processes in the landscape e.g. wind and rain in the trees (geophony)? Or by human-made machines (technophony)?

Inside listening

Sit or lie down in class and listen for 5 minutes. Do not talk. Try to be still. What sounds can you hear very close by (your clothes, your friend's breathing)? What is the furthest sound you can hear? What sounds are happening in-between?

- Share 3 sounds each: close, far and in-between

Try it again, this time with your eyes closed.

- Share how this affected what you heard. How did it affect how you felt?

Soundwalk

A soundwalk is where you focus on the sounds around you and immerse yourself completely in the environment that you are in. The aim is to become aware of your environment through listening and to become aware of your own sounds (voice, footsteps, etc.) in the environmental context.

- Share what you heard or thought or felt that surprised you.

2. Soundwalk for environmental connection

Walk in silence for 5-15 minutes. Tune your attention and listen to all the sounds around you and made by you. Try to walk in silence.

Here are some ideas to help focus your attention:

Listen to sounds close by and far away.

Walk gently and listen to the sounds that you make as you walk and to the sounds made by others nearby. Can you walk so that nobody might hear you? Can you detect the sounds of different shoes and clothing fabrics?

- Stop in one place and close your eyes. What do you think is the furthest sound you can hear? How far away might it be? From which direction do you think it is coming?
- If the path is clear and the space is safe, in pairs take it in turns to close your eyes whilst the other guides. Can you *hear* your way through the environment? How does this change how you hear? And how does this change how you experience being in the world?

As you walk listen carefully to everything you hear:

- Where is the sound coming from?
- Can you identify what is making the sound?
- What is the texture of the sound? Is it loud, quiet, smooth, shiny, how would you describe it? Could you draw it?
- How does it seem to fit with the other sounds you can hear? What makes you say this?

Listening as a practice of deep attention to gain new insights

Opportunities for Embracing Uncertainty

The uncertainty of this activity is that it involves a common experience (that of listening) which can have profound effects that are unique to each person. Deep listening surfaces different connections and associations with the environment, and it can draw attention to other species and interspecies connections (this can include, for example, an appreciation of how animals might experience the loudness of human made sounds). The sounds emerge in the moment: they are unpredictable and often uncontrollable; some sounds are constant while others have a regular or fleeting quality. The activity is not about correctly identifying sounds (although students may do so or want to find out more about what they hear), but about how they resonant individually and as a group.

Opportunities for All Students

The length of a walk will depend on its appropriateness for your class. You might want to split groups up, if that makes it easier, or work in 5-minute blocks of silence with time for students to discuss what they hear in between. Some students may identify sounds according to pre-defined categories of biophony, geophony, technophony: how did that change as you walked through different environments?

Opportunities for Creativity

There are multiple options to adapt this activity creatively. For example: 1. Draw the sounds and the whole soundscape. 2. Record sounds on a phone to listen back to later in class to reflect on how they are experienced differently in the two contexts. 3. Explore playful directions, as follows:

- Lie down on your back on the ground for 5 to 10 mins. Lie still with your limbs relaxed and apart, as if you were dead. Sound is vibration heard through our ears. Can we *feel* sound through our *bodies*? Relax your body completely but keep your attention alert. What sounds are you aware of with your ears? What sounds are you aware of with your body?
- “Walk as if your feet had ears”. Relax your body and put all your attention in your feet. What can you hear through your feet?

Opportunities for Linking to Climate Justice

This activity support students to consider different perspectives, including of other people, species and landscapes. Students can be asked: How does the experience of listening change according to your

environment (e.g. being in town or in the park)? How did closing your eyes change your experience? How might those with a visual impairment, or a sensitivity to sound, experience the environment? Has listening deeply changed your experience of a familiar environment? How might other species experience human made sounds?



Sensory Encounter

How do different people value their 'soundscape'?

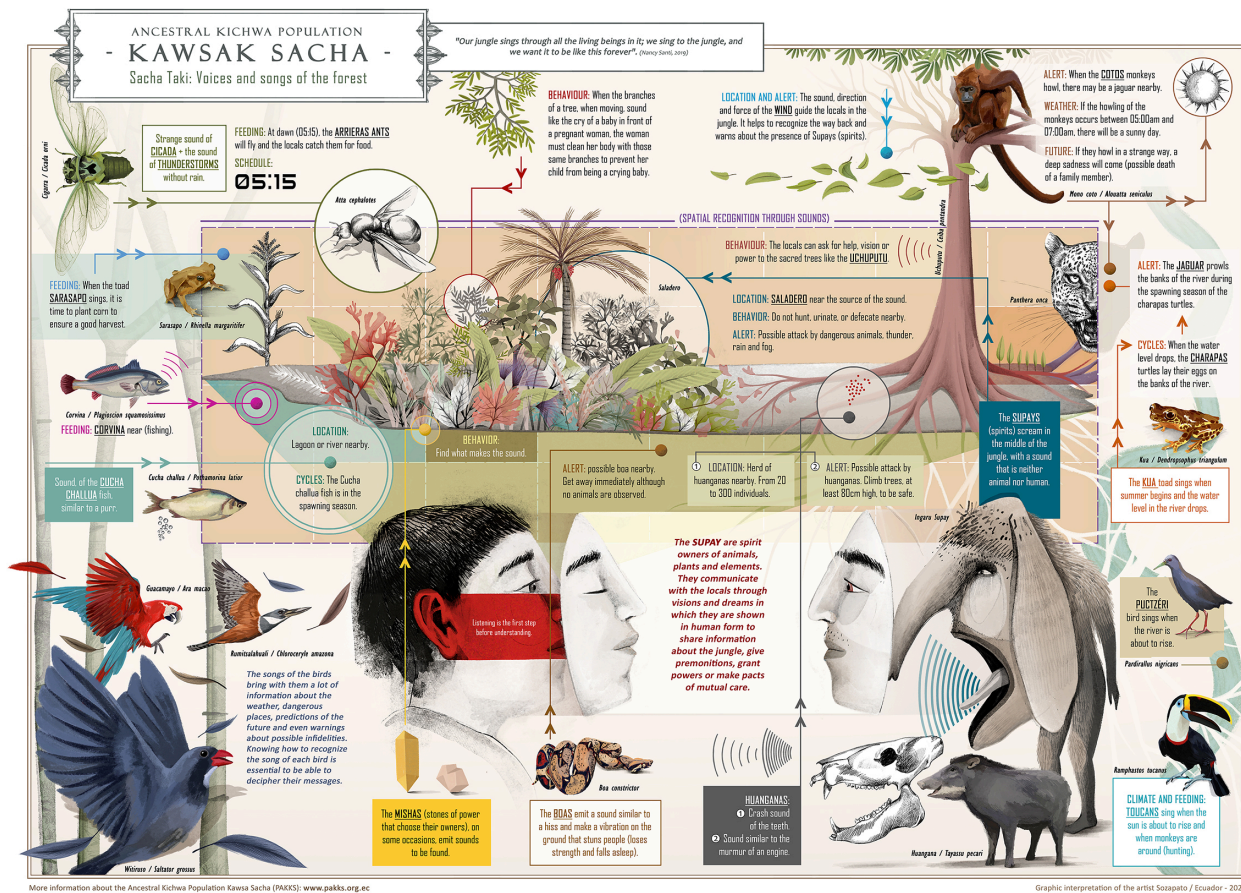
Watch the Sacha Taki film *Songs of the Forest*:

<https://sachawarmi.org/en/sacha-taki-songs-of-the-forest/>



One or more interactive elements has been excluded from this version of the text. You can view them online here: <https://openpress.sussex.ac.uk/creatingwithuncertainty/?p=111#oembed-1>

- What does *Songs of the Forest* mean?
- Who sings the songs?
- How do the songs guide the daily lives of the people of Kawsak Sacha?
- Are there any Songs of the Forest left in your local town?
- Who sings them and what do they tell you?



Sacha Taki: Voices and songs of the forest. Copyright Sozopato 2021. All rights reserved. Used with kind permission.

Practices and cultures of listening

Opportunities for Embracing Uncertainty

The film and handout draw attention to how sounds signal uncertainty, as well as the need to be alert to specific responses which might require immediate and urgent action. Students might like to think of sounds in their own environment that communicate something specific, including danger (e.g. fire alarm) or urgency (e.g. school bell), and how sounds can be heard at particular times (e.g. day/night; seasonally) and in specific places. Uncertainty is also evoked by cultural variability (see the section below).

Opportunities for All Students

Many students might benefit from watching the film in 5-minute chunks and being given the chance to respond after each viewing. For some, if the film is too long, an extract can be shown. Those students who cannot read the subtitles can watch and listen for the multitude of sounds: what is it that they notice, and

what feelings do the sounds evoke for them? Other students can discuss their responses to what is both heard and read on screen, as well as to the content of the handout.

Opportunities for Creativity

Some students might make the sounds themselves using existing or own-made instruments. Some could work as a group to draw and illustrate a map, similar to the handout, for their own environment: what decisions would they make about what to include and why?

Opportunities for Linking to Climate Justice

This activity highlights how sounds are valued, and the ways in which their meanings can be culturally specific and diverse. It draws attention to the different sorts of precarity experienced by humans and other species in particular environments, contexts and times. An extension of the activity is to think of interconnections with each other: across society, cultures, nations. Another example to link to is the Australian Aboriginal songlines: for thousands of years, Aboriginal people have had no language or maps and have instead narrated their landscape through song.



Beyond the Classroom Encounter

Listening to the lives of other beings in a rewilding landscape

Most people now live in cities where there are fewer other species around us. Plants and other animals are critical to the health of the environment and to the survival of humans. Across the United Kingdom, scientists are studying what happens if we stop controlling nature and let other species take over areas of land. One such place is the [Knepp Estate](#), in West Sussex.

In May 2022, a pair of beavers were introduced to a small brook that runs south-north through the estate. Beavers are ecosystem engineers: they coppice shrubs and trees to build dams. The

dams built by these two beavers are already altering the flow of water and creating a wetland area.

Researchers at the University of Sussex have installed a solar-powered live audio feed just north of the dam. A pair of hydrophones brings us closer to the sounds of the water itself and tiny fresh-water organisms. A pair of microphones in a fallen willow tree monitors the birds and mammals that live nearby and that visit the water. It also records the play of weather in the trees.

You can tune in any time of day or night to listen, and across seasons, to all the beings that live in or visit the stream. You can listen in to the sounds made in the air or under water. It is best to use headphones, or stereo speakers, but it is fine to listen on a phone. <https://wilding.radio/>

Listen for 5 mins in the morning and 5 mins before you go to bed.

- What or who do you think you can hear?
- What might they be doing?
- Do you think they might be communicating with any other animals?
- How do the sounds make you feel?
- Can you imagine the space in which the sounds are made?
- What questions, comments or feedback do you have for the scientists?

Listening through time and space

Opportunities for Embracing Uncertainty

Scientists do not know the answers in advance to what they are researching. Students will not know what they will hear, as the environment is constantly regenerating. It allows them to consider a world without humans, that is paradoxically managed very closely by them. This space is also intimately linked to humans, in ways that could not have been before, through the advancement in sound technologies. The rewilding of the land is creating something completely new with all the uncertainties that this brings. There is most activity in the spring, but this could be a point of discussion about the seasonal change and how this might vary with climate change.

Opportunities for All Students

This activity is appropriate for all students. Some might listen whilst playing and the sounds might become integrated into imaginary worlds for them. Others might be drawn more to the scientific interests that the

sounds evoke for them. Some students may need to be reassured not to worry if they get distracted by thoughts when listening: invite them just to notice that they are having a thought and then to put their attention back onto the sounds. Some might practice this everyday and notice changes over time, including how their own energy levels interact with how sounds are perceived. If doing this activity in class, you might ask students to listen and play with the sound controls, inviting an initial response before sharing and discussing the provided background information.

Opportunities for Creativity

Students try out listening while lying down, standing, upside down, etc. They might like to try the following:

- Listen where they are undisturbed.
- Start by relaxing their body: everywhere, completely.
- Do the sounds have movement, colour, texture? How do they make students feel?
- Sound is vibration, can students *feel* the sounds come into contact with their body?
- Instead of sending one's attention out to the sounds, let the sounds come to you.
- Can students feel different sounds on or in their body? How does it make them feel?

We recommend some further online resources from *Emergence Magazine*, particularly the work of David Haskell:

<https://emergencemagazine.org/practice/the-aromas-of-trees-five-practices/>

<https://emergencemagazine.org/practice/listening-to-the-language-of-birds/>

Also, some stories:

<https://emergencemagazine.org/essay/the-voices-of-birds-and-the-language-of-belonging/?fbclid=IwAR1iarmod5csrK9Itzl9OJy2ddbWQ5YO0c6THY0nDIhsCriS9g1BLW9msyc>

If you enjoyed listening with your class, you might explore Minute of Listening:

<https://www.minuteoflistening.org/>

Opportunities for Linking to Climate Justice

This activity is about attending to other species and how their sounds communicate something (both to us as humans and to other species). It invites students not to place themselves in the centre of the world – something that has arguably been the cause of reckless human harm to the planet – but to see themselves living alongside other species. This could start a discussion around ego-centrism vs eco-centrism: How would it feel to live in a world where humans are a part of the ecosystem, not always on top, trying to control it?

Alice Eldridge, John Parry

TOPIC 4: FOOD SHOPPING



Brief Encounter

Imagine you run a shop . . .

You are in charge of a brand-new food shop that is about to open in your area. You have decided to make your shop really interesting and different to other shops by changing the way that food products are grouped.

1. Think about the ways in which shops you are familiar with group their products.

- Why do you think they group them in the way they do? Sometimes shops change where products are grouped and placed – why do you think this might be?

2. How many ways can you group the foods sold in the shop? For example:

- Food Groups (e.g. fruit; vegetables; dairy)
- Size
- Colour of label
- Countries of origin
- Cost
- Any other way?

3. Think about how groupings can convey a message.

For example, 'locally sourced', 'organic' and 'recycled' suggest that these products are good for

the environment. Can you think of any other groupings that might give customers a message about helping the environment? You might think of groupings already used in shops or you might think of new ones.

4. In what ways do you think your groupings might **help** or make it **harder** for a) the customer and b) the shop manager?

Shop manager – grouping products

Opportunities for Embracing Uncertainty

There is an infinite number of ways for shops to group their produce and yet they all typically use similar groupings. These will have been found to help customers source products as well as to maximise profits. Sustainability challenges require us all to think in new ways, including shop managers and their customers. This activity first engages students with the decisions that shop managers must make when sorting produce. It then encourages them to re-imagine possibilities for alternative groups that place a premium on sustainability. It invites everyone to reimagine possibilities.

Opportunities for All Students

This invitation is appropriate for students of all ages and focuses on both a familiar context (a shop) and grouping activity. For younger students, the classroom can be converted into a shop – using actual or pretend products made by themselves – to group. It might be useful to ask some students to think about a shop that they know well and to map it out, draw it or simply to imagine it in their mind's eye. Some may need to look at images of shops on the internet or even to visit a shop either with teachers or family. This activity links to a curriculum focus on healthy living and eating. Many students can be encouraged to reflect on the complexity of different groupings (for both customers and managers) and possible messages that they convey.

Opportunities for Creativity

There are numerous opportunities to develop creative and philosophical thinking through this invitation. Students may consider how habits of shopping are changing from the existing practices that we are used to, including where, when and how to shop. For example, shops where it is possible to refill packaging, online shopping sites, and the possible wider social and community implications of shopping (e.g. shopping in small local shops). They may explore tensions between the ethical and practical possibilities, for example.

Opportunities for Linking to Climate Justice

Students can share family shopping experiences, including what they buy and from where. Some may share other country shopping experiences, whether through visits or knowledge of extended family practices. How are foods grouped elsewhere (e.g. souks; animal markets; people selling from their homes)? Why might this be done differently? What varied messages may these practices convey? Students could also explore the concept of shopping without money, such as the Lewes pound (<https://www.thelewespound.org/>).



Deliberative Encounter

Making decisions and buying a group lunch

Working in groups, you have to buy lunch with a budget of £4 for each person. Which of the following factors will influence your decisions about what to buy?

- **Nutrition:** how nutritious is the meal and does this matter to you in any way? (Healthier products usually cost more than less nutritious products with a high sugar content and other refined carbohydrates).
- **Dietary needs:** does anyone in the group have allergies or other dietary conditions that restricts what they can eat?
- **Animal welfare and environmental concerns:** is anyone in the group flexitarian, pescatarian, vegetarian or vegan? Is free-range a priority for you?
- **Dietary preferences:** what is it about the food that you like? For example, is it the taste or texture, or is it familiar to you?
- **Aesthetic preferences:** food producers put in a lot of thought into how their products look. And some supermarkets only choose fruit and vegetables that have regular shapes and discard 'wonky' samples. How much does the look of the food matter to you?
- **Shop preference:** is there a shop that you prefer to shop from and, if so, why is this?
- **Availability:** some foods are not always available in the shops, due to a range of factors including: seasonality, environmental factors such as drought, global food supply chains

(which are themselves disrupted by pandemics, wars, lack of migrant agricultural labour and other logistical factors)

- **Brand preferences:** why do you prefer a particular brand, and how is it presented to encourage you to buy it?
- **Cost:** how will you use the money to buy a group lunch – will you pool the money, buy for each person or some other way? You could search the cost of items online from your local supermarket, and even compare the cost across different shops.
- **Food miles:** does it matter how far food has travelled or not? (It is difficult to calculate food miles because there are so many things to consider. For example, the type of transport – plane/boat/train/lorry – and whether foods need to be refrigerated when transported.)
- **Buying local:** to what extent is it important to you to buy products grown or produced by local people, organisations or companies?
- **Recyclable packaging:** does it matter how much of the packaging is easily recycled?
- **Boycotts:** are there some ingredients or products you refuse to buy (e.g. palm oil) or some countries you refuse to buy from? – if so, why?
- **Growing standards:** products grown without pesticides and other chemicals often cost more, so how important is it to you to prioritise growing standards?
- **Workers' standards:** do you consider the rights for workers who make or grow the products? Products often cost more when employee wages and working standards are prioritised by companies.

Engaging with the complexity of food purchases

Opportunities for Embracing Uncertainty

Placing students in a position of uncertainty that includes constraints is challenging and thought provoking. In this case, although they can choose anything at all they like, the constraint is that they can only spend a maximum of £4 per person. Students are encouraged to consider multiple 'choice' possibilities, including the ethical dimensions of shopping, and to come to a final decision that navigates the tensions between needs, desires, beliefs and cost. There is no easy way to do this.

We have become so used to the certainty of food availability, but this can change. It might be interesting to explore what the uncertainty of variety and quantity of food might look like in the future; its possible causes and implications, including possible ways to ensure greater food security locally.

Opportunities for All Students

The list of factors can be varied depending on the student group. The activity can be simplified for those groups who need it. For example, by removing the management of money (or else making this very simple) as well as limiting the factors that they might consider as a group.

Students could be asked to choose one factor (such as *Workers' standards* or *Buying local*) in the list to create a [concept cartoon](#): this is where four people offer different points of view all relating to the same theme, and the class then discuss the merits of each suggestion. To encourage deliberation, students can be asked to rank the four suggestions in the concept cartoon, from most to least important, and to discuss their rationale as they do so.

Some useful resources:

Food miles calculators: <https://www.foodmiles.com/more.php>

Book containing carbon footprint calculations of different products: <https://profilebooks.com/work/how-bad-are-bananas/>

Organisation supporting British food producers: <https://redtractor.org.uk/>

KS2 resource on plastic packaging: <https://www.bbc.co.uk/bitesize/topics/zshp34j/articles/z6m7vk7>

Organic foods: <https://www.soilassociation.org/take-action/organic-living/what-is-organic/>

Organisation promoting workers' health, welfare and employment: Rainforest Alliance: <https://www.rainforest-alliance.org/> and Fairtrade Foundation: <https://www.fairtrade.org.uk/>

Report on the affordability of healthy diets globally: <https://www.who.int/publications/m/item/state-of-food-security-and-nutrition-in-the-world-2020>

An example of global food logistics is the tanker that was stuck in the Suez Canal: <https://www.bbc.co.uk/news/world-middle-east-56505413>

Opportunities for Creativity

Students engage in philosophical thinking by taking an everyday activity (shopping) and drawing out wider implications of how to live on a planet with limited resources (both financial and material). Students could be encouraged to consider the role of creative industries (advertising, social and other media, music, arts, books, etc.) on their shopping choices. To what extent, and in what ways, do they feel consciously or unconsciously persuaded? How might this be achieved? They are likely to have very different perspectives.

Opportunities for Linking to Climate Justice

This activity works particularly well with diversity: students must work as a group, taking account of the others' needs, as well as their cultural and other preferences. Students might discuss cooking with raw ingredients and sharing family recipes. It gives scope to draw out global perspectives on food choices. This includes country of origin, boycotts and workers' standards. This may draw attention to the sustainability

tensions of importing foods (e.g. food miles and growing practices). What proportion of the products are from the UK? How many countries are represented in the food the shop sells? Are the food miles justified in some cases but not in others? Is genetic modification of food a good idea? Is there enough food to feed the whole world? A useful film for more advanced students on this last issue is *The Paradox of Hunger in the World*: <https://www.youtube.com/watch?v=BZRFvmjfDs>



Visual Encounter

The art of persuasion

1. Find a Ribena advert image online or watch this Ribena advertisement:



One or more interactive elements has been excluded from this version of the text. You can view them online here: <https://openpress.sussex.ac.uk/creatingwithuncertainty/?p=113#oembed-1>

<https://www.youtube.com/watch?v=pyrptISjqck>

2. When you look at the image or watch the film:

- What do you see?
- What does it make you think about?
- How does it make you feel?
- Why do you think Ribena has chosen to include these different images or words?
- What messages are they trying to give?
- Which age group are they trying to appeal to?

3. If you were able to interview someone from Ribena, what questions would you ask them about the advertisement, the brand

and the drink?

4. Does the advertisement address any of the considerations discussed in the earlier activity when you had to choose a group lunch?

- Think about whether Ribena would be included in your £4 lunch. On what might you base your decision?

The power of storytelling

Opportunities for Embracing Uncertainty

Advertising, like all creative industries, tells stories. Storytelling is inherently uncertain because how the story is read can vary widely. It can be powerful for students to place themselves in the position of the people creating an advertisement to consider how messages are created through words and images, for what purpose, and to what effect. The activity enables students to think more deeply about their own purchasing decisions, and how they might take up or resist the messages being promoted.

Opportunities for All Students

Some students can be invited to tell their own story from the advertisement images. They could also select an advertisement with which they are very familiar (e.g. associated with items from their lunchboxes) to tell a story. Consider using role play for the interview activity; try using hot seating (https://www.teachprimary.com/learning_resources/view/primary-resource-hotseating-in-drama) or De Bono's hats (<https://www.bbc.co.uk/bitesize/guides/zxyxtyc/revision/11>) for this too. For the latter, the person being interviewed can be placed in a position where they are expressing their thinking through six different 'hat' scenarios that tap into 'knowledge', 'feelings', 'new ideas' etc.

Opportunities for Creativity

Students can explore the *art of persuasion* in society through different means. As well as advertising, this might include a focus on celebrities and social media influencers. They might also compare product advertising to the techniques used by politicians to persuade people to vote for them. Students might draw on their school council to think about how they aim to influence others, as well as talks, leaflets and canvassing. What do students feel is effective and why? They might extend discussions to think about

how different stories are told about climate change, including those told by politicians, environmental campaigners and the media.

Opportunities for Linking to Climate Justice

When discussing the advertisements, the students can explore who is being targeted and whether the images or text appeals more to particular groups than others. Those from different cultural and language backgrounds can speak about how the image might say something different to them. Students could also share an example of advertising from different countries, cultures or times, and explore differences in approaches used: for example, is humour used differently?



Beyond the Classroom Encounter

Creating your own advertisement

Your task is to create your own advertisement for something that you frequently eat at home.

1. Look back at the factors that you discussed when deciding what to buy for lunch. Which of these factors do you want to promote to shoppers? Why? How might you do this?
2. Think about which group of people you trying to appeal to. You can create an advertisement for television, radio, social media or print.
3. When you share your advertisement with your class, see if others can identify what factors you highlighted as important for you.

Exploring what matters

Opportunities for Embracing Uncertainty

Through creating their own advertisements, students must think through what it is that matters to them

and that they want to promote to others. This is complex and personal, and it requires justification, but there is no right or wrong answer. There is also no guarantee that their message will be heard or heeded. There might be unintended consequence that could be useful to consider when discussing designs, such as allegations of copying pre-existing brands or images; offending some people's tastes or sensibilities; accusations of inappropriate age targeting; or audiences reacting to a perceived greenwashing, moralising or instructional tone.

Opportunities for All Students

Students of all ages can design or depict something that they value. Some may find it hard to think what will appeal to others when creating a design that also persuades others of the value of the product: they can be asked what matters to them about the product and how they have shown this in their design. They could ask each other to say what they think of it, and to consider how people have different thoughts and feelings. Some students may also find it challenging to consider their audience, but the activity is designed to draw their attention to this.

Opportunities for Creativity

The themes that need to be considered when designing an advertisement are incredibly varied and promote creative and philosophical thinking. For example:

- What are the ethical issues encountered when deciding what to include/exclude in their advertisement?
- Is advertising ever ethical?
- How much of a product should an advertisement reveal?
- Should advertisements reveal possible health, wellbeing and environmental harms?

Opportunities for Linking to Climate Justice

This activity can prompt discussions about how the world of advertising not only varies across regions and countries but over time. Students might want to consider how global sustainability challenges have influenced current advertising, as well as how 'nature' has been used historically in advertising, and why. The activities allow students to surface how advertisements might 'work' (or not). They might consider the value of such work given the advancement of artificial intelligence (AI) and why knowing sources, their intentions and methods becomes important.

Perpetua Kirby, Andy Lowe, John Parry, Marcelo Staricoff, Rebecca Webb

TOPIC 5: APPLES



Brief Encounter

Apples and us: how do you respond to apples?

1. Listen to the meditation on an apple (below) being read aloud and take a moment, remaining silent, to take in and experience what you have heard.
2. Use your senses to describe how apples feel, look, sound, smell, taste to you.

How do they make you feel?

What do they make you think of?

3. Create a Haiku to convey your experience of apples.

You might find inspiration by looking up the hundreds of different apple varieties and their unusual names, or by looking at other writing about apples – here are two examples:

Turn this way!

I too feel lonely

Late in autumn

Matsuo Basho

an apple a day

will keep the doctor away
well that's what they say

Angela Kirby

For the love of apples: a meditation



Hold an apple in your hands, shut your eyes, breathe in its scent, imagine how it will feel to bite into the crisp flesh, taste that sweet freshness, allow its juices to trickle down your thirsty throat.

Now open your eyes, caress your apple's smooth cheeks, reflect on its journey, how all its forbears come from ancient trees that grew long, long ago in Kazakhstan,

Uzbekistan, Afghanistan, beautiful names for distant places. There they were treasured and tended lovingly for thousands of years. Now we too attend to our orchards, giving thanks to those long ago ancestors who unknowingly bequeathed this precious fruit to us. We remember the bees, wasps and moths that pollinate the trees, and the unseen soil community of bacteria, protozoa, yeasts, fungi, worms, beetles and mites.

Imagine all the children who have raided those orchards, shared their guilty pleasures, and remember too those elders who brewed rough powerful scrumpy and smooth sparkling ciders to ease their working days.

How far you have come, my sweet red apple, how widely you have spread, how many young you have spawned from those small black seeds that nestle in your heart. You are not proud, you allow bees deep into your blossom, let birds and beasts eat your flesh, spatter your magical seeds generously across the world, you permit children to fight or play 'catch' with you, leaving your seeds and broken flesh to settle in fields, hedgerows and ditches, you reach out to the poor, to the hungry, to the traveller, nurturing refugees, soldiers and sailors far from family and home. With you in my pocket, oh lovely apple, I shall go happily on my way.

Fostering an affinity for everyday foods that we can take for granted

Opportunities for Embracing Uncertainty

This activity requires students to slow down to pay attention to the wonders of those things we take for granted. You may want to do the activities outside to connect to senses and to transport the imagination to where an apple might be grown.

Growing foods calls on an ability to care and attend to the needs of the plant or tree, while recognising that we, as humans, are not fully in control of what might happen. With apples, this includes its journey through time and space, how much fruit might be produced, possibly as a result of threats from pests or weather conditions, the prevalence of pollinating insects, and how its taste can vary yearly.

Opportunities for All Students

This invitation is appropriate for students of all ages. Some will enjoy the pleasures of feeling, tasting and thinking about apples. For others, this activity also encourages them to relook at something that they might think they know well, to consider what more might be revealed. They might extend this practice of paying attention to thinking about other aspects of their studies or lives, where a slowing down allows a renewed perspective. A longer beautiful apple meditation can be found at the following site (we recommended shortening it to include only paragraphs 3, 4, 9, 10, 11, and 15 from line 3): <https://www.ecoliteracy.org/article/meditations-apple>

Opportunities for Creativity

Haikus provide a tight structure, within which there are infinite possibilities for imagination and creativity (which is itself a paradox). Information on different apple varieties and names can be found here: www.nationalfruitcollection.org.uk. When first attending to their apple, there may be possibilities to cut it open offering a link to fractions. Cutting horizontally reveals the wonder of the star shape of the core: this geometry might prompt connections to mathematics and to other five-pointed stars in nature (e.g. Morning Glory flowers, starfish, raspberry sepals).

An alternative starting provocation is to ask students to write the first thing that comes to mind when the word ‘apple’ is spoken: explore how many identified a fruit; a technology company; a Garden of Eden association within Judaism, Islam and Christianity; or something else. This can be used to discuss apples as metaphors, which might lead to a discussion on the power of branding and the use of nature to sell products.

Opportunities for Linking to Climate Justice

The haiku, which is itself a cultural variation of poetry, lends itself to engage with the diversity of language used to name and describe apples in multiple languages. This challenge provides an opportunity for students to act as apple researchers. For example, they can investigate how apples are migrants, rather than indigenous to the UK, originating from the east. These sites might be helpful:

<https://www.britishapplesandpears.co.uk/>

<https://www.bbc.com/future/article/20160523-kazakhstans-treasure-trove-of-wildly-flavoured-apples>

<https://www.bbc.com/travel/article/20181120-the-birthplace-of-the-modern-apple>

More advanced students could engage with Henry Thoreau’s (1862) *Wild Apples: The History of the Apple Tree*, exploring the question of why wild apples are significant, which also includes references to different practices across times and cultures, including ‘apple-howling’: <https://www.theatlantic.com/magazine/archive/1862/11/wild-apples/411517/>



Deliberative Encounter

Can you consider environmental scenarios from different perspectives?

1. Watch this film about a couple of orchards:

<https://brightonpermaculture.org.uk/orchards-and-fruit/our-work-with-orchards-and-fruit/#>

Whilst watching the film, pay attention to the following:

- Notice how different humans experience the orchard.
- Have you ever been in an orchard? What did you do there? How did you feel?
- If you were in an orchard now, what would you want to be doing?
- Have you both given similar or different answers?

2. Share with a partner what you noticed, thought and felt, and listen to what they tell you. Did your partner tell you something that you'd not thought of before?

3. Now reflect on these questions:

- What key messages did you take from the film? What did you think or feel about what was communicated?
- Think about and discuss the value and challenges of diversity in your own community?

Uncertainty as a driver of new knowledge

Opportunities for Embracing Uncertainty

This film reveals the importance of a diversity of species, including varieties of apples and different plants and animals. It also shows the interdependence between the human and nonhuman worlds, where we require foods to survive, but must cultivate conditions for foods to grow. Humans also enjoy and benefit from the ambience and richness of the orchard setting, which become places for a slowing down, where unexpected, emotional and existential encounters might happen.

Opportunities for All Students

This activity is suitable for all students. Some may draw on their experiences of trees, being outside and eating fruits, to help them reflect on how orchards might make people feel and what they have to offer human and nonhuman communities. Others can think deeply about the range of diversity issues in the film (see below). The film emphasises resilience and diversity as opposed to monocultures, and students might consider the challenges to growing apples as result of climate change and biodiversity loss (e.g. disease; pollinator population collapse; late frosts; storms; drought).

Opportunities for Creativity

The film can be used to prompt several opportunities for developing creative thinking: What part do orchards play in our local community? What are the challenges of running a community orchard? Can we create an apple press at school? What knowledge would we need? Who would we consult? How can we make this happen?

Opportunities for Linking to Climate Justice

The orchards in the film are used by a diversity of community groups, including those of different ages, social class and experience. Some students can explore diversity through making connections to biology and ecology; exploring human dimensions of social and cultural diversity; and considering how diversity of habitats as well as different knowledges and cultures might help to address climate change.

Uncertainty Pollinator Session

Below is a companion activity exploring the uncertainty of bee survival including the impact of habitat loss and bees having to travel further to collect nectar.

1. Pollinators, such as bees, moths and hoverflies, are declining. Scientists suggest some reasons for bee decline, but there is also a lot of uncertainty about the scale of decline in some places in some circumstances. What can you find out, what don't you know, what are you left wondering?
2. Split your group into half. Half of you dress up as flowers (e.g. flower hat/crown) and half dress up as bees (e.g. antennae). The flowers should spread out a bit so that the bees have to run some way between them.

The role of the flowers is to attract the bees, who will visit them and collect pollen (fuzzy balls) and carry it to another flower, pollinating it. The role of the bees is to visit a flower, collect and take away some pollen from their hand (e.g. sticky arm band) and deliver it to another flower. To make this more complicated you can have flowers of different types (e.g. different colours), and a flower can only be pollinated by pollen from a flower of the same type (e.g. the same colour).

Once pollinated (i.e. once receiving pollen from a bee) the flower should crouch down and

develop into a seed and then a fruit. Think about how you will represent this (e.g. by acting, using a picture, an object or piece of clothing).

To attract the bees the flowers have nice colourful petals and strong scents, but in this game they can also use their voices to call to the bees and say nice things to them. What will the flowers say to attract the bees?

The aim is for the flowers to get pollinated as quickly as possible. To make it more urgent you can give a time limit to the game but try to make sure every flower does get pollinated.

3. When you have run the game once and the bees have had fun running about, you repeat it but with only about half the number of bees.

As the antennae are ceremoniously removed from half the bees' heads, discuss reason for their populations decline (e.g. you ran out of food, you were poisoned by pesticides, you got a disease). This time many of the flowers will not be pollinated within the allotted time as there are not enough bees to travel between the flowers. Alternatively, you could keep the same number of bees, and the same time limit, but spread the flowers out further.

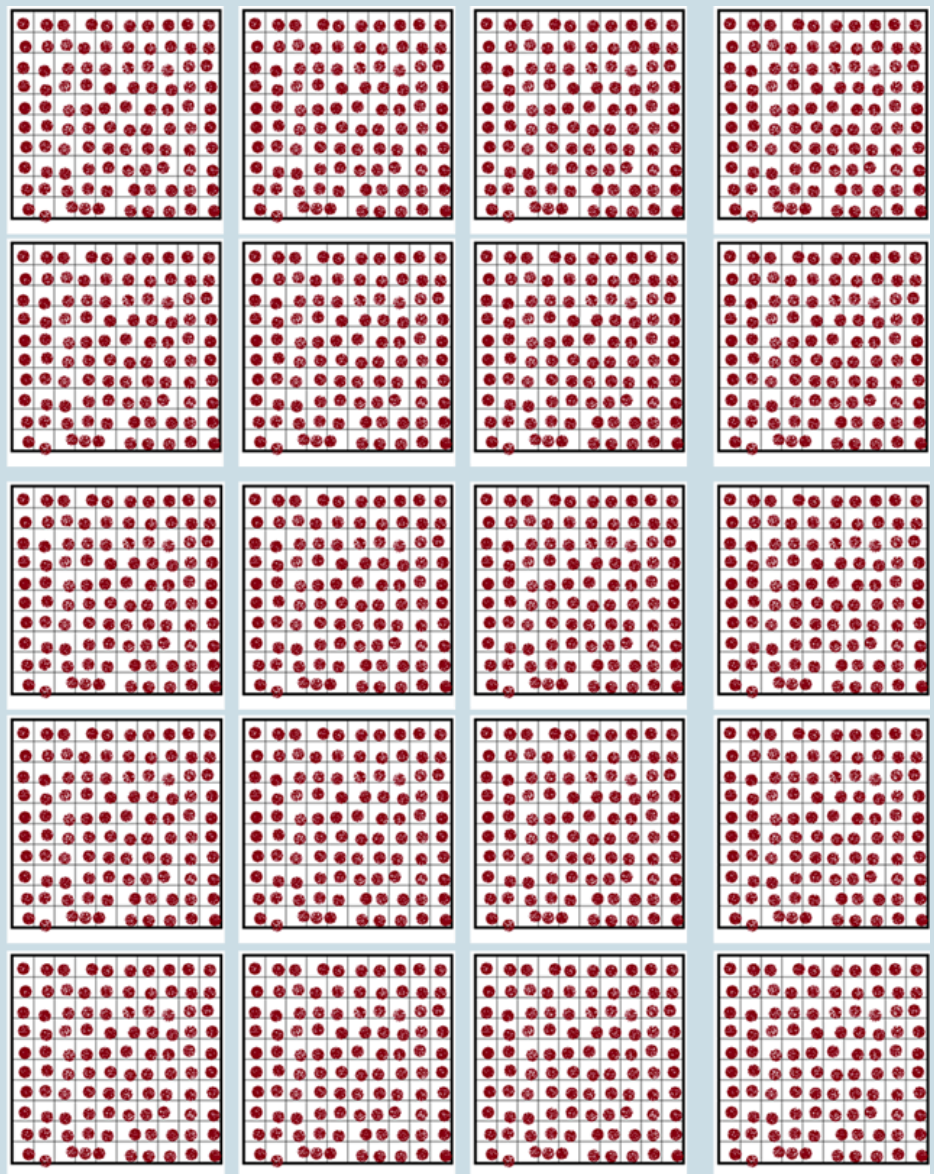
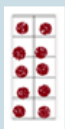
4. After this activity, consider these questions:

- What did this make you think?
- What did you feel?
- What are you left wondering?





Looking at diversity



The image to the left represents the number of apple varieties sold

in UK supermarkets. The image to the right represents the number of apple varieties grown in UK orchards.

- What do you notice?
- What do you think?
- What do you feel? Why?
- What questions do you have? And where could you find some answers?
- What might you do?

Working with scale

Opportunities for Embracing Uncertainty

Students will respond to this provocation in their unique ways. They might be drawn to the aesthetic of the image as much as the power of its message, which for each student will resonate differently. The activity might generate a range of questions: the answers for many of these will be unknown or hard to respond to definitively (e.g. why do supermarkets select only these particular apples to sell; does the selection change or remain the same, and why might this be?).

Opportunities for All Students

For some students, this image can be used alongside maths activities on quantity and representing quantity: they might recreate the ratio using different objects. Some students might want to contact a supermarket, or the British Apples & Pears organisation which aims for at least 60% of apples sold in the UK to be British by 2030 (<https://www.britishapplesandpears.co.uk/the-organisation/>), to ask questions about the decisions these organisations feel they have to make about what they grown and sell, as well as the possibilities to include more diverse varieties.

Opportunities for Creativity

The images might be used to stimulate students' own ideas of representing diversity (or lack of it) either through a grid like images or something else. Students could look up some of the varieties of apples (from the sites mentioned earlier) and add representations of these into their artworks. They might also play on the language of existing names or invent their own. An additional task, for students in primary school,

would be to place their own-made apples on a large drawing of a tree, helping to convey ideas of quantity and diversity.

Opportunities for Linking to Climate Justice

The variety of apples connects well to discussions on the value of diversity (and its benefits beyond monocultures). The richness of the history of the varieties and their names can prompt discussion about where these names might have come from, and whether they are historically ‘British’ and/or connect in some way to other places.



Beyond the Classroom Encounter

Thinking about our relationship with the local environment

Take a walk around your local area. During the walk:

1. Notice the different things the ground is used for and where the areas of diversity are.

This could be a diversity of plants, animals, humans, or things such as buildings, equipment, technology, transport.

2. Identify an area where it might be possible to plant an orchard of 8 or more trees.

Take a photograph. For example, this might be a bit of land that no one is using, an area of park where new trees could be planted, or land between buildings or other structures.

3. Discuss your idea of growing an orchard in this place with your family, friends and neighbours, to see what they think.

4. Share your photograph in class and tell others:

- Where is it?
- Why do you think it might be a good place to grow food that could be eaten?
- Who might have an opinion or feelings about changing how this place is used (and why)?
- Who would eat the food? Who might decide?

Invite questions and comments from your peers to hear what they think about your suggestion.

Working with multiple perspectives to adapt local environments

Opportunities for Embracing Uncertainty

Considering where and how to change a piece of local land requires students to think about where might be appropriate to grow food, as well as to consider different perspectives. Both considerations are full of uncertainty. Students are encouraged to engage with a wide range of opinions or feelings in their local community. If this activity is done in class, students could be encouraged to speak with those with whom they may not regularly come into contact who have knowledge of and an interest in public land use (such as local planning officers). This consideration of other perspectives encourages them to engage with complexity and to look beyond simple assertions about what must change.

Opportunities for All Students

All students can engage in this activity of noticing how land is used (and disused/neglected) and talking with those they know. With parental support, some might reach out to ask others in their community that they know less well or not at all (such as neighbours). Some can be encouraged to consider the detail of who might be needed to look after the orchard, to care for the trees and land, to harvest the fruit, as well as to deliberate the rights to the land and access to grown food. This could be a good introduction to local government procedures and the challenges of democratic processes that must account for competing perspectives when making decisions. If doing this with your own class, you might ask them: if you wanted to plant the orchard, how would you ensure that everyone feels heard and their views are taken seriously?

Opportunities for Creativity

This activity requires students to imagine other possibilities for land use. To foster this imagination, they might be encouraged to draw, map out, photograph from different angles, and annotate visuals. They may need to think through different ways to present and share their ideas and what they have discovered about what others think: this requires students to consider why people have different views. Students might also be encouraged to create the imagined space, using drawings, written stories or building small dens in an outdoor space, for example, in which they make up the names, plants and species for whom it becomes a home, as well as the different people who congregate there.

Opportunities for Linking to Climate Justice

This activity engages with a diversity of views, enabling students to take seriously those who think differently. With time, they come to an informed position themselves, one that takes account of others' knowledge, experiences and perspectives. They might draw on older generations' experiences of growing things, as well as family and friends from other cultural backgrounds with knowledge of different plants and growing practices. Students could discuss how property rights in their context might be different in other country contexts.

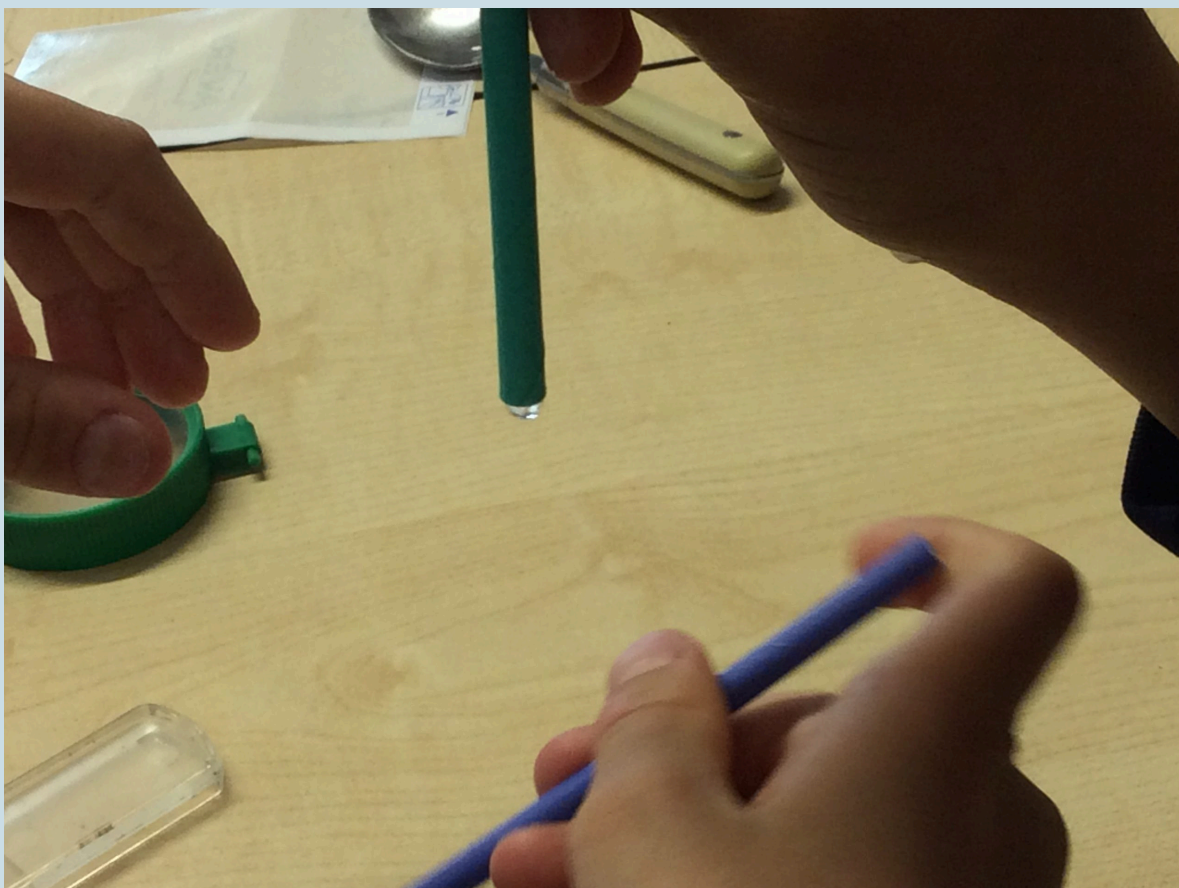
*Will Abberley, Perpetua Kirby, Michael Jonik, Andy Lowe, John Parry, Beth Nichols,
Marcelo Staricoff, Paul Wiggins, Rebecca Webb*

TOPIC 6: WATER



Brief Encounter

Think about the place of water in your lives



1. Collect from the teacher a small bottle-top cap full of fresh water.

Carefully carry it to your table, and be sure not to waste any, as it is a limited resource and there is no more to share

2. With your partner, find a way to look at a droplet of water (you might need a straw).

- What do you see?
- What do you feel?
- What do you think?
- What does the water tell you?

3. Water is part of many rituals, celebrations and festivals.

Can you think of any in your life? Why do you think water is so often used in this way?

Reflecting on the power and preciousness of water

Opportunities for Embracing Uncertainty

There is a great opportunity here to use the compound, water, as the stimulus to evoke its power that draws humans to it, as if beyond our control, and how it is fundamental for existence and survival, as well as emotional and spiritual well-being. By enabling students to attend very closely to water, in ways that they may not have done since they were very young (if at all), it allows them to reflect on its mysteries and preciousness that is not easily explained.

Opportunities for All Students

This invitation is suitable for students of all ages as it can be adapted to different levels of complexity. All are invited to 'play' with the water. Some can explore multiple personal experiences of engaging with water in their wider lives; others can act as researchers to find out and reflect on the use of water for different religious and celebratory purposes, and its value as a spiritual symbol. They might also investigate how water droplets behave on different materials.

Opportunities for Creativity

As well as thinking creatively about the different ways in which water is used spiritually across the globe, students may also use this activity to ponder why ‘water’ is so special. Links can be made to the scientific properties of the compound: it exists in three different states (gas, solid and liquid); it cannot be made or lost; it is colourless, odourless and tasteless; it defines our Celsius temperature scale of 0-100 degrees; it is what scientists look for in other planets as an indicator of potential life.

Opportunities for Linking to Climate Justice

This activity offers students from different religious and cultural backgrounds the opportunity to share something of how water is important to their lives. This exchange requires others to listen, and for everyone to draw out the similarities and differences, and to consider what might (if anything) be the shared experience of water. Links can also be made to the words used for water in different languages (see [Topic 7: Kelp](#) for examples).



Sensory Encounter

Looking closely at an image



This image portrays the Emirates Golf Club which was presented with the Efficient Use of Resources Award at the prestigious International Association of Golf Tour Operator (IAGTO) Awards held in Lake Como, Italy, in 2015.

- What do you notice about the setting for this golf course?
- What do you notice about the different types of terrain in the picture?
- What does the image make you think of?
- How does the image make you feel?

The power of photography to invite questions

Opportunities for Embracing Uncertainty

Photographs provide an opportunity to engage students in questioning, theorizing, thinking critically, and noticing unexpected tensions in the scenes portrayed. In the image, the students might notice stark contrasts that raise questions for them about the setting.

A broader issue that might extend the discussion is the uncertainty of water quality: caused by the discharge of sewage into the sea and agricultural runoff into rivers, for example. This issue can evoke community passion, conflict and resistance through the sharing of information (e.g. Surfers Against Sewage www.sas.org.uk), and government regulator intervention through the issuing of fines. Students might consider their own felt response and their possible individual or community action.

Opportunities for All Students

Younger students might notice contrasts and have questions, such as why is there so much sand and why are the buildings so tall? Other students might begin to engage more with ecological and social issues: they might make links to water, biodiversity and climate change, for example.

For some students, it might be a leap to jump to a context with which they are unfamiliar. In which case, we suggest first introducing a local example that exemplifies similar issues. Or else, to show a film about local drought and to invite them to respond by reflecting on anything that feels important to them. Here is an example of a film: <https://www.youtube.com/watch?v=oL2TFdLDFGA&t=10s>

Opportunities for Creativity

What does the image show us? This activity invites students to think about the power of images, through paying attention to the details and how it might speak to each of us. Can students say what they are drawn to in the image and why? How would deleting particular details of the photo tell a different story? (This activity links to the one on the power of advertising in [Topic 4: Food Shopping](#).) Some students could take photographs of places around the school grounds or locally that tell a ‘sustainability’ story, which they could then show and invite a response from their peers.

Opportunities for Linking to Climate Justice

Students might think about who will use this golf course and who will not. This activity allows for a more complex engagement with climate justice, that can include both 1) the binary between the Global North and South in carbon emissions (see these useful charts: <https://theconversation.com/climate-change-is-a-justice-issue-these-6-charts-show-why-170072> – this relates to Topic 8 Wind Energy), as well as 2) The

unequal distribution of resources within some Global South contexts. For example, The World Inequality Lab reports that the most unequal region globally is the Middle East and North Africa, where the richest 10% take around 58% of the income, compared to Europe where the comparable figure is 36% of income (see: <https://wir2022.wid.world/executive-summary/>). Links can also be made to the UNESCO Sustainable Development Goals, especially No 6: ‘Clean Water and Sanitation’ (<https://sdgs.un.org/goals/goal6>), which sets out drinking water, sanitation and hygiene targets.



Deliberative Encounter

Consider environmental scenarios from different perspectives

Here is some information about the Golf Club Environmental Award.

Challenges for the golf course:

- Low rainfall
- High humidity (water evaporates)

Solution made by the golf course:

- Careful storage of rain
- Recycled sewage water
- Water pumped through underground pipes to target watering
- Computer to monitor and reduce over-watering

It is now your turn to consider whether to give the golf course the award.

1. Form five interest groups as follows:

- Gold club owners

- Brighton golf tourists
- Golf ground staff
- Environmentalists
- Hares

2. In each group, consider what are your thoughts, concerns and questions about giving this golf course an environmental award. A separate group of 'jurors' will come around and listen to your discussions: they will make notes, but not say anything.

3. Each group will then present their case to the jurors, who will make the final decision about whether or not the golf course deserves the award.

Deliberating different positions and vested interests

Opportunities for Embracing Uncertainty

This activity enables students to grapple with the competing interests of different stakeholders attached to the golf course. There is no obvious answer about whether the course should be given an environmental award given the multiple tensions involved in this decision. The activity offers the opportunity to think beyond human needs, with the inclusion of hares (which are indigenous to this region).

Opportunities for All Students

For early years students, this encounter could form the basis of a discussion of how to improve the school grounds: what changes would the students make to the school outdoor environment? What would they like to introduce? For example: vegetable patch, outdoor learning area, scooter racks, sandpits, recycling bins, etc. This will require them to engage with different ideas and views.

Some students may lack knowledge on which to deliberate the position of their interest group. For example, they may think hares enjoy grass without considering the effects for them of biodiversity loss: they might benefit from being able to ask questions of the teacher or others. Other students will have more knowledge or could use the internet to research in depth.

Opportunities for Creativity

Adaptations for the golf course have involved enterprising creative use of technology to respond to the challenges of a water denuded environment. The activity requires students to place themselves in another role and to use their imaginations. They also have to think how to convince the jurors of the veracity of their position. Students might also discuss how each of the aspects that led to the award can now be used to improve the quality of life in other parts of the world: what other uses do the students think these advancements can be applied to? This article about the award might be useful pre-reading: <https://golfbusinessnews.com/news/management-topics/emirates-golf-club-receives-sustainability-award/>.

Opportunities for Linking to Climate Justice

This award highlights how technology can be used to address environmental challenges throughout the world. How can the initiatives used to build and irrigate this golf course be used to improve the lives of people across the globe? Which areas of the world would benefit from these adaptations in water usage and recycling? Students could be encouraged to reflect on how innovative uses of technology might be used to improve the lives of people locally and globally, including in areas of water shortage. Other students might reflect on the tensions between the desires of affluent tourists (whether from the same or other countries) and uncertain local impacts. For example, the golf course might bring immediate economic benefits but exacerbate long-term negative climate effects.



Beyond the Classroom Encounter

What can we all do to conserve water?

Create a water catcher to help conserve and recycle water in your home or outdoor space.

- Where is there excess water when it rains?

- Where is there an excess of water used in your home?
- How might it be captured and stored?
- What recycled materials might you use?
- What could the water be used for?

Reflecting on the power and preciousness of water

Opportunities for Embracing Uncertainty

This activity supports children's citizenship and environmental awareness, which is an important role for schools within a democracy and for the purpose of educating students to be able to contribute to a sustainable world. As students build their water catchers, they can consider how conserving water makes them feel and what it makes them think about.

Opportunities for All Students

This activity can be used with students of any age: the scaffolding would be greater for younger children both at school and with their families if building this at home. There are opportunities for all students to think about what materials can be used, measuring the volume of water collected and, for older students, predicting how much water will be collected. Students working at a higher level can use different technological solutions to address the challenge.

Opportunities for Creativity

This activity invites discussion about why catching water may be desirable, as well as the challenges involved and how to overcome them. The students might do an initial audit of how water is used in school and make recommendations for change. Students can also consider: which designs might catch the most water; where should they place water catchers around the home or school; how will they make sure they do not get moved or damaged; how will they monitor, collect and use the water?

Opportunities for Linking to Climate Justice

Some arid areas of the world have always had to live with water uncertainty, and they have developed their own cultural and context specific strategies. For example, the San people of the Kalahari Desert have used

empty ostrich eggs to store water, which they buried and marked the spot with a feather so that they could find it later. You can find an image and more information here: https://www.britishmuseum.org/collection/object/E_Af1910-363

*Emma Bernagozzi, Perpetua Kirby, Andy Lowe, John Parry, Marcelo Staricoff,
Rebecca Webb*

TOPIC 7: KELP



Brief Encounter

Can you construct an A-Z of life of the sea?

Use facts, feelings, and any figure of speech, with words from any language!

Here's an example below, but write your own in any way you want.

<p>A Agua</p> <p>B Beaches</p> <p>C Climate change</p> <p>D Diversity in the sea</p> <p>E Environmental jewel</p> <p>F Flora and fauna</p> <p>G Governments act to clean up seas</p> <p>H Helping to regenerate ocean life</p> <p>I Incredible scientists</p> <p>J Juggling environmental priorities</p> <p>K Kelp populations</p> <p>L Loneliness of kelp absence</p> <p>M Marine mollusc phylum</p>	<p>N. Never give up supporting sea life</p> <p>O. Ozean</p> <p>P. Pongy polluted rock pools</p> <p>Q Questions, challenges, problems</p> <p>R Regeneration of kelp populations</p> <p>S Silken purse of possibilities</p> <p>T Tremendous sounds</p> <p>U Underwater Life</p> <p>V Vulnerability of life under oceans</p> <p>W Water as clear as a crystal</p> <p>X X-rays as a tool to monitor Kelp</p> <p>Y Yearning for More Kelp</p> <p>Z Zoology in oceans needs Kelp</p>
---	--

Word play for deep interrogation

Opportunities for Embracing Uncertainty

There is no obligation to have a response to each letter. The combined class collection offers possibilities to encourage new responses and further interrogation: ‘Tell me more about that . . .’ ‘How would you show us that idea without words? (For example, with your body, drawing, making) Can we spot any connections between each other’s ideas? What made you laugh? What made you think?

Opportunities for All Students

This activity is suitable for students of all ages as it can adapt to all levels of complexity when filling in the responses for each letter of the alphabet. For some students, it may be a good idea to create one as a whole class. Others might bring a depth of factual knowledge or literary genres.

Opportunities for Creativity

There is no limit to what the students can contribute with these starter invitations. Very often students will think of several alternatives for the same letter. The freedom to think and use language creatively is appealing for students and this can include any realm at all: nonsense, rhymes metaphor, adjectives, alliteration. Examples of class lists could be displayed with the invitation for others (students and teachers) to contribute their own sea-related ideas.

Opportunities for Linking to Climate Justice

This challenge provides a great opportunity for students to contribute to the letters using all the linguistic and cultural richness that they possess. For example, the Agua for A is water in Spanish and for O for Ozean is German.



Deliberative Encounter

Can you place yourself in the position of others?

1. Watch this video about kelp:



One or more interactive elements has been excluded from this version of the text. You can view them online here: <https://openpress.sussex.ac.uk/creatingwithuncertainty/?p=125#oembed-1>

https://www.youtube.com/watch?v=V-RL80I9_KQ&t=5s

2. Explore how you would you feel if you were part of the:

- Sussex kelp population
- A fisherperson on the Sussex coast
- The scientist community helping the kelp population to recover

You might want to draw, write, act, sing or use body sculpture to show your feelings.

3. Now role-play a short discussion between these three groups and what they might say to each other.

4. What do you think plants and animals might teach us?

Opportunities for Embracing Uncertainty

Philosophy is a vehicle for promoting the value of embracing uncertainty where nobody is required to know the answer and all responses are valued. The role of the teacher is to *ask questions* that require children

to account for, and probe more deeply, the logic of their thinking. It is not that ‘anything goes’ in these discussions, rather that anything can be discussed and probed.

There are many links that can be made to kelp and other sea plant species, that raise the prospect of as-yet-unknown possibilities. Here are some suggestions:

The invention/creation of food wraps made from marine waste by a University of Sussex student: <https://www.sussex.ac.uk/broadcast/read/50275>

and [MarinaTex](#) – a bioplastic made from fish waste – YouTube [<https://www.youtube.com/watch?v=AHKaChoCDW8>]



One or more interactive elements has been excluded from this version of the text. You can view them online here: <https://openpress.sussex.ac.uk/creatingwithuncertainty/?p=125#oembed-2>

The use of seaweed to create food wraps: <https://www.newscientist.com/article/2366978-plastic-wrap-made-from-seaweed-withstands-heat-and-is-compostable/>

The use of seaweed/kelp to support the impacts of climate change for carbon sequestration: <https://caseagrant.ucsd.edu/news/heather-kramp-seaweed-about-blow-your-climate-change-mind#:~:text=Seaweed%2C%20like%20land%20plants%2C%20use,2%20at%20a%20phenomenal%20rate>

Opportunities for All Students

Some students may need some pre-teaching on key ideas (e.g. DNA) or to be shown only an excerpt of the film. Some may benefit from watching a longer film about the research on kelp: <https://youtu.be/Tt00eZ2jqBQ>



One or more interactive elements has been excluded from this version of the text. You can view them online here: <https://openpress.sussex.ac.uk/creatingwithuncertainty/?p=125#oembed-3>

Philosophical discussions can be facilitated by teachers with students of all ages. Some examples of questions that could be used to prompt discussion are below, but many students will respond to the invitation to come up with their own:

- Should fishing be banned?

- Do fish feel pain?
- Do plants have feelings?
- Do the oceans belong to anyone or anything?
- Are humans part of nature?

Opportunities for Creativity

The discussions promote a deep listening to others, and the requirement to stay with difficult topics, and to encounter their own or others' strong feelings, and to respond with consideration. For older students, it could be used within different subjects to probe specific response from within the discipline.

Opportunities for Linking to Climate Justice

These philosophical discussions encourage students to share their knowledge from their own life experiences and cultures. The example questions ask students to consider how humans are connected to other animals and plants.

The longer film ([link above](#)) highlights how kelp spore dispersal is dependent on the turbulence and currents of the sea. This illustrates how unpredictability and chance ensure the spread and diversification of different types of kelp emerging in the forest. This is what helps to nourish and sustain the complexity and richness of the kelp forest. This might be discussed as a metaphor for human thriving.



Visual Encounter

Thinking visually



An underwater shot of a kelp forest

1. Look at the image of kelp. You might also want to think about what you saw in the film (or watch a bit of it again). Think about these questions:
 - What words would you use to describe the kelp? Why?
 - What would it feel like to touch? To smell? To listen to in the sea?

- Imagine swimming through a kelp forest as:

1) A human

2) A seal

What might the experience be like for you as a human and for the seal?



2. Use your imagination to create a sensory model that shows something that interests you about kelp. You might focus on its texture, movement, colour, or connection with other kelp plants and other species.

3. Have a look at other students' models. What do the models capture for you about kelp?

Perhaps the models show something of kelp's beauty, a feeling of fear or disgust, some environmental benefit or an uncertainty about what is known.

Uncertainty as a driver of new knowledge

Opportunities for Embracing Uncertainty

This activity encourages students to explore their knowledge of kelp, drawing on what they have seen but also their own experiences and memories of being beside or in the sea. This includes encountering seaweeds and kelp, perhaps when walking on the beach or through rockpools or when swimming. It might evoke competing feelings in which kelp is both understood as valuable to the environment but also slimy, smelly and possibly scary to touch when in the water, not least because it might hide other creatures or sharp rocks, for example. The activity therefore enables students to explore the tensions between what they think and feel.

Opportunities for All Students

This activity is suitable for all students. For early years students the modelling can encourage story telling, with new formations of kelp added over time with new found materials. It can take part with an adult who helps to narrate the story of what they are creating. Other students may want to bring together science and arts, by researching what kelp feels / sounds / smells like and identifying materials to replicate its texture, habitats, etc.

Opportunities for Creativity

Early years students may have a curiosity and excitement in making creatures that hide in the kelp, evoking an imagination of hopes and fears, as well as enabling them to tell a story about their relationship to the kelp (who or what is it hiding from; what noise does the kelp forest make; what happens next?). Where students research the properties of kelp to inform their model, this can be developed into a design project. This could be used, for example, to teach each other (based on what they have researched), or else younger students, about the properties of kelp. Audiences can be invited to engage with the models in the multisensory way.

Opportunities for Linking to Climate Justice

The study of kelp forests draws attention to the importance of diversity in habitats, as well as the costs of depleting such diversity through human behaviour (in this example, fishing). What students emphasise in their models will demonstrate the diversity of the group in terms of their feelings, experiences, knowledge and imaginings.



Beyond the Classroom Encounter

Writing to your MP

Write a letter to your MP to ask them about their position on 'Kelp

Policy' for the next five years.

In the letter, state what you think or feel is important, and any action that you want them to take. You may not want kelp restored (it is slimy stuff!), or you may do.

Your MP may have no knowledge about what kelp is and its role in sustaining sea life and the environment. Think about what you might need to tell them to make your case.

Student citizenship beyond the classroom

Opportunities for Embracing Uncertainty

This activity supports students' citizenship, which is an important role for schools within a democracy. It supports students to come to their own position, without any expectation that they take up a strong sustainability position. It emphasises only that they can *all* come to a position of their own, but one that follows serious consideration of different perspectives through the other activities. The role of the teacher is to ensure that students' voices are heard and treated with seriousness, both within and beyond the classroom.

Opportunities for All Students

This activity can be used with students of any age although the scaffolding would be greater for younger groups. It offers an opportunity to involve families and create models out of paper, Lego or plasticine, for example, as an alternative to writing. For others, the remit might also include a strong focus on how to present information to different audiences in ways that are persuasive.

Opportunities for Creativity

This activity requires students to create a persuasive narrative for a particular audience. They will need to think about how best to do this, drawing on a range of possible media, in a way that allows them to bring the arts and science together. Some media might particularly lend themselves to some groups.

Opportunities for Linking to Climate Justice

Students could explore the issues of kelp in different country contexts, including who is responsible for its management. They might choose to present their work to a different audience, such as Greta or a team

at UNESCO. This activity gives students the opportunity to make links with the UNESCO Sustainable Development Goals: <https://sdgs.un.org/goals>

Perpetua Kirby, Andy Lowe, John Parry, Mika Peck, Marcelo Staricoff, Rebecca Webb

TOPIC 8: WIND ENERGY



Brief Encounter

The wind and us



Scout Moor Wind Farm, Rochdale, UK

Windy days – how do they make us feel?

1. Spend time outside on a windy day. Think about:

- What do you hear?
- What do you see?
- Where in your body do you feel it?
- What does it feel like?
- Can you taste it?
- How do you feel emotionally?
- How does your body respond?
- What does it make you want to do?
- What memories does it evoke?

2. Use charcoal, body sculpture or percussion to express and illustrate how the wind makes you think or feel.

3. With a partner, now combine your artworks to create one new work of art.

Multisensory experiences of the wind

Opportunities for Embracing Uncertainty

This activity enables students to attend closely to sensations and how they respond to them. It engages with the topic of wind in ways that extend beyond ‘facts’ and the intellectual. This can tie in with reading an AA Milne story (see below) which presents an additional opportunity for students to think how they might support each other as they express worries: how do we listen attentively to each other; what do we do to respond kindly and supportively, without dismissing feelings of uncertainty or ambivalence? How do we feel or think about other things that exists, but we cannot see, or vice versa (e.g. reflections in a mirror)?

Opportunities for All Students

This activity is appropriate for all students. Students of any age can also enjoy returning to the story from *The House at Pooh Corner* by A A Milne and EH Shephard (p.132) in which, faced with a strong autumnal wind, Piglet’s ears ‘streamed behind him like banners as he fought his way along’. Piglet worries and says, ‘supposing a tree fell down, Pooh, when we were underneath it?’ ‘Supposing it didn’t’, said Pooh after

careful thought. In this example, Pooh's careful listening connects with and acknowledges Piglet's fear, felt in another time and place. He does not respond with blind optimism that dismisses Piglet but proffers a different way for Piglet to think.

Opportunities for Creativity

This activity encourages students to use different media to explore their responses to wind. The questions posed in this encounter lend themselves to a wealth of creative thinking and of using all senses to embrace the multitude of aspects that are associated with wind and our world. How does wind happen? Why does it happen? Are there advantages and disadvantages to wind? Why do they have different strengths? How does nature use wind (e.g. to distribute seeds for example)?

Opportunities for Linking to Climate Justice

There are opportunities with this encounter to explore the global aspect of wind, which emphasises how we are all connected. It brings with it seeds, sand, ash and pollutants from other areas; activities that increase carbon in one part of the world create life-threatening weather patterns (e.g. tornadoes; cyclones) in other regions. This might lead to a discussion of our responsibility to others globally. Students might also explore how extreme wind conditions might be experienced, drawing on their own reflections of a windy day. They might share stories of extreme weather told by extended family members. (This links well to the issues raised for young people living India, in Vinita's film, Topic 1).



Deliberative Encounter

Thinking about a wind turbine near me

Imagine that your Local Authority is consulting the community about installing a turbine in your school grounds.

1. What do you picture?

- What is it you imagine?
- How big would it be?
- What is it made of?
- What sound would it make?
- Where would it be placed?

2. How do you think these groups would respond to the turbine?

- Local farmer
- Headteacher
- Royal Society for the Protection of Birds (RSPB)
- Local resident
- National energy provider
- Local colonies of bats

3. What questions would you want to ask the Local Authority to help you decide whether you are in favour of or against the proposal?

Thinking deeply before coming to a position

Opportunities for Embracing Uncertainty

This activity is designed to make the concept of a wind energy more real for students and it could be incorporated after input (using images/film/visit) on wind turbines as a source of sustainable energy. Scientists have identified wind energy as an important mitigator for climate change (see: https://www.ipcc.ch/report/ar6/wg3/figures/summary-for-policymakers/IPCC_AR6_WGIII_FigureSPM7.png), but there remain public debates about whether and where to place turbines. The activity gives students the opportunity to reflect before coming to their own position. Students might be invited to consider how to overcome resistance to onshore wind turbines (e.g. Do they need to be so big? Could they be miniaturised? Camouflaged? Embedded within household structures or somewhere else? Something else?)

Opportunities for All Students

All students, even the youngest, can consider different positions on wind as a source of energy. Some will engage in more depth than others with the views that different groups might have. Students could also engage in *Mantel of the Expert* or *De Bono's Hats* type activities to investigate the concepts from the perspectives of others.

Opportunities for Creativity

In reflecting on different factors that need to be considered when placing new turbines in the local environment, students are encouraged to consider implications from a number of perspectives, including aesthetics, noise, land versus sea-based options, carbon footprint of the production of different parts of the turbine (i.e. steel tower and plastic blades), and the possibilities of harming or enhancing habitats. Students can be invited to make models of wind turbines and to decorate them with feelings, thoughts and questions. Together, the class turbines can create a wind farm as an exhibition. The audience can be asked to consider:

What is this to me?

- What do I see?
- What does it mean to me? (What do I think or feel?)
- What am I being taught?

What am I to this?

- Where am I in this story?
- What do I know that I could share with the young people or teachers?

- What does the exhibition demand of me as an . . . Parent/carer? Young person? Charity? Citizen?

Opportunities for Linking to Climate Justice

Thinking about wind turbines raises questions about who has the power to decide where they are situated and who might be most immediately impacted. Students might contemplate the example where Greta Thunberg was involved in protesting against the siting of a windfarm (see: <https://www.reuters.com/business/environment/thunberg-other-protesters-block-norway-energy-ministry-over-wind-farms-2023-02-27/>). It was argued that the farm would disrupt cultural practices of grazing reindeer that have been central to the Sámi indigenous community in Norway.



Visual Encounter

Creating a turbine movement piece

Watch this Uncertainty Movement film, a coastal sequence performed by students.

Whilst watching the film, pay attention to what you notice, think and feel.

[https://youtu.be/OGHhT-wB_Is]



One or more interactive elements has been excluded from this version of the text. You can view them online here: <https://openpress.sussex.ac.uk/creatingwithuncertainty/?p=128#oembed-1>

2. In groups, work out how to create a turbine movement similar to that seen in the film.

How you do this will depend on the size of your group.

3. Identify other 'things' that would interact with a wind turbine in your local landscape – you will need to decide if your turbine is on land or out at sea.

This might be people, other species (e.g. birds, fish, trees) or other things (e.g. electrical cables, rain, stones, waves). Think about how your chosen thing might interact with the turbine to create sounds, movements, shapes, different uses or shared habitats.

4. Choose one (or more) of these things and create your own group movement for it.

You might want to look at the film again to get some inspiration.

5. Think about whether you might perform, teach or involve others in your movement piece.

This could be people in your school or the wider community.

Embodied engagement with the possibilities of wind

Opportunities for Embracing Uncertainty

This activity fosters an embodied emotional engagement with wind turbines. It requires students to work alongside others in close physical proximity. This encourages trust and communication other than through words. The compositions involve touch, rhythm, co-ordination, control, focus, and a close listening. Uncertainty exists in students' act of interpretation, how the coordination will work, and that the piece changes each time it is performed.

Opportunities for All Students

This activity can be used with all ages. Some may need more support with creating a movement piece and it may be easier to do this alone rather than as a coordinated group: this could include the use of toys and other props to support their movements.

Opportunities for Creativity

As well as movement, students might also generate accompanying soundscapes. They could also use or create props (such as windchimes) or use varied wind instruments to accompany the piece: some might make their own instruments from reused plastics or natural items such as bamboo and reeds, to integrate into their performance. Equally, they might want to script a message or an interaction that is integral to the piece. The activity offers the opportunity for performance to others and finding ways to involve the audience in engaging with the piece and its themes.

Opportunities for Linking to Climate Justice

There are a myriad of different gods and goddesses of winds (see: https://en.wikipedia.org/wiki/List_of_wind_deities) within different cultures that embody different elements, directionality, intensity and connection to other weather features (e.g. thunder and lightning). Students can be invited to consider why wind features so prominently among different cultural deities. For students who speak other languages and know of different deities, they can be invited to show what they know. Students might integrate the names, sounds, stories of these deities into their performances.



Beyond the Classroom Encounter

Carbon, the world, and us

Richer countries consume a disproportionate amount of energy compared with poorer countries, and in all countries those with more money consume more energy than others. For the foreseeable future, the world cannot produce enough sustainably sourced energy, such as wind power, for all people globally to have the energy to consume items that people expect or desire to have in the UK.

Over one weekend, notice the things that your household (you and others that you live with) use or do that produce carbon. With your

household, discuss and agree together:

- 3 things that you feel you could change to use less carbon (e.g. walk to school)
- 3 things that use carbon that you would like to have or to do (e.g. more flights abroad)
- 3 things that you would definitely not change to reduce carbon (e.g. keep your fridge)

You might not all agree. Your discussions will involve listening, negotiating and possibly compromising.

Negotiating carbon reduction

Opportunities for Embracing Uncertainty

Drawing attention to climate justice issues requires students to consider whether and how they might change aspects of their own behaviour. Making such choices is challenging, particularly where it requires negotiation with others who might see things differently.

Opportunities for All Students

Younger students can be supported to think which activities and practices use more or less energy. Some students can use online calculators to work out their carbon footprint: <https://www.carbonfootprint.com/calculator.aspx> and <https://footprint.wwf.org.uk/>. They can be encouraged to consider whether anything surprises them, as well as what the figures make them think or feel. Students might have a mix of emotional responses, including guilt, anger or enthusiasm for the possibility to make a difference.

Opportunities for Creativity

Once the students have decided how they might lower their carbon footprint they can be encouraged to think creatively, by addressing deeper questions: Can you commit to three ways in which you will use less energy that produces carbon? How does this feel? Does this challenge the kind of life you wish to live? Are there any benefits beyond using less carbon? Students might create a response to the idea of changing their behaviours or lifestyle. A poem or drawing, for example, could tap into the complexity of their feelings. Or else they might choose different colours (e.g. using paint colour charts) and create a montage to show and speak about the mix of feelings using these colours (they might also draw on the names of the colours given by paint companies).

Opportunities for Linking to Climate Justice

These charts might be useful to use as an initial input on the challenges of climate justice: <https://theconversation.com/climate-change-is-a-justice-issue-these-6-charts-show-why-170072>. These could be used to provoke a discussion on the responsibilities to others, both within and between communities in different countries across the world. This could lead into further deliberation on the requirement to remunerate countries in the Global South for their loss and damage due to climate change (see: <https://unfccc.int/news/cop27-reaches-breakthrough-agreement-on-new-loss-and-damage-fund-for-vulnerable-countries>).

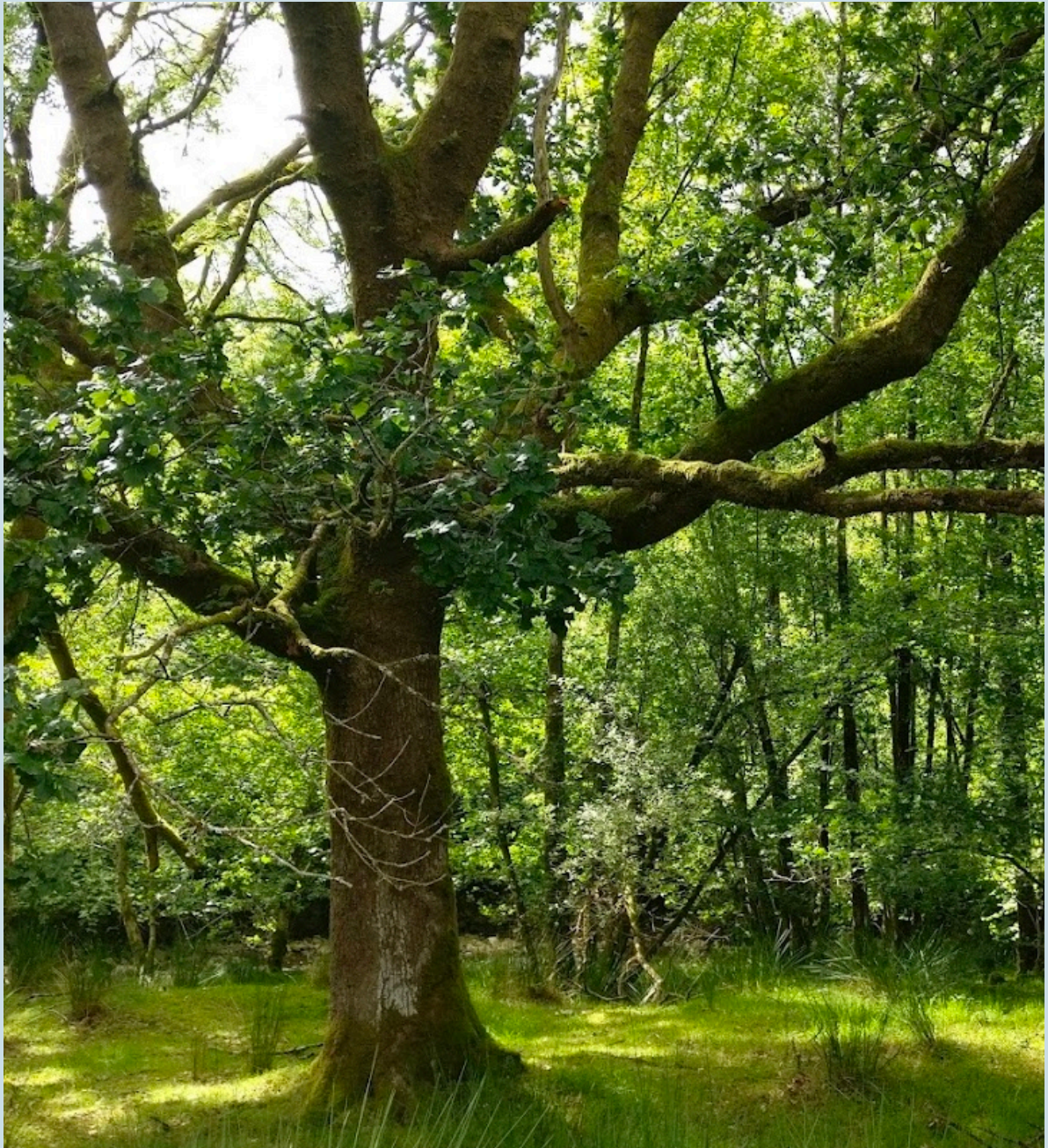
*Augusto Corrieri, Perpetua Kirby, Andy Lowe, Alexandra Pearson, Lisa Peck,
Marcelo Staricoff, Rebecca Webb*

TOPIC 9: FORESTS



Brief Encounter

What is a forest?



Oak tree, British woodland



Ceunant Llennyrch, Wales

Make a list of words and ideas that come to mind from these questions:

- What is a forest?
- What do you value about forests?
- Who or what else might use the forest?
- Why do forests matter?

Conceptualising forests

Opportunities for Embracing Uncertainty

This is an open-ended activity and will encourage students to share reflections on the varied ways forests can be understood and conceptualised. It also opens up questions of uncertainty inherent to forests in many cultures and children's stories, where it often holds an 'other', unknown or spooky dimension.

Opportunities for All Students

This example is suitable for students of all ages as it can be adapted to different levels of complexity.

Questions can be edited to be more specific (for example to push for different value-systems such as financial, spiritual, ecosystemic) or more reflexive. The task could also be conducted as a whole group activity, with greater guidance from the teacher, or with more autonomy for students

Opportunities for Creativity

The activity encourages students to think expansively about forests, sharing ideas, connections, creative responses, and perhaps even drawings to unpack what forests are or could be beyond scientific classifications. The image should help students to think beyond the standard understandings of what a forest is and to consider broader ways we do, or could, live with forests.

Opportunities for Linking to Climate Justice

Forests are perceived and valued differently across languages, geographies, cultures and generations. This activity provides an opportunity for students to engage with how they see forests and discuss this with others. The order of the questions will help to steer this conversation from general responses, through personal reflections to engaging with how others (including other species) might use and value forests.



Deliberative Encounter

What is a forest for?





Both of these photos are of 'forests' in the Peruvian Amazon.

The top photo is a plantation. These trees have been planted to sequester (suck up) carbon to help combat climate change. The other is a small trail through the rainforest nearby, where plants are naturally recovering.

- How do each of these photos make you feel?
- In what ways are the forests the same or different?
- What value might these forests hold for local people; people across the world; and other species?

Valuing forests

Opportunities for Embracing Uncertainty

This activity explores the difference between forests that have been planned and managed, and more natural forests. This encourages a reflection on the inherent uncertainty in engaging with the natural world, and the difference between where humans have or have not intervened. Students can be prompted to think

more deeply about how nature is being managed intensively as a solution to climate change or left alone. And what this might mean for humans and other species.

Opportunities for All Students

This activity is suitable for students of all ages but can be increased in complexity by connecting these landscapes to the politics of climate change. The plantation on the left is a reforestation project designed to optimise carbon sequestration and paid for by carbon credits. The photo on the right is in the same valley but a forest that has recovered naturally. Students can reflect on what our choices in responding to climate change mean for forests across the world. Some students may be invited to draw or model a forest instead (perhaps from outside found human and nonhuman made objects), and asked to reflect on what they have created, including what is valued about forests.

Opportunities for Creativity

Discussions on what is valuable about a forest is highly subjective, yet often reflects deeply held beliefs. Exploring this as a group allows students to see the contextual nature of both forests and concepts of value. While it could be interpreted in a very narrow conception of ‘value’ it will allow students to engage creatively with what else this term might mean. What is valued might include ecosystem services (carbon capture, climate change mitigation, water regulation); biodiversity including potential for new medicines; local livelihoods; non-timber forest products; and eco-tourism. If a forest is cut down then the value includes timber; land for livestock and agricultural production; rivers for hydroelectricity; drilling and mining (oil, gas, and metal ores, gold, aluminium).

Opportunities for Linking to Climate Justice

As with forests in general, how we value forests varies widely between cultures and languages, and is often tied to memories and sensations of being in particular forest spaces. This activity is an opportunity to engage with these sensations – and the words and language that often comes with them – while discussing differences and similarities.



Visual Encounter

How do other people see the forest?

1. Watch this film on one family's return to the forest to escape Covid-19:

https://www.youtube.com/watch?v=SmsWKuYuHOM&ab_channel=TheGuardian



One or more interactive elements has been excluded from this version of the text. You can view them online here: <https://openpress.sussex.ac.uk/creatingwithuncertainty/?p=135#oembed-1>

2. Note down the different things that the forest provides Yutzu and his family:

- Why do you think that they moved further into the forest during Covid-19?
- Would you like to live in the forest and what challenges might it bring?

Exploring values associated with sustainability

Opportunities for Embracing Uncertainty

The film reflects on a time of extreme global uncertainty during the coronavirus pandemic. Combining this with the understandings of uncertainty in ecosystems from the first two activities will help students to make connections between these areas outside of our control and where people find comfort in embracing uncertainty.

Opportunities for All Students

The video can be reduced in length to account for differing attention spans. While it contains subtitles that add depth to the content, the activity can be conducted without the dialogue. Students are also able to

reflect on the content as they see fit; they might see themselves through the eyes of different people featured in the documentary.

Opportunities for Creativity

The questions encourage students to move between seeing the forest through the eyes of others and reflecting on their own experiences, including through the pandemic. The final question can be used as a springboard to think creatively about how life could be different in diverse ecological settings, as well as to consider how we all might change the way that we live in the face of crises.

Opportunities for Linking to Climate Justice

The exercise encourages multicultural thinking through engagement with Kichwa conceptions of the forest and relations with the natural world. These can be discussed in connection to students' own life experiences and cultures. It is also translated from an Ecuadorian Kichwa dialect, very different in form and structure to Latin script languages.



Beyond the Classroom Encounter

If you go down to the woods today...



Outside of class, plan a walk to a local forest. It can be in your neighbourhood, a local park or a nearby woods (or forest).

- Think about what trees are there. Why might they have been planted or have grown there?
- Who are you sharing this space with as you walk through the trees?
- Who or what might have used the forest in history, how and why?

You can use the internet to find out more, look for information in the woods or even tell your own story or legend of the woods.

Exploring values associated with sustainability

Opportunities for Embracing Uncertainty

This activity encourages students to engage with outside space, to reflect further on questions of uncertainty explored in the workshop. Uncertainty is embraced through the variety of spaces that could be considered forest and in thinking through how the space has been produced and who or what is using the space. This will not have clear or simple answers.

Opportunities for All Students

All students can participate in this activity with different levels of supervision. Suggestions could be provided for woods or forests to visit in the local area, some general history, or possible questions to explore to guide students. For some students, the activity could include some self-guided research on areas, a group project and feedback to the class.

Opportunities for Creativity

This activity is structured to allow different means of engagement. Students can think creatively about the questions posed and, in the absence of definitive answers, speculate on the different possibilities. Students could also be encouraged to tell a story about the forest, perhaps even drawing, writing, or performing their own myths or legends about their local wood and the possible real or imagined life within it. Some students can build a den made from found objects to create a 'home' for a forest dwelling creature: they will need to consider what kind of home will meet their needs, and to contemplate what will help to this place feel like a home.

Opportunities for Linking to Climate Justice

In selecting and exploring a particular forest, students will be asked to engage with different ways that people use space and to think about why. Encouraging dialogue around these questions will uncover different value systems, words and ideas that we use to understand forests. They could be encouraged to engage with the ideas explored in the film of a different country context, and to share what they know of the possibilities and dangers of forests in different contexts.

Will Lock

TOPIC 10: STORYTELLING

Funcertain futures: building new worlds

Introduction

Funcertain Futures: Building New Worlds is a **worldbuilding and storytelling game**, to help us to envision the **future of the place you live**. It explores the theme of uncertainty.

The activity is designed for a group of about 5-25 students. It would work best either with a smaller group (e.g. an eco-council) or when there is more time to engage with a larger group (e.g. during an enrichment week or holiday club). You'll need at least 90 minutes (and it can be longer): the game can be played in one big go or split over multiple sessions. In its current form, it is designed for older children and young people, but it could be adapted for others by having fewer prompts for the story to unfold.

Familiarise yourself with the rules beforehand. Make sure you have the appropriate materials (a standard deck of playing cards and some drawing materials).

More detailed tips and variations are available in the [Appendix](#), including on timing, maps, prompts, and storytelling. These can help to simply or add a bit more complexity, adding some fun and interesting dimensions to the game.

Some students working at a higher level (e.g. A level, Undergraduates, PGCE Geographers) could try to identify the ideological perspectives on sustainability embedded in the game or that emerge from the players' unfolding story. These might include ecofeminism, green consumerism, neoliberal economics, anarchism, anti-capitalism, eco-facism, etc.

Quick reference

- If this is your very first time reading this, you might want to start by skimming the 'Prompts' section below — that will give you a real sense of what the activity is like.
- To prepare, you'll need a whiteboard or a large sheet of paper to draw a 'map' (which will really be a messy collection of doodles). See 'Map Tips' for more ideas.
- You'll also need a standard deck of playing cards. Remove the Jokers. We won't need these cards. Remove the Diamonds. We won't need these cards.
- If playing in one session: shuffle all the cards. Distribute the cards among the students as equally as possible. It doesn't matter if some students have more cards than others.
- If splitting the game over multiple sessions: Shuffle the cards you will be using in this session, and distribute them to students. (More details on 'Timings Tips' available online).
- Read the Prologue.

- Call out the first card from the recommended order (see ‘Card Order’). ‘Who has the 8 of Spades?’
- Look up the card (see ‘Prompts’), and ask the student the question.
- The questions give students opportunities to build the world and tell a story in it. The student can answer the question themselves, or they can ask the group to decide.
- When they are done answering, move to the next card. Sketch and doodle to illustrate the story: Interpret ‘map’ loosely. Use quick sketches, doodles, labels, speech bubbles, etc. (More details available online: see ‘Map Tips’).
- Try to spend an average of about two minutes per card.
- After a card is played, it should be discarded. (The student passes the card to you, who puts it on a discard pile).
- Spades will be played first, then Clubs, then Hearts.
- There are several Clubs cards that may end the game (go to the Final Scene). Alternatively, when all the Clubs are played, go to the Final Scene.

Before play, the teacher should familiarise themselves with the rules.

Storytelling tips

It is okay to make up your own rules and conventions to make the game run more smoothly. Encourage students to listen generously to each other. Remind students to listen to one another’s ideas. Even if they don’t like an idea at first, they can ask themselves, ‘How could we fit this into the story?’

Getting started

Beforehand, the teacher will:

- Learn the rules
- Think about ways to localise the prompts
- Get some playing materials (a deck of cards, and whatever you’re using for the map)
- Prepare a map (mostly blank, to be filled in during the game)

During play, the teacher will:

- Distribute cards to the students
- Read out questions (see ‘The Questions’ below)
- Help the student whose turn it is to collect suggestions from the group, when appropriate
- Help shape the students’ answers into a cohesive story
- Draw on the map (or coordinate students to do so)
- Keep track of time and keep things moving

- Oversee the Final Scene at the end

Prologue

Read the Prologue out loud to your students. Replace the _____ with the name of the town, village or local area where the game is being played. You may want to alter other details to localise further.

This is a game about a question: “What could life be like in _____ in the year 2070?”

Let’s imagine the future together.

How big or small is _____? Has biodiversity increased or decreased? Are there plants and animals we’ve never seen before? panels everywhere? Have old buildings been put to new uses? What is in the sky, on the water and on land? Are there communal gardens? Amphibious houseboats? Diagonal farms? Domes woven from living branches? Towering skyscrapers? Underground tunnels and more?

In a moment, we’ll start to imagine _____ in the year 2070.

What about the future inhabitants of _____?

How do they dress, talk, and act?

What do people love to do?

What are their hopes, cares, and fears?

What adventures do they have?

Together, we will tell a story set in _____’s future. Let us play to find out



Prompts

Distribute the cards among the students. The left column is to be read out loud. You may want to read the choices out loud twice. The right column gives you (the teacher) explanatory notes and ideas. Use the right-hand column in any way you want (or ignore it).

Tip. If the question just does not fit the story or the situation, use one of these generic prompts instead.

- Add a detail to something already on the map.
- What is this character doing right now?
- What's happening over here right now?
- What does the Main Character do next?

The 'plot' will probably dot around a bit. It's OK to leave threads hanging. But be on the look-out for opportunities to tie things together!

Act 1: Spades

You may want to get the student to choose one, and then open it up to the whole group to discuss what it means.

Some suggested definitions that may be useful.

‘Mutual aid is when a group of people take responsibility for caring for one another. You don’t necessarily get anything in return, except to be part of a group of people who look after one another.’

‘A polytunnel is kind of like a long greenhouse that gets warmed by the sun. You grow plants in it.’

Let’s imagine that the school we’re in now is no longer a school. What has it become instead?

- (1) Community debate hall
- (2) Mutual aid hub
- (3) Bioengineering research lab
- (4) Vegetable polytunnel
- (5) Public baths
- (6) Ancient ruins from the year 2023
- (7) Make up your own location

♠
K

You may want to get the student to choose the locations, and then open it up to the whole class to discuss what they mean.

Let’s add two more locations.

- (1) Robot zoo
- (2) Repair cafe
- (3) Space elevator (under construction)
- (4) Algae fuel station
- (5) Drone library
- (6) A mushroom farm
- (7) Make up your own location

♠
7

What’s the first one?
What’s the second one?

Some background: **Mushrooms** can be used to create sustainable alternatives to plastics. Back in the 2020s, we still used plastics. But plastics were made using fossil fuels, contributing to climate change. [\[11\]](#) In the future, **algae** might be a sustainable alternative to petrol, although back in the 2020s this was still controversial, and hadn’t yet been scientifically proven. A **space elevator** is a proposed technology

Here are even more suggestions: A wildlife monitoring station, a seed bank, an animal shelter, an animal crossing, a theatre where actors perform historic internet memes, a treehouse with free housing, a bank where you can go to legally paint your own money, an arena for a new future sport, a low carbon Virtual Reality arena, a place called ‘Naps, Maps and Apps’, a treehouse social housing project, a Citizen’s Really Bad Advice Bureau, a Ghost Tour featuring hologram ghosts, a mystery object swap hub, a place called Castle Kindness.

1. See for example The Center for Environmental Law, 'Fueling Plastics' report. <https://www.ciel.org/wp-content/uploads/2017/09/Fueling-Plastics-Petrochemical-Feddstocks.pdf>

This could be a good one to probe for more detail. How does the chosen adaptation work in practice?

In the future, climate change has finally been stopped. However, because we left it so late, some effects have already happened. One effect is more storms and floods.

What is ONE way that future _____ is prepared to deal with floods?

♠
6

- (1) Life jacket stations on every street corner
- (2) A system of water turbines, pumps and sluices
- (3) Some houses have adjustable 'legs'
- (4) Giant sponges
- (5) A giant living seawall, made of mangrove trees
- (6) Something else

Choose one of these locations, and decide how it has changed in the year 2070:

♠
9

- (1) Stanmer Park
- (2) Devil's Dyke
- (3) The University of Sussex
- (4) North Laine
- (5) Palace Pier
- (6) Lewes
- (7) Choose somewhere else

If the student (or the whole class) is torn between these options, you could let them pick two or three. Emphasise that there isn't just one solution.

Skip option (5) if you don't think it fits your local area.

Some **background information**. The good news is that recent science suggests that once we get to global net zero (i.e. any remaining greenhouse gas emissions are balanced by removals), then the planet will quickly stop heating. However, even in the best-case scenarios, where we manage to limit global warming to 1.5 degrees above pre-industrial levels, we will still need to contend with increased risks. These include higher sea levels and more volatile weather.

The main greenhouse gas is carbon. Methane is also important, and there are some other greenhouse gases too.

Back in the 2020s, greenhouse gases were emitted into the atmosphere when we burned fossil fuels (oil, coal, gas) or biomass (trees) to create energy. There were other sources too, for example industrial processes (manufacturing cement and plastics) and agricultural expansion (cows' farts and burps).

But greenhouse gases are also constantly leaving the atmosphere. Carbon is absorbed by trees, plants, soil, and the ocean. Back in the 2020s, there were also some experimental technologies that could absorb carbon. (It is a simplification to describe all such technologies as experimental, since some of them definitely worked in a technical sense and were already being used on a small scale. However, there was controversy around whether they could grow quickly and efficiently enough to really help stop climate change, so they were 'experimental' in a looser sense).

Modify this list to give the student a choice of local locations they may be familiar with.

Once the student has nominated a location, you can open it up to the group to suggest how it might have changed in the future.

Let the student holding the card choose the suggestion(s) they like the most.

What is the Main
Character's name?
Listen to these
options, and choose
one you like, or make
up your own name.

Make a note on the map.

♠

3

- (1) Efe
- (2) Dr Sprout
- (3) Esmerelda
- (4) Ziggy
- (5) Make up your
own name
- (6) Ask the whole
class for suggestions

Some more name ideas: Brad Plant, Carly Carbonsink,
Jessica Algae, Józef Jones, Kamala Nanda, Katarina
Clockwork, Korneliusz Kubacki, Kool Keith, Luna
Lustrous, Lotus McPotus, Voluble Vonneglut, Xia
Meifen.

What are the Main
Character's pronouns?

♠

4

- (1) He / him
 - (2) She / her
 - (3) They / them
 - (4) Something else
- You can choose one,
or you can ask
everybody to vote.

Make a note on the map.

('They' is used as a default in the prompts).

How old is the Main
Character?

♠

10

- (1) About twelve?
- (2) About sixteen?
- (3) About thirty?
- (4) About fifty?
- (5) About ninety?
- (6) Or choose a
different age

Let's add another character who lives in future _____. First, what is their name?

- (1) Zafi Krebite
- (2) Mr Moonshine
- (3) Ms Epic
- (4) Hrada

Honeybadgers

- (5) Make up your own name for them

Draw them on the map.

Second, what is their relationship to the Main Character?

- (1) They're friends
- (2) They work together

(3) They are family
(4) They have never met the Main Character, but they're trying to find them (we'll think of a reason later)

(5) They once were best friends, but now they are bitter enemies

(6) Make up a different relationship

Some more name ideas: Cladin Spam, Natalya Tarasivna Melnyk, Miley Recyclerus, Nicky Nikelord, Norbert Jakubik, Noriko Splinterwaif, Opal McOmelas, Patricia Woklid, Pendrassil Hanglantern, Posie Rider, Salma Hydroyek, Toggy Fumes, Valentyna Stepanova, Vin Biodiesel.

In the future, there are multiple modes of transport. Which one does our Main Character use the most?

- (1) Bicycle
- (2) Mono-rail solar train

(3) Cable car
(4) Solar-powered micro-car

(5) Canal boat
(6) Hang glider
(7) Underground shuttle

(8) Something else

Use the students' suggestions to add to the map.

Let's add another character who lives in future _____. What is their name?

- (1) Danky Strunks
 - (2) Gavin Marble
 - (3) Nuggets Harrison
 - (4) Isabella Strangle
 - (5) Make up your own name for them
- What is their role?

♠
J

- (1) A future version of a mayor
- (2) A future version of a teacher
- (3) A future version of a chef
- (4) A future version of a journalist
- (5) A future version of a fashion designer
- (6) A future version of a care worker
- (7) Something else

Some more name ideas: Admiral Inks, Anah Andra, Anala Shroff, Apurva Ram, Ben Brown, Cecilia Clouds, Countessa Indicenta Von Spangle-Strangles, Dai Jian, Dorcas Crebharrow, Feechi Kolashk, Floréal Swarm, Hipolit Gogola, Ice Sliv, Jonathan Stevenson, Jory Barrowe.

You can look for suggestions about how this future vocation may be different. But also, try to leave it a bit open. Maybe you can fill in more details as you go. It's very tricky to imagine transformations in the division of labour, since jobs imply so much about society at large. Would a medieval Chandler or barber-surgeon have been able to dream up the roles of bus driver, mental health nurse, SEO copywriter?

To make a really good story, we'll need some things to be connected. Choose two things or people that are already on the map. Then as a group, we'll decide how they are connected.

♠
Q

This one may be a bit tricky. Get the student to choose two things that have already been mentioned, then immediately open it up to the group to explore possible connections.

A 'connection' could be anything. Do they interact with each other? Does the Main Character interact with them both? How are they similar and different? Maybe you can invent a third thing that

You may have to play storyteller yourself. Guide the group to come up with some options, and then get approval from the student whose turn it is. Add something to the map.

Choose one of these to add to the map.

♠
A

- (1) A robot
- (2) A ghost
- (3) A pet
- (4) A wild animal
- (5) A bird drone
- (6) A tree spirit
- (7) A monster

You could probe further, or come back to this later.

Some later prompts will ask students to choose things on the map to add more detail to.

In the future, jobs have changed a lot. What is the Main Character's job?

You may want to follow up this one by asking the student, and/or the group, to suggest ways that the job might be different.

(1) They don't have a job

Try probing the suggestions too, gently challenging the presupposition.

(2) A future version of a farmer

Ask, 'OK, but will they have x in our future?'

♠ 2 (3) A future version of a police officer

You can guide the group to give the futuristic vocation a more specific name. For example: pollination operator, meat cultivator, violence interrupter, mystery troubleshooter, drone dancer, dream artist, AI therapist, wind farm engineer.

(4) A future version of an artist

(5) A future version of an engineer

Draw or make a note on the map. You might also want to draw some of the wider implications. E.g. if they are an artist, you could add a public artwork somewhere on the map.

(6) Something else

The table below is the recommended order for selecting cards (although you can experiment with your own order).

Act 2: Clubs

Quickly summarise the world the students have imagined. Think especially about connections between the different parts. These could be trivial, everyday connections, or they could be more ingenious, strange, secret. Now in this world, our Main Character is about to have an adventure . . .

Design note: You'll notice that the prompts now begin to become a bit more open-ended. The idea is to build up some story ingredients in Act 1 (and perhaps to build the students' confidence as storytellers).

The recommended order of cards is in the table below.

<p>What is the Main Character's plan for today?</p> <p>♣ 6</p> <ul style="list-style-type: none"> (1) The same thing they do every day (2) Cook a dish for a community feast this evening (3) Deliver a package (4) Build a birdhouse (5) Go to the repair cafe (6) Something else 	<p>You could follow up with a few more questions, to create a planned route across the town:</p> <ul style="list-style-type: none"> (1) What <i>do</i> they do every day? OK, so where do they go first? And where do they go next? (2) First they will need to gather some ingredients from three different places. Where do they go? Also, they're not using just any recipe. They are using a secret recipe. Who will they get it from? (3) First they'll have to go to another part of town to pick up the package. Where do they'll have to deliver it. Where are they headed? (4) Where will they get their materials and tools from? Where are they building the birdhouse? (5) Why are they going to the repair cafe? Do they have something they need fixed? Or help somebody fix something? Or both? <p>If this card comes up while the Main Character is already in the midst of an adventure, you can try to frame it differently. E.g. What was the Main Character's plan for today, before all this happened? Is there somebody who is wondering why the Main Character hasn't shown up? Can the Main Character fulfil their original plans <i>and</i> deal with the new incidents?</p>
<p>♣ 4</p> <p>Things don't always go according to plan. Something that was supposed to improve the situation better has only made it worse! How does the situation get worse?</p>	<p>This will probably relate to the Main Character.</p> <p>You might want to help the student explore unintended side-effects.</p>
<p>♣ 3</p> <p>What does the Main Character decide to do next?</p>	<p>You probably want to steer the student to come up with an action, but don't determine the outcome. Leave that for the next card (or a future card).</p> <p>If you like, you can narrate back-and-forth a bit until you come to what feels like a good move to the next card.</p>
<p>♣ A</p> <p>Let's give our story a villain. Please choose one of the characters on the map, or make up a new one.</p> <p>Now think of two different rumours about the bad guy's motives.</p>	<p>You may want to remind the student of the available cast.</p> <p>You could also use locations as inspiration. E.g. if students have invented a Library for Birds Librarian? Is there a Library for Cats across town?</p> <p>Note the rumours on the map using keywords. Later in the story, one or both rumours could turn out to be true. Or neither. Or they could both contain a grain of truth.</p>

The Main Character stumbles across something interesting! First, where are they?

- (1) Out on the water on their solar-powered boat?
- (2) On a rooftop garden?
- (3) Exploring an old abandoned oil rig?
- (4) At the Repair Cafe?
- (5) Salvaging material from the old landfill site?

♣ 2

(6) Somewhere else?
Second, what does the Main Character find?

- (1) Treasure?
- (2) A relic from long ago?
- (3) Garbage that can be made into something new?
- (4) A species thought to be extinct?
- (5) An invitation to join an elite training programme?
- (6) A message intended for someone else?
- (7) Something else?

Add to the map as necessary.

You might want to linger on this one. Weave it into the story so far. It could be a turn of events. You could ask some follow-ups to bring the scene to life. And/or invite one or two characters to make the discovery.

Of course, in this town, many things are happening at once. Let's cut to another scene. First, choose a character from the story. It could be the Main Character or somebody else. Then decide what this character is going to do next.

♣ 7

Leave this hanging, and resolve it whenever makes sense for the story (there won't be a specific resolution, but it refers back to it specifically).

Let's add some more detail to the map. Here, the community is coming together to convert something into something else. For example, refurbishing an old building for a new purpose. What did it used to be? What are people turning it into?

♣ 5

Choose a location that you think the Main Character could feasibly visit now (or soon).

If the student isn't sure, support them to choose or invent a derelict building. Then ask them for suggestions about what it's being turned into.

If you like, potential follow-ups:

- How will this new creation serve the needs of the community?

The Main Character is passing by or through the busy work site. What do they see?

Things don't always go according to plan. Something that's already on the map has a bad effect that endangers somebody.

♣ K

First, what is it?

Second, who does it endanger? The Main Character, and/or somebody else?

Pick somebody on the map. This could be the Main Character, or somebody else.

♣ Q

What do they do next?

Ask the student whose card it is to nominate something on the map.

Then open it up to the whole group to make suggestions.

The student whose card it is can pick their favourite, or invent one of their own.

Help the group to seek out less obvious options. Focus on something that has been explored before, or explore unexpected side-effects. And/or explore unexpected interactions between two things.

As usual, add something to the map.

As usual, leave the action somewhat unresolved. The results should still be mysterious for the next card.

Eureka! A technological breakthrough has occurred. What prototype has just been created?

♣ 9

(1) Solar tree

(2) Emotional hologram hat

(3) A temporal disruptor toaster

(4) Flavour transfer tube

(5) Carbon sequestration crystal

(6) Dream synchroniser

(1) Solar trees are new bioengineered trees that convert sunshine directly into electricity.

(2) An emotional hologram hat projects an image above your head, to show the world how you're feeling.

(3) This toaster exploits irregularities in the fabric of timespace so that your toast is always perfect before you put in the bread.

(4) Connect two different food items with the flavour transfer tube, and they will taste like each other.

(5) This crystal can suck carbon directly out of the atmosphere. Does this mean we can stop burning fossil fuels?

(6) This device turns dreaming into a kind of social media site.

♣ J

Let's add even more details to something that is already on the map. What would we like to develop further for our story?

You may want to give the student a choice of three or four elements that are underd

You could get the student to choose somebody or something, and then open it up to details. The student picks their favourite suggestions.

You could also try steering the students to things that might be relevant to the Main Character's predicament and/or motives.

If probe questions feel helpful, you could try these:

- What is it like?
- What can it do?
- Where did it come from?
- How has it changed over the years?
- How is this person's job different from fifty years ago?
- What do they wish for more than anything?
- What are they doing right now?
- What is their favourite part of the day? How about least favourite?

Once the details are in place, you could use them to advance the story in some way or leave them and move onto the next card.

♣ 6

What is the Main Character's plan for today?

- (1) The same thing they do every day
- (2) Cook a dish for a community feast this evening
- (3) Deliver a package
- (4) Build a birdhouse
- (5) Go to the repair cafe
- (6) Something else

You could follow up with a few more questions, to create a planned route across the

(1) What *do* they do every day? OK, so where do they go first? And where do they go? (2) First they will need to gather some ingredients from three different places. Where do they go? Also, they're not using just any recipe. They are using a secret recipe. Who will they get it from?

(3) First they'll have to go to another part of town to pick up the package. Where do they'll have to deliver it. Where are they headed?

(4) Where will they get their materials and tools from? Where are they building to? (5) Why are they going to the repair cafe? Do they have something they need fixed? Or help somebody fix something? Or both?

If this card comes up while the Main Character is already in the midst of an adventure, you could frame it differently. E.g. What was the Main Character's plan for today, before all this was happening? Is there somebody who is wondering why the Main Character hasn't shown up? How will the Main Character fulfil their original plans *and* deal with the new incidents?

Let's return to our Main Character.
Unfortunately, something has gone
wrong! First, is it:

♣
10

- (1) Some kind of ambush
 - (2) Some kind of accident
 - (3) A malfunction
 - (4) A misunderstanding
 - (5) Something's gone missing
 - (6) Something else
- Second, what are the details?

Get the details of the mishap, but don't resolve it. Leave that for another card.

♣ 8

There's more to all this than meets the
eye. Do we know what greenwashing
is? Greenwashing is when a company
says that it is acting in
environmentally sustainable ways,
when in fact it is doing harm to
people and the environment.

If greenwashing really doesn't fit the story here, you could ask a more generic question: Does the company lie?

Either way, mark something on the map as usual.

Take a look at the whole map. Now,
few people in future _____ know
this yet, but there is some
greenwashing going on here. Who do
you think it is?

Act 3: Hearts

Design note: There are fewer prompts here about the Main Character's actions and results. The hope is that the motives and challenges are now quite clear. These cards layer on further drama, and also opportunities and alliances that might help lead to a happy ending (or an uncertain one?).

Follow the recommended order below:

Someone in the city is **not all they seem**. First, add a new person, or choose someone who is already there.

Second, what is their secret?

- ♥
5
- (1) Corruption
 - (2) They are a spy
 - (3) They are a witch
 - (4) They are a hologram
 - (5) They are a selkie
 - (6) They are a whistleblower
 - (7) Something else

Today gets even more chaotic. Why?

- ♥
J
- (1) Riots
 - (2) Pandemic
 - (3) Escaped science experiment
 - (4) Toxic spillage
 - (5) Land eviction
 - (6) Heatwave
 - (7) Something from earlier we've all forgotten about
 - (8) Something else

In this next scene, the Main Character will get a **sidekick**. Who or what should the sidekick be?

- ♥
4
- (1) Somebody or something already on the map?
 - (2) Or somebody or something new?
- How do they meet? Is the Main Character pleased to have a sidekick, or are they reluctant at first?

- ♥
2
- What is the **villain** doing right now? Why?

Maybe our **villain** isn't as bad as they seem?

- ♥
9
- (1) Twist — they were on our side all along!
 - (2) They do bad things for good reasons.
 - (3) They do good things and bad things.
 - (4) They want to change!
 - (5) They're just evil, but you kind of have to love them anyway.
 - (6) Something else.

Uh-oh. A **new technology** has a **dangerous side effect**.

- ♥
3
- First, let's choose a new technology. It could be something that is already on the map, or we could create something new.
- Second, what is the side effect?

- ♥
6
- The Main Character makes a plan.** What is the plan?

You'll probably want to use this prompt to create even more problems for the Main Character.

You might want to follow up by asking what the Main Character does in response.

You may need to remind everybody who the villain character is supposed to be.

You'll probably want to use this prompt to create even more problems for the Main Character.

This might also be a good card to reveal the villain's true plan (you can always reveal their *true* true plan later).

There was a breakthrough earlier, so it could definitely be that!

But there are probably plenty of other options too.

You'll probably want to use this prompt to create even more problems for the Main Character.

Today _____ is struck by a **major natural disaster**. What is it?

- ♥
A
- (1) Storm surges overtopping the flood barriers?
 - (2) Wildfires?
 - (3) A landslide?
 - (4) A meteorite?
 - (5) Something else?
- Decide what the disaster is.

You may want to ask the student to decide on the disaster, and then get suggestions from the whole group about its effects.

You'll probably want to use it to create even more problems for the Main Character.

The Main Character gets some much-needed help. From whom?

- ♥
Q
- (1) Somebody on the map
 - (2) An old friend
 - (3) A group of activists
 - (4) Somebody who has been in disguise or undercover
 - (5) The last person they would expect
 - (6) Someone else
- After this card has been played, the class takes a vote. Does the story end (go to the Final Scene), or continue a little longer?

- ♥
10
- A **container ship carrying hazardous waste** has arrived. A generation ago, a local company shipped the waste to a storage site in the Global South. The current inhabitants are returning it now. What was it — nuclear waste, nanowaste, medical waste, or something else? Mark it on the map.

With everything else that is going on, it might turn out to be tricky to resolve this subplot by the end.

Maybe you will, or maybe you can allude to it in the Final Scene as a teaser for a sequel.

The Main Character and the villain will now encounter each other. First, choose where this will happen on the map.

- ♥
8
- Second, decide how they get there.
Third, decide what happens.
After this card has been played, the class takes a vote. Does the story end (go to the Final Scene), or continue a little longer?

The Main Character has received something.

- ♥
7
- Is it:
- (1) A message
 - (2) A gift
 - (3) A tool they need
 - (4) A warning
 - (5) An offer
 - (6) An impossible choice
- What is it?
Who could it be from? Look at the map for ideas.

Create some context to weave this into the story. What is the Main Character doing? How is it going? How does this lead them to the situation where they receive whatever-it-is?

- ♥
K
- The Main Character has a major success. What is it? How do they achieve it?
After this card has been played, the class takes a vote. Does the story end (go to the Final Scene) or continue a little longer?

The Final Scene

Can you hear the music playing? The end is near.

There are three ways to trigger the end of the game.

1. When all the cards are used up, then it is time for the **Final Scene**.
2. Some **Hearts** cards give the students the option to trigger the **Final Scene**. When someone draws such a card, students should discuss whether to have the Final Scene now, or continue telling the story.
3. If you are running out of time and all agree, you can move to the **Final Scene**.

By now, you might have a story that is sprawling in many different directions. In the Final Scene, you do your best to create some closure. There are different approaches you could take:

1. A big finale, focusing on the ‘how’: how will our hero and their allies get out of this seemingly impossible situation, while protecting what really matters?
2. Create a dilemma. Will the story end this way, or that way? Create a conversation. Then maybe get the class to vote.
3. Sure, we’ve had a Main Character, but this has really been a story about a place. You could end with a closing montage. Ask the class to imagine the closing music (or choose a song ... or really play it softly in the background). Give us one last final glimpse of each of the important characters or places.

Remember, not everything needs to be resolved. You could point out the loose threads, and then end with something like: _____ is a place of a hundred thousand stories, and there are many yet to be told. But for now, as music floats on the evening breeze, and stars begin to brighten the sky, we bid farewell to our friends in the year 2070, and we return to our own time, a time every bit as rich with possibilities, with stories, and with wonder. And that, everybody, is the end! Give yourselves a huge round of applause!

After the game

If there’s time, you may wish to talk to students about how the story unfolded. What parts did they like best? What was realistic or unrealistic? Can storytelling and imagination help us to change our mind about what is realistic or unrealistic? How did the story make them feel? Did they learn anything new? Did it create new questions? How might the story have gone differently? Can they think of actions they could take now for climate justice?

Jo Walton

TOPIC 11: MENSTRUAL HEALTH



Brief Encounter

Healthy humans, healthy planet



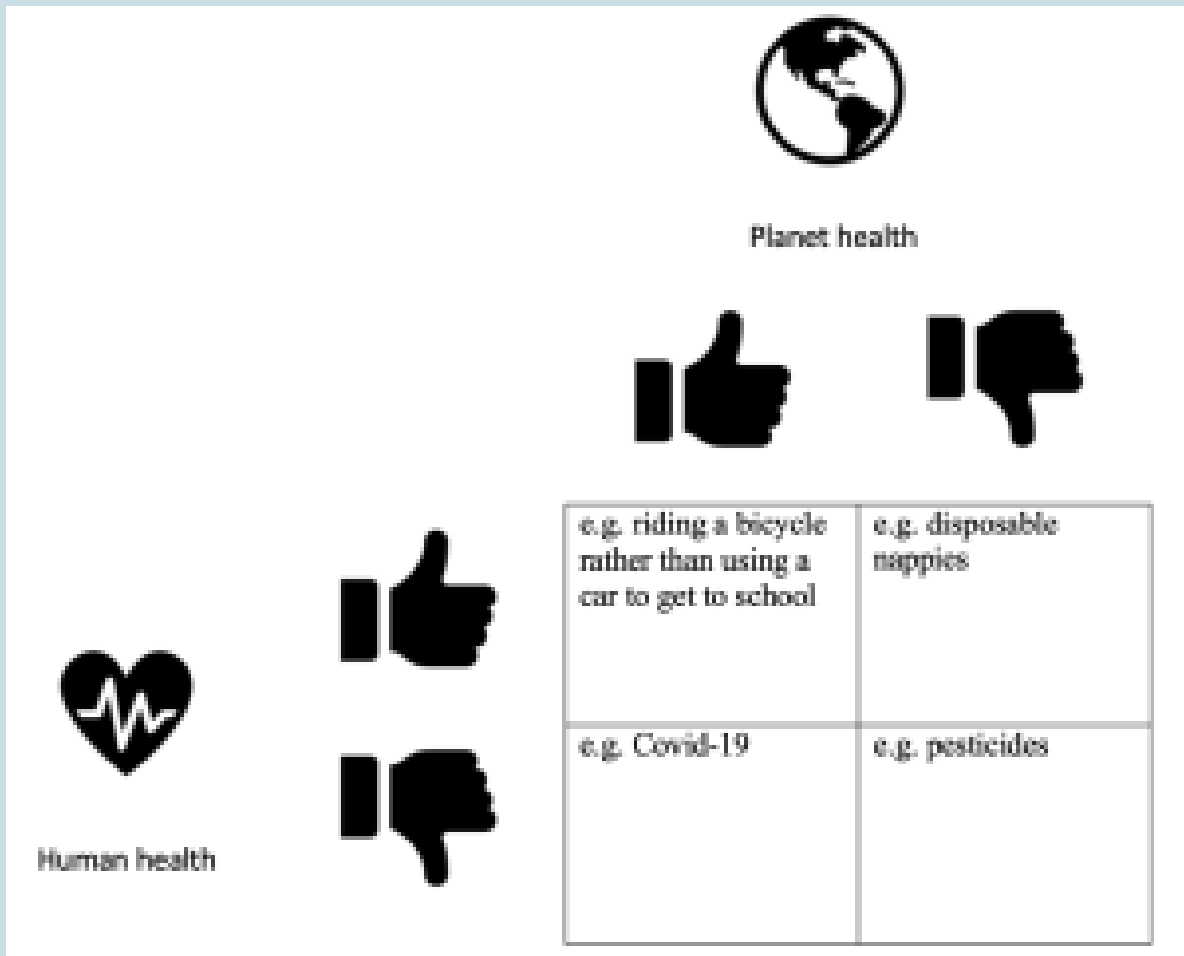
1. What things are good for your health? What things are bad for your health?

Is there something that you cannot decide whether it is good or bad for you (for example, watching television)?

2. What things might be good for the health of the planet? What might be bad?

Is there something that you cannot decide whether it is good or bad for the planet (for example, recycling your soft plastic waste)?

3. In pairs, discuss whether you agree or not where each of the examples have been placed in the box below. You may disagree with where the examples have been placed and you can explain why.



Planet health

Human health

e.g. riding a bicycle rather than using a car to get to school	e.g. disposable nappies
e.g. Covid-19	e.g. pesticides

- Working in pairs, draw your own table similar to the one above. Add your own examples in each box. It may still be difficult to decide where each example fits.
- Share and discuss your examples with the class.

Opportunities for Embracing Uncertainty

Uncertainty is core to this activity, as it is difficult to come to a position about whether or not something is healthy both for humans and the planet. Discussions need to focus on and explore specific contexts. For example, riding a bicycle is (arguably) good for the health of many humans (but not all); it is neutral for the planet although it has a positive benefit if it replaces carbon-fuelled transport (such as the car). Bicycles also

use carbon to be produced; electric bikes have a greater carbon footprint than others, and their batteries rely on lithium mining which causes damage to land and water supplies, and can threaten biodiversity and displace communities.

Opportunities for All Students

Younger children can talk about what helps them and the planet to be healthy. In addition, the teacher can take on the role of calling out suggestions, with the children running to a different corner of the room to indicate what they think. Examples of things to call out include birthday cake, sausages, aeroplanes, shop-bought drinking water, buying clothes, Lego, firewood, pets, showering daily, eating vegetables.

Opportunities for Creativity

Students could draw a picture of themselves as healthy, and another of a healthy planet, and make visual links between the images. This activity particularly lends itself to use with younger children, who may find creating links in the boxes above more of a challenge. Taking the icons in the illustration as inspiration, the older children might create their own visual representation of how human-planet health is linked, either by creating a logo or else an image for each box, for example.

Opportunities for Linking to Climate Justice

This activity encourages students to think about ‘planetary justice’ that relates both to the planet and humans. It is also about how human health is not just about our own bodies but about relationships. It focuses on the relationship between what we do as humans, and its consequence for the planet, which in turn affects other humans – including future generations and those most vulnerable to the risks of climate change.



Visual Encounter

Zooming in on sanitary products



Piles of rubbish on Puruih beach

1. Look at the photograph and consider:

- What do you see?
- What do you think?
- What do you feel?
- What questions does it raise for you?

2. Some of the waste is menstrual products, including

disposable tampons and pads.

About 800 million people menstruate each day. This is 26% of the global population.

Here are some key statistics for India, a large country, with a population of 1.4 billion people:

- 121 million women and girls use an average of eight disposable and non-compostable pads per month
- This adds to 1.021 billion pads monthly, 12.3 billion pads annually.
- This menstrual waste weighs 113, 000 metric tonnes annually.

Here are some key statistics for the United Kingdom, with a population of 68 million people:

- 15 million people menstruate in a year.
- 137,000 girls miss school due to a lack of access to menstrual products.
- They use 3.3 billion individual menstrual products a year.

There are different types of menstrual products, such as tampons, pads and menstrual cups.

Tampons and disposable pads are single-use products. Unlike food companies, menstrual products companies are not required to state the materials that make up their products. The two main materials are known to be cotton and, commonly, plastic. They also usually contain chemicals: regulations require these to be non-hazardous and in low concentration. There is some debate about whether the chemical levels are appropriate for use in or on the body. Tampons and pads without plastics and chemicals are more expensive to buy.

Menstrual cups are reusable products. They are made from silicone, which comes from a natural product called 'silica'. Reusable menstrual pads are made of cloth and absorbable materials. Like menstrual cups, reusable pads can be washed and reused for years. Menstrual underwear, also known as 'period pants', are another reusable option.

Have a look at a range of menstrual products and think about the facts above.

- What stands out for you?
- What questions do you want to ask?
- What feelings are raised for you?
- What should be done? By whom?

Write your responses on a piece of paper, a board or sticky note, and place where all the group can see it and discuss it together.

3. In the UK:

- 222,000,000 tonnes of waste are produced a year.
- 27,000 tonnes of this waste are from menstrual products.
- 0.01% of all waste is therefore from menstrual products.
- 3,300 tonnes of menstrual products are flushed down the toilet.

In pairs, discuss what you think:

- Is 0.01% a lot or not? Why do you think so?
- If you do not live in the UK, how much menstrual waste do you think is produced in your country? More than the UK? Less than the UK? What makes you think so?
- Who and what is responsible for the pollution?
- What should be done? By whom?

Be ready to share your thoughts with others.

Opportunities for Embracing Uncertainty

This activity encourages students to think about the multiple possible factors that contribute to the polluting waste of sanitary products, that extend well beyond the individual person. It might include, for example, a lack of menstrual waste bins; the companies that make products out of plastic; the oil industry for producing plastics; governments for regulating products and waste; society for creating shame around menstruation that creates silence, limiting discussion and questioning. It also enables young people to identify their own questions and feelings in response to the 'facts' to do with human and planetary health.

Opportunities for All Students

This activity is aimed at students who are both pre-menarchal (onset of menstruation) and of menstrual age, but it is also designed for boys and people who do not menstruate. The activity requires the teacher to bring examples of menstrual products. Here is a useful site with illustrations of different products, which may be particularly useful if it is not possible to source some or all products: <https://www.dreamstime.com/menstruation-set-elements-pads-tampons-menstrual-cup-other-feminine-hygiene-products-menstrual-calendar-female-menstruation-image155647745>.

Further discussions on the history of menstrual wear can be explored, including a focus on the sustainability of menstrual products over time. Two useful UK sites include the V&A <https://www.vam.ac.uk/articles/a-brief-history-of-menstrual-products> and the Science Museum: <https://www.sciencemuseum.org.uk/objects-and-stories/everyday-wonders/menstruation-and-modern-materials>.

The annual and India figures are from this document: <https://www.worldbank.org/en/topic/water/brief/menstrual-health-and-hygiene>

Opportunities for Creativity

Students can think of ways they could design their own menstrual product: what locally sourced or recycled materials would they use? They could draw a picture of their product or even create a prototype. What features would they choose to prioritise (e.g. comfort, attractive design, leak-proof, safety, environmental sustainability, etc.) and why?

Opportunities for Linking to Climate Justice

This activity further explores the link between human health and planetary health. Where it is safe to do so, this activity could be undertaken alongside a beach/street/rural walk to identify types of waste encountered with the purpose of a supervised litter collection. Alternatively, this activity could be undertaken alongside a walk to the nearest outlet that sells menstrual products: students could be asked to identify types of products available in their locality, the sustainability of the products and their packaging, the cost and the impact of product availability on menstruating people and the environment. They might deliberate the tensions in purchasing desirable products, as well as a consideration of how else these products are, or might become, available for reduced or no cost. They may have seen free products available in libraries, public toilets, etc., which might generate discussion on the desirability of this. Things they might wish to consider include affordability and inclusion, the range of products available for free, whether products in public places might also change public attitudes and perceptions of the shame of menstruation.

In the UK, tax was taken off menstrual products in 2021: <https://www.gov.uk/government/news/tampon-tax-abolished-from-today>. The students might also want to deliberate their views on this change, including reasons why tax might have been originally included and the effects of the reduced price of the products.

This accessible paper offers background information on the different things that constitute menstrual product pollution: <https://obgyn.onlinelibrary.wiley.com/doi/full/10.1002/ijgo.14311>, and addresses issues of accessibility to menstrual products (sometimes known as ‘period poverty’) that includes details of country governments that have increased access in schools and/or public places (e.g. Scotland, New Zealand, France, Kenya, Uganda, Zambia). The paper highlights that whilst attention has been given to the social justice context for humans to have equity of access, nonetheless little attention has been given to the global and environmental impact of these products.



Deliberative Encounter

Expanding ideas of menstrual health

Menstrual health is defined as complete physical, mental, and social wellbeing in relation to the menstrual cycle.

1. In a small group, identify **2 truths**, **1 myth** and **1 question** about what supports the health and wellbeing of someone who menstruates, for each of the following:
 - Physical
 - Mental
 - Social

First, share your **truths** and **myths** with the whole group. See if others can guess which is which.

Next, write your own group **questions** on a sheet of paper. Place your own sheet somewhere around the room. Everyone, staff and students, can now be invited to go around the room writing responses. This might be an answer, a suggestion, or a further question. Together, discuss what has asked and the responses. What more might you need to find out to answer the questions?

2. The definition of menstrual health does not include any reference to planetary health.

In your groups, design the packaging and/or a leaflet for a menstrual product that addresses physical, mental, social and planetary health. Include the images and text that you think might be helpful.

Once you have drafted your design and text, again put these around the room and invite others to comment.

3. There are people who are differently abled (living with a physical, mental or learning challenge) who menstruate.

What particular challenges with menstruation do you think they might experience? How can they be supported? How do you think products appropriate to their use can be designed?

Opportunities for Embracing Uncertainty

This activity offers an opportunity for students to explore knowledge about menstruation and how it is viewed and experienced diversely, as well as the varied possible implications for both the health of people and planet. The discussion might identify whether and how students (and teachers) can talk freely about menstruation or what prevents this. This offers the opportunity to discuss the possible reasons and its effects. A useful resource for teachers is Chella Quint's *Period Positive National Curriculum for England*: <https://periodpositive.com/period-positive-menstruation-education-programme-of-study/>. This resource supports teachers with a language for menstruation education. The activity offers the opportunity to revisit the Brief Encounter, to consider how human and planetary health are interdependent.

Opportunities for All Students

This activity aims to explore the value of lifting menstrual taboo and stigma. It can explore historical and cultural perspectives, and current euphemisms, often associated with the shame of menstruation. This can be used as a prompt to discuss ways to enable inclusive and affirming language. It is an opportunity to include students who menstruate, as well as those who do not. The latter may include those who will never menstruate and those who come to menstruation later, and some may also experience anxiety in relation to their own body.

Opportunities for Creativity

In designing the packaging of their product, students might think about what features they want to emphasise, as well as the sustainability of the packaging. Some students might create a prototype of their product and/or packaging. In addition, they might think about how to advertise their product, and this would link well to the Topic 4 (Food Shopping), particularly the Visual Encounter and Encounters Beyond the Classroom, that focus on the art of persuasion and creating adverts. In thinking about the inclusive and affirmative messaging about menstruation, students might create a collage or a collection of the myths, truths and questions that can be used for further enquiry and reflection outside of this session.

Opportunities for Linking to Climate Justice

You can read more about the definition of menstrual health here: https://thecaseforher.com/wp-content/uploads/2021/04/MenstrualHealth_defined.pdf. The definition was developed by 51 expert stakeholders from the Global Menstrual Collective in 2021 (You can read about this movement here: <https://thecaseforher.com/blog/introducing-a-new-definition-of-menstrual-health/>). This was then taken on by the World Health Organisation (WHO).

Students might want to deliberate why the WHO had omitted to define menstrual health previously and why they might have neglected this topic affecting half the world's population. Be aware that there are many children who cannot access any or enough menstrual products and this can impact their health and their education. Some children seek to resolve this for themselves and their peers and there are many international organisations that address this.



Menstrual histories

Interview someone you know over 50 years old that you feel comfortable talking to. Ask them about their experience of menstruation over their lifetime.

Think what questions you might want to ask. Here are some example questions to get you started.

- What word/s did you use for menstruation in your lifetime?
- How did you learn about menstruation? Who told you and how?
- What were your personal experiences of menstruation when you were at school or in public?
- Did menstruation have any impact on your health:
 - Physically?
 - Mentally?
 - Socially?
- Did you ever have difficulties accessing menstrual products? What were the effects and what might have been done to help you?
- Have you ever thought about the impact of menstruation products on the planet's health? In what ways?
- In what ways did friends or family members support you during your menstruation?
- What advice would you give to young people about menstruation now?

Here are some example questions for those who never menstruated:

- What word/s did you use for menstruation in your lifetime?
- How did you learn about menstruation? Who told you and how?

- Did or does menstruation have an impact on the health of anyone you know:
 - Physically?
 - Mentally?
 - Socially?
- What was that like for you?
- Have you ever thought about the impact of menstruation products on the planet's health? In what ways?
- What advice would you give to young people about menstruation now?
- How do you, or can you, support people who menstruate?

Decide how you would like to share what you found out with others. Think about how their experiences might be valuable for those who are younger. You could draw, write, or use some other media.

Opportunities for Embracing Uncertainty

This activity embodies uncertainty. It is possible that the people approached (over 50 years old) may not feel comfortable talking about menstruation; they may lack the language to explain menstruation or various aspects of health such as mental and social health. Reassure the students that it is okay if older people do not feel comfortable speaking about menstruation. Reassure the students that they themselves may feel awkward speaking about menstrual health with older people to begin with and this is okay. Students can be encouraged to recognise that menstruation is a normal, healthy bodily process and it is okay to speak freely about it, but equally okay if they do not want to do so. This is an opportunity to model and explore together the ways in which it is okay to talk about menstruation in your particular context.

Opportunities for All Students

This exercise, in inviting inter-generational discussion, is an opportunity for students to consider the whole menstrual timeline, from pre-menarche to menopause. It is also an opportunity for non-menstruating students to consider the changes that happen in their bodies and hormones over time, and how their interdependencies with those who do menstruate. Students who are unable to find an adult over 50 to speak to about menstruation can have the same discussion with their teacher. The teacher could also help

identify other members of staff and the community who are willing to speak with students. Some students will need more input than others to come up with their interview questions.

Opportunities for Creativity

The creative aspect of this activity comes through in identifying questions, creating the right environment for their interviewees to open up, including how to ask the questions and to demonstrate their openness to hearing the unknown and unforeseen responses. The students might also choose to feedback what it is that they hear through a creative written or visual presentation. This might include a poetic or visual artistic response, for example.

Opportunities for Linking to Climate Justice

This activity can be very revealing of differences in attitudes and language about menstruation between different generations, as well as across different groups including those of different genders, social class, ethnicities and cultures. This includes both for the students themselves and those they talk to. Students could explore these issues through, for example, creating their own ‘Guide to talking about menstruation’, thinking very carefully about their particular audience. Students might reflect both on their indebtedness, and the legacies, of those came before, as well as the students’ own indebtedness to future generations, with regard to the relationship between human and planetary health.

Chi Eziefula, Anne Gatuguta, Perpetua Kirby, and Rebecca Webb

TOPIC 12: NATURE CONSERVATION



Brief Encounter

Noticing what matters to you and other species

1. Create a map of the grounds around your educational buildings or an area of them. Mark on your map, in any way you choose, 10 things that you feel are important to include.
2. As a whole group, share your maps. Discuss what you marked, how, and why you felt it was important to include the things you did.
3. Having compared and discussed your maps and what you each marked, is there anything you would change on your own map now? Why?
4. As a group, how might you create a range of categories for the different things that you marked on your maps?
5. Why might you all have noticed and prioritised different things? What might this tell us about what matters to each of us?
6. Pick a plant or animal species that uses the grounds as well. Imagine them looking at your map. Of all the things marked on your map, which might they have marked too? What else might they have marked? What does that tell us about what

matters to this species?

Opportunities for Embracing Uncertainty

Uncertainty is integral to this activity, with each person/group likely to notice and map different things, as well as the logic of how they choose to categorise the diversity of what is noticed. What they notice will be determined by multiple factors such as feelings and connection to the place, identities and culture, knowledge, prior experiences and memories, likes/dislikes, and their particular role within the organisation, as well as wider experience of the outdoors. Students are asked to identify their own categories, and to explore the multiple ways this might be done. Examples of categories that you might share or probe with the students include: types of objects (trees, insects, natural objects, buildings, equipment, technology, waste; etc); sensory factors (size, shape, colour, sound, smell, aesthetic, etc.); utility (play, work, infrastructure, transport, etc.); personal connections (memories; experiences; imaginary); environmental factors (carbon sequestering objects, animal/plant species, soil, nitrogen fixing plants, carbon intensive objects, green technologies). Crucially, the activity engages students with thinking about the perspective of other species and how they might experience the grounds differently. This activity links well to [Topic 15: 'Creating a Global Agreement'](#) and in particular the last 'Beyond the Classroom Encounter'.

Opportunities for All Students

The opportunity to map can be made as simple or complex to fit the group. Those who may find mapping challenging, could instead just be asked to say what it is that they notice, or else a map template could be provided. If, for any reason, it is not possible to go outside into the grounds, the students can be asked to think what comes to mind about what they might notice.

Opportunities for Creativity

Students are asked to generate creatively their own categories which includes the possibility to re-think and be divergent about what might classically be considered a 'category'. They might also be encouraged to 'map' the grounds using different media, possibly for example using found objects, where the students bring objects to a large map placed on the ground. Others might digitally map photographs of things identified. The activity also demands that students imagine themselves as another species which may require them to identify that they need to know more about the species and to think through where they might need to go to find this out.

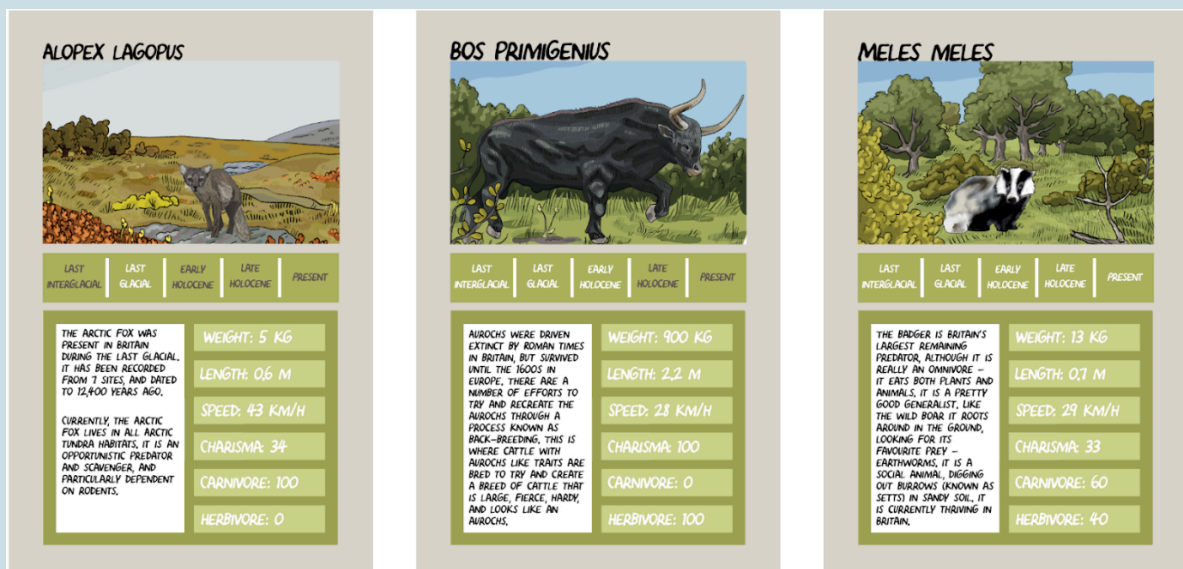
Opportunities for Linking to Climate Justice

Key to this activity is that students explore planetary justice through a consideration of interspecies justice, whereby the focus is not just on the wellbeing of humans but of non-human species living alongside them. Addressing justice issues for nonhumans is about conservation and restoration of diverse ecosystems. At the same time, this requires attention to associated social justice issues that this might raise, with a consideration on the balance of impact on humans as well as nonhumans. It raises questions about which humans are expected to adapt (e.g. move, change livelihoods, etc.) and which groups are included in deliberations about what to do to ensure interspecies justice. The activity could be extended to think about their own grounds and to deliberate which humans have access to particular areas and on what basis (e.g. some student groups dominate certain sports or eating areas; adult only access to quiet or utility areas), as well cultural and aesthetic preferences (e.g. for mown lawns rather than rewilded areas) and risks of harm (e.g. insect bites, water, dangerous trees, poisonous plants). How might entitlement and access be rethought to achieve a balance between different human groups and multispecies groups? When students discuss the differences of what they include on their maps, this might also prompt a discussion of cultural diversity and interests of what is noticed and valued.



Picturing mammals past and present

1. Have a look at the cards of Britain's large mammals, past and present. Here are a few examples.



These cards, created by the community group Rewilding Sussex, give illustrations, information and fun facts about all the mammals larger than 5kg that have roamed Sussex since a period known as the last interglacial

You can find the full list of cards for downloading here: <https://rewildingsussex.org/projects/sussex-past-and-present-mega fauna/>

- What do you notice? What interests you? What surprises you?
- Share your thoughts and observations with others.
- The cards are designed for a game of 'Top Trumps' that you might want to play. This is where you share out the cards, compare the numbers, and the person with the highest value wins.
- What other games might you play with these cards? Think about what other resources

you would need to play a different type of game with the cards (e.g. multiple packs of the same cards to match cards in Snap, or the memory game Pelmanism).

- Design your own game to play with the cards that draws the players' attention to the changes over thousands of years where some mammals have remained, and others have become extinct.

2. Read this short graphic short story of how Sussex has changed over the last 115,000 thousand years:

<https://rewildingsussex.org/projects/through-the-backwards/>

- In your group, create your own visualisation of one epoch. You will be given the epoch to describe, but don't tell the other groups which one you have.
- A visualisation describes somewhere in a way that takes the audience to what you are describing. This might include the things you see, what you hear, smell, taste, as well as what you might think and feel.
- The visualisation must include one random thing that does not fit your epoch. This might be an animal, a plant, another natural feature, some technology, a smell or sound, or a thought or idea.
- When every group has completed writing their visualisation, take it in turns to read out to the others. Ask other students to do two things:
 - Guess the epoch, giving their reasons why.
 - Identify the one random thing you have included that does not fit the epoch. Ask them to say why.
- Did the other students also notice things that did not fit the epoch that your group hadn't planned or noticed yourselves?
- Consider altogether why might things have changed across the three epochs. What might have been the role of humans and other factors in producing this change?
- Using the worksheet '[Through the Bush Backwards](#)' explore in pairs how you feel about the landscape in the region where you live: how it could be improved? Think about what you would like to bring back from the past, and what you value now, to create your own vision for the future. The worksheet can be found on this webpage: <https://rewildingsussex.org/projects/through-the-backwards/>

Opportunities for Embracing Uncertainty

The uncertainty of this activity is in the variability of what students notice, and what they choose to draw

others' attention to. This includes through the games they select to play and those they design, as well as in their crafting of their visualisations of the epochs and the landscapes of where they live. A key role for the teacher is to challenge the students to think carefully about what it is that they desire, and the implications for themselves, other people and other species. This requires them to think beyond immediate pleasures and gratifications.

Opportunities for All Students

These activities can be made as simple or as complex as appropriate. For example, some students may take great pleasure in having the cards printed off, to look at and play with. This site offers helpful instructions on how to play Top Trumps: <https://www.wikihow.com/Play-Top-Trumps#/Image:Play-Top-Trumps-Step-05.jpg>.

Opportunities for Creativity

For all students, the activities are inherently creative and require them to imagine another time and place, as well as how to create a narrative that takes their audience with them. Some students may want to spend time with the cards, to integrate them into their own imaginary games, including within their play, conversations and stories, and/or to recreate them with junk modelling, clay or drawing, for example. Some may want to explore the incongruity of having animals from different epochs together in play or imagined conversation.

Opportunities for Linking to Climate Justice

This activity draws attention to how species have become extinct and raises the opportunity to consider the reasons why, including the role of humans, throughout history and in the current geological epoch described as the Anthropocene. Students may bring their cultural diversity into their own game design as well as into shaping what they select for their future. These differences would be a valuable topic to surface and explore with the students.



Deliberative Encounter

Messy deliberation

This activity invites you to consider this question: Is biodiversity too messy for the grounds around your building/s?

1. Firstly, walk around the grounds of your building/s in pairs or small groups and identify the 3 to 5 areas with plants and animal species. You might include grassed areas, planted borders, vegetable patches, plants growing where they were not originally planted by humans (e.g. in between paving slabs, out of the sides of buildings, in guttering). For each of these areas, decide whether you consider them to be 'messy', 'tidy' or 'neither'. Say why. Does everyone in your group agree or are there different opinions?

What other adjectives would you use to describe each area?
Why?

If you were an animal species – such as a butterfly, bee, worm, hedgehog – what adjectives might you use to describe each of the areas, do you think? What would explain the difference between your own and the animals' choice of adjectives?

2. Now, in pairs or on your own, go and find somewhere to sit. Look carefully around you and notice what you can see close by. This might include the ground, plants, small insects, found things or made things, and any sounds or smells. Perhaps your area is busy/calm or noisy/quiet (whether this is made by humans, other species or things), and perhaps how you would describe your area changes over time. Create a short story that you could tell to others, taking inspiration from what you have noticed.

Come together and share your stories. What is similar or different about them?

Invite those listening to your story, to make links between your chosen area to sit in, and

the story that you have created. Which creatures (human or other animals) or plants would be drawn to the area that informed your story? Why?

All together, discuss how all the different stories have been shaped by the areas in which they were created. Identify some of the key factors. Collectively, do your stories generate any recommendations for those responsible for looking after and planning the grounds of your building/s? What might need to stay the same and what might need to change? Who else might need to be involved in making some decisions about this?

Opportunities for Embracing Uncertainty

Within recent years, much has become known about the value of wilding to ensure greater biodiversity, although this presents challenges, especially for built environments designed to keep humans and nonhumans separate. It recognises the value of multiple perspectives when balancing human interests with those of other species.

Opportunities for All Students

Students can engage in as much or as little detail for each of these activities. Some may benefit from a more explicit playfulness and embodied engagement in the space, such as running, rolling, touching the environment, rather than simply sitting, and attending to it. The storytelling can also take many forms and, where appropriate, can be modelled and even done together with another person, such as an older student, a parent, or teacher.

Opportunities for Creativity

When telling their stories, the students might do this in a number of different ways. This could include audio recording, drama, comic strip, storyboard, etc. The stories can be done taking on and acting out the different roles together, such as that of the butterfly, or the grass or a tree. Those taking on different roles might enact what is it possible for them to do (i.e. a tree can't move but a butterfly can fly around relatively freely), as well as to identify their respective experiences. For some, creating props and costumes might be key in engaging their interest, excitement and deep thinking.

Opportunities for Linking to Climate Justice

The Anthropocene has championed the command that humans have in containing nature. This activity is designed to examine whether it is possible and desirable to shift the balance to allow for greater biodiversity. It acknowledges and aims to surface the multiple and competing perspectives about whether, where and how to do so. These perspectives are informed by people's cultural and classed identities and can become fraught with deep polarisations and moralisations. Rather than assuming any given perspective is correct, the activity seeks to explore how the students, their communities and other species might experience the grounds around the building, and the possibilities for something different to be done in how these are maintained.



Beyond the Classroom Encounter

Creating and using a seed disperser

1. Collecting seeds

You need to collect some seeds that you will then go on to disperse elsewhere in an appropriate area. Think where that area might be and consider these questions:

- Where do you have access to? This might be a private garden, a window box, an allotment, a park, a woodland, or patch of waste ground (from a crevice in the pavement or a larger area).
- Do you have permission to access this area? (Check with someone who knows if you are unsure)

Next, you need to think where you might access seeds to disperse. Again, consider these questions:

- What areas of land can you access, and do you have permission to access this area?
- How will you identify seeds on the types of plants that might grow in this area?
- What types of seeds might you find and at what time of year? You might include seeds

from wildflowers, grasses, trees, shrubs, edible plants, etc.

- What part of the plant is it appropriate to pick?
- How might you carry and store the seeds?

When you are ready, go out and collect some seeds. Then try to identify the plants from which you have picked your seeds. How will you identify the plant species?

Now consider whether the collected seeds are appropriate to your chosen area:

- What will others think about the dispersal of your particular seeds? Who or what might be supportive, and who or what might not? Would there be benefits or challenges in asking what people think?
- How will the seed dispersal be experienced by existing plant and animal species?
- What might be some of the unforeseen consequences of dispersing your seeds in this area?

Are there some seeds that it would be better not to disperse in this area? What makes you think this?

2. Making a seed disperser





The examples in the above illustrations were developed by: Alice Gray, Alice Weatherell-Toms, Piotr Szota, Max Withey, and Tom Blackburn

Using the materials provided, design a contraption that can be used in a fun way to disperse the seeds that you have collected.

- How will you know that you have been successful in the design of your disperser? Think about what you know now and what you might have to wait to find out.

Consider the appropriateness of different materials for making your seed disperser:

- What things might you need to think about when deciding if they are appropriate?

- When planning your design, consider how nature disperses seeds by wind, water, fur, hooves, poo, etc. What can you learn from this?

Once you have made your disperser, go out to the area that you decided would be appropriate for seed dispersal.

Go out and use your seed disperser!

Opportunities for Embracing Uncertainty

Typical school curricula will guide students as to the processes and primary conditions for germination. However, the activities described here are designed to give experience of some of the uncertainties inherent in germination. There is the added uncertainty of what seeds students will find, which can lead to a discussion about how and why they have found different things. They might also consider what else they need to know to become more adept at locating and collecting seeds. Where students can work in groups, even if only for parts of the activity, this will help to generate richer deliberations and support them to identify solutions in response to the questions and challenges raised.

Opportunities for All Students

This activity can be used with a wide range of students, although they will engage in different ways and degrees, including in the sophistication of their disperser designs. Some students may need some initial input on what is a seed, and useful basic introduction can be found here: <https://kids.britannica.com/kids/article/seed/399591>.

Others, with deeper curricula knowledge, might consider what types of seeds would germinate in their chosen area, taking into consideration factors such as light, soil, exposure, etc. It is important for students to know the legal limitations of what it is they can pick and collect. In the UK, for example, this includes not uprooting wild plants without permission of the landowner/occupier, although the collection of seeds is allowed if not in a protected area. (You can find more information here: <https://www.plantheritage.org.uk/conservation/conservation-cultivation-advice/plant-legislation/>).

There are different online resources that can be used to identify plants, as well as resources available from libraries. A useful app, although it has a cost, is *Picture This* (see: <https://www.picturethisai.com/>). Here is a link to a useful website on making seed bombs for seed dispersal: <https://www.wildlifetrusts.org/actions/how-make-seed-bomb>

Opportunities for Creativity

The creativity of this activity is primarily in the students designing, making, and using their seed disperser. The types of materials that can be provided will vary depending on the student group, and the ambition of the design task, but might include junk modelling using cardboard containers; non-peat compost; clay; corn-based plastic; non-plastic sticky tape; and cornstarch packing. You might also include some non-biodegradable materials, including those made of different types of plastics, to open-up discussions about the appropriateness of their use for this task.

Opportunities for Linking to Climate Justice

The activity draws attention to the challenges for plants of seed dispersal and germination, and the role of the human in supporting this process. It also draws attention to how human intervention might not be appropriate and requires careful consideration. Thinking about how other people might respond to the seed dispersal needs the students to consider aspects of the built human environment, the challenges, and possible effects, of the subsequent roots and plant growth on those who live or work in or close to the area.

Perpetua Kirby, Christopher Sandom, and Rebecca Webb

TOPIC 13: THE COMMONS



Brief Encounter

A common purpose

Get into groups of six of your own choosing (maximum six people). How will you ensure that everyone is included and no one feels left out?

- You have five minutes to build the strongest wall you can together, using the resources provided.
- Now write a different word or phrase on each sticky note to describe your feelings and actions that did or did not help to build a wall together. Stick your notes on your wall.
- Next, go around and look at each other's walls and notes.
- All together, discuss what is common about what each group has done or written.
- Finally, in your groups, look at the following line from the poem '[Mending Wall](#)' by the American poet Robert Frost, and decide whether to dismantle your wall or to strengthen it further. Be ready to discuss your reasons why with the rest of the group:

'Good fences make good neighbors.'

Opportunities for Embracing Uncertainty

In this activity students must work together on a common purpose of building the wall, and to think about what it is that they are doing and feeling about their collaboration towards this end. It helps to emphasise that the 'commons' are things that you do, not things that exist independently of people; anyone can be a commoner through doing things with others. There is a paradox in considering the sharing of the wall

building as ‘commoning’ because this is normally associated with removing barriers to enable a shared space to open up. Another complexity is that creating things together can involve a mixture of feelings, and can reinforce or create new barriers, like walls. There is no one correct response to the line of poetry: the idea is for students to consider both what a wall might offer or exclude. This encourages deeper reflection, and to avoid a simple vision of commoning.

Opportunities for All Students

This activity can be done with all students, although the complexity of their wall building, and the depth of discussion will necessarily vary. Some might prefer not to write but only speak about their excitements and frustrations, for example, of the task.

Opportunities for Creativity

Students have to think creatively together about how to build their wall. There are various resources that you might provide, such as craft sticks, egg cartons, clay, small rocks, pieces of cardboard or poster board, paper tubes, paper cups. You could be minimalist and provide only string. Some students may value looking at the whole poem, *Mending Wall*, to deliberate the poet’s own position on building walls: <https://www.poetryfoundation.org/poems/44266/mending-wall>

Opportunities for Linking to Climate Justice

Climate change is increasing global migration, and a common response is to put up walls to stop the movement of people. This might be because others are perceived as threatening security or challenging existing resources. Migrants might also be seen as challenging a perceived commonality of beliefs, values and interests. Therefore, this activity explores the benefits and challenges of sharing and being in common together and what building barriers might enable or limit. Some students may be able to make connections with populist messages on social media about the call to build walls to stop migration, to interrogate often overly simple messages. The activity begins to introduce the idea of walls protecting private property, particularly when drawing on the Robert Frost poem, and some students might at this early stage in the topic begin to raise questions themselves about the value of individual or collective property rights. This includes who gets to decide, based on who can afford to make, or influence, decisions on private and collective ownership.



Visual Encounter

Access to common land



Kinder Scout

How would you describe the scene in this old photograph? Ask yourselves and those around you: What? Where? Why? Who? When?

Now read more about the scene:

This is the story of the pivotal moment when walkers went onto open rural private land in the Peak District in the north of England, to demand that it become open to everyone to use in common. It paved the way for people in England and Wales to be able to use rural land for fun, leisure and sport, even when they do not own the land. [The photograph shows the Kinder Scout Mass Trespass protest event, 1932].

- Imagine you are in the crowd... how might you be feeling?
- Imagine you owned the land... how might you be feeling?

In small groups, create a conversation between protestors and landowners, discussing why people should or should not have access to private rural land. In each group, choose who are to be the 'protestors' and the 'landowners'. Also identify one person to be the 'mediator' who will

encourage others to listen to each other and ensure everyone gets to put their point of view. Decide how you will make a note of the key points raised by the protestors and the landowners. After your discussions, come together:

- Share the key issues raised by protestors and landowners. What were the similarities and differences between your various groups?
- Were any of the groups able to come to a common position?
- If you did, what helped you to do so? If not, what got in the way?
- What might you do differently next time to help come to a common position?

Opportunities for Embracing Uncertainty

Looking at the photograph without knowing its context or history surfaces students' assumptions, stereotypes, imaginations, and generates questions as much as answers. Students will pick up on different aspects of the scene that they wish to communicate to each other. By inviting students to imagine the perspective of either the protestors or the landowners, they have to consider difference. This includes the perspectives of those with whom they might not sympathise. Lastly, they have to think about the complexity and challenge of engaging with the tensions in different perspectives, which can be accomplished in multiple ways. An additional resource, of an advert about a skinhead, can be used to help break down too-easy stereotyping about who is 'good' or 'bad' (and who is likely to be a 'landowner' and 'protester'): https://www.youtube.com/watch?v=_SsccRkLLzU&t=1s.



One or more interactive elements has been excluded from this version of the text. You can view them online here: <https://openpress.sussex.ac.uk/creatingwithuncertainty/?p=692#oembed-1>

Opportunities for All Students

Younger children could be invited to negotiate the sharing of a toy. Some students will be interested to know that these protests were the precursor to the formation of the National Parks, Right to Roam, and open access land today in England and Wales. A useful link for some to watch on the Kinder Scout protest can be found here: <https://www.youtube.com/watch?v=jmFZAwgYnfo&t=752s>.



One or more interactive elements has been excluded from this version of the text. You can view them online here: <https://openpress.sussex.ac.uk/creatingwithuncertainty/?p=692#oembed-2>

Students might be able to link the historic protest to contemporary examples, both local, national and international. For example, see the protests over common access to Dartmoor, in the south of England: <https://www.theguardian.com/environment/2023/jan/15/something-beautiful-has-been-taken-away-campaigners-vow-to-fight-ban-on-dartmoor-camping>.

Opportunities for Creativity

Thinking differently and going against the grain is inherently creative as it requires people to reimagine what is assumed to be normal and everyday. The roleplay encourages imagination, empathy and creative problem solving. The students might represent their roleplay visually, creating their own image, whether using body sculpture, photography or drawing, for example, inspired by the photograph.

Opportunities for Linking to Climate Justice

There are other examples of how protest have resulted in land being returned to the commons. An example of a female-led campaign is that of Octavia Hill, who helped to return Epping Forest to a commons: ‘unenclosed and unbuilt on as an open space for recreation and enjoyment of the people’ (Epping Forest Act 1879), and you see more on this here: [Women’s History Month – Epping Forest Heritage Trust \(efht.org.uk\)](https://www.efht.org.uk). Here is modern example of a successful protect in the USA to have the pavement verge protected as a ‘commons’ on which to grow plants: <https://www.youtube.com/watch?v=7t-NbF77ceM&t=25s>.



One or more interactive elements has been excluded from this version of the text. You can view them online here: <https://openpress.sussex.ac.uk/creatingwithuncertainty/?p=692#oembed-3>

Another successful commons protest includes the Xolobeni community in South Africa against planned mining and for the defense of customary land rights and sustainable rural livelihoods, including common grazing of land by cattle: <https://futurenatures.org/photo-story-xolobeni-a-commoning-success-story/>. Here is another similar example in Portugal in which a common land association protests against mining

interests: <https://www.bbc.co.uk/news/world-europe-67135047>. Here is a list of lots of examples of international commoning projects that demonstrate the range of ways in which the commons can be configured, whether through open access to music, the exchange of people's time and skills, or grassroots journalism: <https://www.bollier.org/commons-resources/commons-projects>



Deliberative Encounter

What is 'common'?

1. What does the word 'common' mean to you? Here are some words to start you off: popular, shared, poor, universal, collective, middling, community, inferior, public, joint, usual, congruous.

In small groups, now come up with your own words and ideas.

Next, sort these in any way you choose. Tell others about why you have sorted them in the way you have.

2. One definition of 'common' is people sharing and doing things together for the benefit of everyone involved. In this definition, anyone can be a 'commoner' if they take part and are prepared to share. The 'commons' is the name given for the thing that people share, even when owned privately or publicly.

Here are some examples:

- Community gardens.
- The internet.
- Public library.
- Shared house.
- Sharing food.
- Tool sharing amongst neighbours.
- Public art, such as statues and monuments.
- Air and water.

- Shared histories.

Can you think of any others?

3. In pairs, discuss the following:

- How easy is it to share?
- Are there some things that are easier to share than others?
- What wouldn't you share with anyone?
- What would you like to share with everyone?

4. Some areas of land are called 'commons', such as some woodlands, and some local and national parks, although these are sometimes not commons when they are governed by authorities or governments with some rules and regulations about their use.

The Amazon rainforest might also be considered a commons:

- Global commons: the forest benefits all people and other animals on the planet who breathe in the oxygen produced by the plants. The plants also store carbon, helping to reduce climate change.
- Local commons: the forest is the home to indigenous communities.
- Species commons: humans live alongside other plant and animal species in the forest.

The Amazon might also be thought of as a resource to make money for international companies and local residents. It can be used to produce:

- Wood for furniture, building houses and producing heat.
- Medicines made from plants.
- Mining for precious metals.
- Food for local people by hunting animals and gathering plants.
- Food that feeds people internationally that is produced by cutting trees to grow crops and graze animals.

Divide into the following groups:

- Indigenous people living in the forest.
- Local people living near the forest.
- People living on the other side of the world.
- A company mining lithium to make batteries for electric cars.
- A local government official that wants to be re-elected.
- An environmental scientist who knows a lot about the animals and plants in the Amazon.

- The jaguars living in the Amazon.

In your groups, discuss what you think of the Amazon. Is it a resource to be used? Something mysterious? Something to share? Something to look after?

Find a way to visually summarise what your group discusses, to share with the rest of the class.

Share with the whole class what your group thinks. Then together, discuss the following:

- Where is there common ground between the groups?
- Where are there tensions?
- Is it possible to overcome these tensions through a process of negotiation?
- How might you do this?

Opportunities for Embracing Uncertainty

Interpretations of whether something is a ‘commons’ is also complex and nuanced, such as the Amazon forest, where there are different interpretations of how it might be a commons, and competing interests about whether it is or should be a commons or else serve commercial purposes. There are different definitions of the word ‘common’, and the usage of the word itself has changed over time in England, that have multiple and competing connotations. Some students might be interested in an image of the trends of the use of the word ‘commons’ since the start of the 18th century using: <https://books.google.com/ngrams/>. Ask them to consider what might be happening and possible reasons for the change in the use historically, as well as how they currently use the term, and what might happen to its usage in the future, and why.

Opportunities for All Students

This short introductory video on the Amazon Rainforest may be a good starter to support students for whom this seems very far away and disconnected to their own lives, as it gives an overview of the Amazon including the species and indigenous communities, as well as the threats such as deforestation, mining and agriculture: <https://www.youtube.com/watch?v=YxyDNrTlVlw&t=4s>.



One or more interactive elements has been excluded from this version of the text. You can view them online here: <https://openpress.sussex.ac.uk/creatingwithuncertainty/?p=692#oembed-4>

To reduce the complexity of the activity, students could focus more on discussing the questions in points 2 and 3. They might also consider places and things that they share in their community. What are they? What things do they do there? What do they notice others do? How does it make them feel? What is easy or difficult about it? Greater complexity can be achieved by digging deeper into the issues, following some of the lines of inquiry in the Climate Justice section below. You could also link to Topic 9: 'Forests', particularly the Sensory Encounter, which shows a film of life of communities in the Amazon during Covid. It also links well to Topic 15: 'Creating a Global Agreement', particularly the Deliberative Encounter which outlines some of the interests of key groups within Ecuadorian forests (such as the indigenous/local community, spider monkeys, and the government).

Opportunities for Creativity

The students must work out how to communicate their group discussions visually, and they may do this in multiple different ways. This topic fits the theme of conflict and power that might be picked up in other areas of the curriculum, such as English literature. It relates well, for example, to William Blake's poem [*London*](#), which critiques how streets and rivers of the city are privately owned (described as 'charter'ed').

Opportunities for Linking to Climate Justice

This topic is rooted in a particular colonial history of removing and 'enclosing' common land, placing it in private ownership and removing the assumption of common access. This has happened globally. You can find further excellent resources on the history of commoning in England here: [Three Acres and a Cow](#). The encroachment on the commons continues today with the extraction of resources, which can include minerals for 'eco' products as well as fossil fuels, as well as clearing land for agriculture, to meet modern consumer demands. Here is a link to a *New Scientist* article on mining extraction, with an excellent image that shows the Amazon being cleared for agriculture: [Amazon rainforest under threat as Brazil tears up protections | New Scientist](#). An example of an indigenous community trying to protect their ancestral land claim in the Amazon, can be found here: [In the Amazon rainforest, an indigenous tribe fights for survival | OHCHR](#)



Creating a commons beyond the classroom

1. Think about an area that you might all consider being or becoming a 'commons'. This might be an area of your school/organisation building or outside grounds (however small); a space in your local neighbourhood; a digital space; or an object.
2. The challenge of creating a 'commons' is that sharing can be difficult.

Thinking about your own commons, work out how you will address the following:

- Is it possible to share? Are there limits on what you can share? What will help you to share?
 - What does it feel like to share?
 - What belongs to everyone? And what belongs only to one or a few?
 - How will everyone benefit and contribute in some way (even if this is in different ways)?
 - Can other species or things be included in your commons? In what way?
3. There are further challenges for the commons.

Discuss how you will address the following:

- Challenge 1: Agreeing how decisions are to be made. Who will get to make decisions when there are lots of people to be heard?
 - Challenge 2: Defending the commons from those who might want to take it over or use it for their own benefit only. Does your commons need rules or not? What happens to those who break the rules?
4. Create a manifesto for your commons.
 - Take a sheet of A4 paper and create a small booklet using these instructions: <https://futurenatures.org/how-to-make-a-mini-zine/>

- Together, write key things that you have decided for your commons.
- Include simple visual icons for each key thing included in your manifesto that can be easily communicated to others.
- You can decorate your manifesto in any way you want that reflects what is important to those in your commons.

Opportunities for Embracing Uncertainty

This activity engages students with the nuance and complexity of sharing, beyond a romanticised view of ‘sharing’ as simply good and easy to sustain. Thinking about such challenges is important for considering how to share the world’s resources in ways that are sustainable for humans and other species.

Opportunities for All Students

The inclusion of the visual icons helps the students to think about how to make their manifesto accessible to different groups. The students might write their manifesto together or else first each create their own draft that they then discuss, negotiate and agree together. To engage with more complexity, some students can be introduced to the work of Elinor Ostrom, who won the Nobel Peace for Economics in 2009 for her work on how to manage a commons well. Read about her [eight key principles](https://earthbound.report/2018/01/15/elinor-ostroms-8-rules-for-managing-the-commons/) on how to do so.

<https://earthbound.report/2018/01/15/elinor-ostroms-8-rules-for-managing-the-commons/>
<https://earthbound.report/2018/01/15/elinor-ostroms-8-rules-for-managing-the-commons/>

Another helpful article about her work can be found here: <https://aeon.co/essays/the-tragedy-of-the-commons-is-a-false-and-dangerous-myth>.

Opportunities for Creativity

The manifesto enables students to think visually, as well as in text, about what is important and how to communicate this to others. It enables them to focus on their relationships with others and to different spaces or things, and how they value these. They will have to think about how to design their manifesto in a way that is engaging and clear to their intended audience.

Opportunities for Linking to Climate Justice

The challenge for students is in thinking how resources can be shared between everyone, and with other species. It aims to explore the values and processes for ensuring such equity and might raise philosophical questions about what it means to live well, together with others on the planet, and the extent to which this should be driven by individual desires or a communal endeavour to the benefit of a larger group. Advanced students studying economics or politics might wish to explore a critique that is named the Tragedy of the Commons, and whether this is indeed an ongoing challenge to the idea of the commons or an ideological argument for privatisation. The following two films might be useful to watch and compare to inform such a discussion. The first outlines the Tragedy of the Commons (<https://www.youtube.com/watch?v=jSuETYEgY68>):



One or more interactive elements has been excluded from this version of the text. You can view them online here: <https://openpress.sussex.ac.uk/creatingwithuncertainty/?p=692#oembed-5>

The second offers a critique of this assumed tragedy, with an assertion of the human and planetary benefits of living and working together with a common purpose and shared provisions (<https://www.youtube.com/watch?v=k0ZWFPVBTws>).



One or more interactive elements has been excluded from this version of the text. You can view them online here: <https://openpress.sussex.ac.uk/creatingwithuncertainty/?p=692#oembed-6>

These students may also enjoy reading this Zine on The Commons which connects this to ideas of capitalism, privatisation, colonialism and enclosures: <https://futurenatures.org/comic-future-natures-a-primer-for-the-curious/>

Perpetua Kirby, Andrew Lowe, Nathan Oxley, and Rebecca Webb

TOPIC 14: GIFTING



Brief Encounter

The Gift

A gift is a thing given willingly to someone without payment. It is often called a 'present'. Gifting is the giving of gifts. It is a practice that helps to build meaningful social relationships between different people or across different cultures.

Globally, there are many different gifting practices.

1. In groups of four people, you have 10 minutes to use the available materials to make four gifts that you would wish to receive. This is to be something to wear, such as a bracelet, keyring, necklace, anklet, badge, belt.
2. Now you have to decide how to give all the gifts made by your group to one other group of four. You don't need to exchange all the gifts with the same group. The challenge is to decide how to give in a way that builds social relationships across the whole class/group.

Making the gifting decisions

- How will you decide which group to give your gifts to?
- What do you prioritise when making this decision?
- How do you resolve any disagreement in your group?

What does gifting achieve?

- Did gifts received in your group belong to you all or did you share them out in some way? How did you decide?
- In what ways might your gifting build relationships across the class/group?

If you will not use the received gift, was this a waste of time and resources? Why?

If you want to extend the 'brief' encounter, you might think about gifts you give and receive in your life:

- Who do you give gifts to? Who you receive gifts from? Is there a difference, and if so, why?
- How does it feel to give? How does it feel to receive?
- How does it feel not to be included and not to receive gifts?
- Do the gifts you give belong to you or the other person? What makes you say this?
- How would you feel if someone got rid of the gift you gave them? Whose is it, if they get rid of it?
- Does it matter if you like the gifts received or not?
- Does it matter what the gift is made of, how much they cost or if they are handmade?
- Is something lost or gained when gifts are money?

Opportunities for Embracing Uncertainty

There is inherent uncertainty in this activity in deciding who to gift to as well as what to make, and under a pressure of time. The students may experience different feelings and have different perspectives that they must navigate together, whilst considering their role in fostering social relationships. There are multiple ways that they might choose to do this. The questions probe the students to deliberate the value of gifts and gifting, and the tensions of doing so where gifts maybe disliked or unwanted, for example, including their role in enhancing social trust through practices of exchange and building and maintaining social networks.

Opportunities for All Students

The students will need to gift the piece of jewellery that they make, this might be made easier by gifting within small groups. This activity could be done by working at the individual level, rather than the group

level, with each student deciding on an individual to give to. This version runs the risk of exclusion (akin to being picked last by a team captain for a sports game) and would therefore need more care, but the exclusion itself can become a useful provocation for discussion of social justice issues.

Opportunities for Creativity

There are many ways in which the students might make a gift, and the activity can be simple and brief, or longer and more creative. Possible materials might include:

- String, ribbon, cord, or similar
- Something to string, beads, shells, pasta, wooden or cardboard discs
- Pens for decorating and/or other decorative materials
- Natural materials: wooden beads or elder wood cut into pieces using metal tent pegs or stiff sticks to push the soft centres out.

Opportunities for Linking to Climate Justice

Part of the activity is to experience and explore the possible role of gifting in enhancing social relationships. Who the student chooses to gift to is significant, as is whether the gift is returned in exchange between two people or whether the group comes to some kind of arrangement as to who gives to whom, for example, giving to the person on the right. You could highlight this need or allow them to work it out and reflect on how they arrived at a decision and how it worked out afterwards.



Sensory Encounter

The Secret Gift Exchange Game

Prior to the Victorian era in the UK, gifts were usually handmade and unwrapped. The mass production in factories increased the number of things that could be bought to give to people. Most people therefore started to buy rather than make their gifts. They also began wrapping gifts to disguise that they had been bought, not homemade.

1. In groups of 5 to 10 people, you are each going to buy and wrap a gift suitable for sharing with anyone in your group. Decide between you the maximum amount that you will spend. What will you need to consider when deciding the amount? Think about what type of wrapping you might use.
2. When you have all got a wrapped gift to share, place them in the centre of a circle that you sit around. You will need a timer and dice. Now follow these instructions on how to distribute the gifts:
 - Set the timer for 3 minutes.
 - Each player takes a turn to roll the dice. If you score a 6, you can choose a present, and any that you want from the pile. A score of 1 to 5 means you do not get a present.
 - Play continues until all presents have been distributed, or the 3-minute timer signals.
 - Next, set the timer for 5 minutes.
 - Each player takes it in turns to roll the dice. This time, however, if you score a 6 then you can steal one present from anyone else OR take one from the pile, if any remain.
 - Play continues until all presents have been distributed or the 5-minute timer signals.

Now discuss in your groups the following questions:

- What did you like best about playing the game?
- What made it exciting: before, during, after?
- Would the game have worked as well if the presents hadn't been wrapped? What then is the role of the gift wrap?
- Has anyone not got a present? How does it feel to not have a present? How does it feel that others don't have a present?
- For those who have one or more presents, how does it feel to have a present? What do you each feel about your present/s?
- Is this how gifting should work? Why? Should it be altered in any way? Do you want to take any action now to alter the outcome of the game?

Opportunities for Embracing Uncertainty

This Sensory Encounter extends beyond the Brief Encounter to include the possibility for gifts beyond

those that are handmade. There are numerous uncertainties, including the nature of the gift, and how it is wrapped, which gift to select from the pile (judging only by its shape and size), whether participants will receive a gift, and how to respond when receiving or not receiving a gift. In addition, the students will experience a range of different feelings and thoughts in relation to the giving and receiving of gifts, which they are encouraged to articulate and explore. The discussion could be deepened by asking the philosophical questions, such as: can a gift ever be wholly altruistic? Additional probes might include asking why it is customary for many people to remove the price from bought gifts, and to express the idea that ‘It’s the thought that counts’ rather than the value of their present.

Opportunities for All Students

Students will each require a gift for this game, and will need to decide the rules of what counts as a gift for the purposes of their game. Depending on the particular context and circumstances, the role of the teacher may be more or less directive in setting these parameters. Rules might focus on whether or not to include the following: a budget; second-hand or things bought from a charity shop; handmade things (considering dietary needs for any foods); ‘pre-loved’ things they have but no longer use or want; something gifted to them but unused; something from nature (e.g. an unusual shell); or something else. For some players, a more accessible version of the game might be to play ‘pass-the-parcel’, but without the teacher intervening to ensure that every child gets a gift. The children themselves can discuss whether anything should be done to make it fair; for example, whether there is only one gift, or enough for everyone; and the nature of the gift.

Opportunities for Creativity

Students have to be think creatively in deciding the parameters of their gifts, the wrapping and the rules of the game. They may also get involved in making gifts or the wrapping.

Opportunities for Linking to Climate Justice

This activity opens up the possibility to begin to think about ‘green gifting’, which is where gifts have a lower environmental impact and support broader social justice practices, an idea picked up further in the following Deliberative Encounter. This extends their thinking to whether the game is fair for the planet and fair socially, rather than simply for them as individuals. You might discuss with the students whether and how the gift wrapping might meet the criteria of ‘green gifting’. This could include, for example, using a bag or piece of material, or something recycled or recyclable. They might need to identify what more they need to know about any given material to decide whether it is ‘green’, such as whether it is recyclable or the employment practices of the producer. You could extend the discussion by also exploring how much money people spend on gifting during festivals relevant to their group. For example, here are figures on how much is spent at Christmas in the UK: <https://www.bankofengland.co.uk/explainers/how-much-do->

[we-spend-at-christmas](https://yougov.co.uk/consumer/articles/39878-how-much-are-people-spending-christmas-2021?redirect_from=%2Ftopics%2Fconsumer%2Farticles-reports%2F2021%2F12%2F09%2Fhow-much-are-people-spending-christmas-2021), and how people fund this expenditure, often through debt: https://yougov.co.uk/consumer/articles/39878-how-much-are-people-spending-christmas-2021?redirect_from=%2Ftopics%2Fconsumer%2Farticles-reports%2F2021%2F12%2F09%2Fhow-much-are-people-spending-christmas-2021

Students working at a more advanced level might benefit from engaging with the issues discussed in these two films on a gift economy. The first includes a brief historical view of different examples of gifting and argues for the social benefits of such exchange:

<https://www.youtube.com/watch?v=EaxjxICgahc&t=228s>.



One or more interactive elements has been excluded from this version of the text. You can view them online here: <https://openpress.sussex.ac.uk/creatingwithuncertainty/?p=718#oembed-1>

This second film focuses on the gift economy and mutual exchange:

<https://www.youtube.com/watch?v=6S1egXWYwXo&t=13s> (you might want to start the video at 55 seconds in).



One or more interactive elements has been excluded from this version of the text. You can view them online here: <https://openpress.sussex.ac.uk/creatingwithuncertainty/?p=718#oembed-2>

Questions to discuss following these films might include: How do you feel about the idea of a gift economy? Are there any examples of a gift economy in your community? What (other) possibilities are there for a gift economy in the community where you live? What might make it difficult? What might make it work? In what ways might it not be fair? This activity links well to [Topic 13: 'The Commons'](#), particularly the Beyond the Classroom Encounter section.



Deliberative Encounter

The before and after life of a gift



1. In pairs, discuss your best-ever gift; your most memorable gift; or the last gift you received.
2. Still in your pairs, decide how to represent visually one or more of the gifts discussed. You might draw it, cut out an image from a magazine, download an image from the internet, or you might have the real object to show.
3. As a whole group, create a montage of all the visual representations of your gifts. What do you notice? What are the similarities and the differences?
4. Together, choose one of the gifts to explore how it was made in some detail. Together, discuss what you know about your gift, and any gaps in what you know. For example:
 - What materials is it made from?
 - How was it made?
 - Where was it made?
 - Who was involved in making it? How much were they paid?
 - Can it be recycled?
 - What impact might it have on the environment?
 - Was anyone harmed its making, transporting or selling?

Opportunities for Embracing Uncertainty

There will be a lot that students do not know and much that it is difficult or impossible to establish definitively.

Opportunities for All Students

For some students, it may be important to start with your own demonstration of a life cycle analysis, using the examples such as the Teksa dog, Nike trainers, chocolates, or a piece of clothing. For some students, you might ask simpler questions to stimulate their curiosity about where things come from and how they are made, including about their own toys and the things they would like to be gifted.

Opportunities for Creativity

Some students might enjoy creating a literal, fantastical or ‘nonsense’ story around how something was made, which could include where it came from and where it might go onto in the future. This story might be generated through play or make believe using different objects, which could be constructed into a final story, perhaps with the support of the teacher.

Opportunities for Linking to Climate Justice

This activity invites the students to do their own version of a Life Cycle Analysis (LCA), which is a process of assessing the history and the future of a product or service. This means thinking about where a gift might have come from, the materials used in its production, how it has been transported (including the different components that make up the gift), and the employment conditions of those people involved in its making. The activity encourages students to deliberate whether a gift might be socially fair for those involved in its production, and if it is fair for the planet through considering its environmental impact. An extension of the activity can include students considering what gifts their parents/grandparents’ generation might have included, had they been asked to do this activity at the same age. The students could question older friends and relatives to find out more about the gifts they received as well as their gifting practices. This might surface differences in both the social and environmental impact of gifts over time. Students might also be asked to consider how some in the world can afford to buy, and receive, more gifts than others, and how this might contribute to climate injustice: where those who are the materially richer create environmental damage that is experienced most by those who are poorer.

Some issues that could be discussed in more detail, and researched further, are the use of microplastics in many products including toiletries and beauty products; cobalt mineral used in batteries that are mined by children; poor working conditions for employees in some contexts; and the transport miles of products that come from far away.



What can a gift be?

Gifts can be anything, so can we gift green?

In your household, could you agree an exchange of gifts that uses little or no money, and causes minimal or little harm environmentally and socially?

Think about the following:

- Does a gift have to be an object? What else can you give?
- Do you have to give to a human? Who or what else can you give to?
- What other ways of giving are there?
- How will your gift be given? How would you like it to be received?

After exchanging gifts, discuss with those in your household:

- How did the exchanging of gifts make you feel?
- How did you feel about the gifts received?
- How did you feel about giving your gifts?
- In what ways did people feel similarly or differently?
- Would you want to exchange gifts like this again? Why?

Opportunities for Embracing Uncertainty

There is a lot of uncertainty here in how the students work with others in their household to agree a process of gift exchange that will inevitably involve a degree of negotiation, and unknown outcomes. Students and others may have to encounter a mix of feelings, including possible difficult feelings, about what it is that they want for themselves and for others, and an awareness of the societal and planetary implications. It

requires them to stay with the demanding question: Is what I desire indeed desirable for myself, others and the planet?

Opportunities for All Students

This activity can be easily adapted to involve all students. It offers an opportunity for intergenerational discussion and undertaking of tasks together, whether deciding what is important, making things, and reflecting together. For example, it may surface questions about whether there needs to be a shared value for the exercise to work or whether people can negotiate a compromise.

Opportunities for Creativity

This activity could be supported by reading existing stories where gifts are not objects, such as *This is a Gift to You* by Emily Winfield Martin that emphasises the greatest gift as time spent together; *The Snowman* by Raymond Briggs, in which the snowman is himself a gift to the boy; *The Magic Paintbrush* by Julia Donaldson, based on a traditional Chinese story that plays with the idea of what constitutes a gift, and emphasises gifting to the poor rather than the powerful.

Opportunities for Linking to Climate Justice

The different types of gifts can vary widely, and the students prompted to think about the social and planetary justice issues of gift giving. This might include asking some provocative philosophical questions, such as: 'Is a pet's poo a gift to the environment?' 'Is a charity donation in someone's name a gift to that person or only to the beneficiaries of the charity?' 'What gifts do my pets value and how do I know?' (and this article might give you some background information on the latter: <https://www.independent.co.uk/climate-change/opinion/pets-uk-ownership-cats-dogs-carbon-environmental-impact-b1249610.html>). It also offers the opportunity for intergenerational discussions about how things used to be done previously or in other cultural contexts of previous generations, including what has changed and to what effect.

Kathleen Theresa Bailey, Perpetua Kirby, and Rebecca Webb

TOPIC 15: CREATING A GLOBAL AGREEMENT



Brief Encounter

Unpacking a global policy agreement on biodiversity

Below is an extract of text from the United Nations Convention on Biological Diversity.

- In groups, look at the following text. There are no full stops. Work out a way in which you all read the text from the beginning to the end. Remember to take a breath!

TARGET 3 Ensure and enable that by 2030 at least 30 per cent of terrestrial, inland water, and of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem functions and services, are effectively conserved and managed through ecologically representative, well-connected and equitably governed systems of protected areas and other effective area-based conservation measures, recognizing indigenous and traditional territories, where applicable, and integrated into wider landscapes, seascapes and the ocean, while ensuring that any sustainable use, where appropriate in such areas, is fully consistent with conservation outcomes, recognizing and respecting the rights of indigenous peoples and local communities, including over their traditional territories.

- Now, without looking at the paragraph or discussing it, on your own you have 1 minute to draw or write anything you can remember from the text.
- Agree one person in your group to read the original text again aloud.
- Then repeat the exercise, on your own, in which you have 1 minute to add anything

further that you remember from the text.

- All together, now compare what you all remembered, and create your own summary of the text, using your own words. This time, you can include any punctuation that helps you.
- Why do you think the original paragraph is one long sentence with little punctuation?

Extension

You may wish this to become a longer 'brief' encounter through this extension activity that explores how this biological diversity agreement came about:

Below is a very long and difficult first draft of the agreement text that you read above.

To arrive at the final text, many country delegates (i.e. people representing their country) negotiated what they felt was important to include from their own perspective.

- Now read the paragraph below.

Do not feel that you have to read it with the aim of understanding much of the text. The square brackets [] indicate where delegates inserted their suggestions about what they wanted to be included in the final text. These suggestions were discussed and negotiated as part of the process of coming up with the final text.

Look at the text in your group:

- What do you notice about this draft text?
- What are the things that stand out to you in the draft text that make it different to things that you usually read?
- Identify anything in the text that you can also find in the final text in the Brief Encounter above.
- Identify 2 to 4 things that became changed in the final text.
- Identify something that is not in the final text.

TARGET 3 Ensure and enable at least [30 per cent] of [all [—] and of [—]] [globally] [at the national level] especially [key biodiversity areas[, ecologically or biologically significant areas, threatened ecosystems] and other] areas of particular importance for biodiversity [and ecosystem functions and services] are [effectively] conserved through [effectively] [well] managed, ecologically representative, well-connected and equitably governed [systems] [networks] of [highly and fully] protected areas [including a substantial portion that is strictly protected] and other effective area-based conservation measures, [and [indigenous] [traditional] territories] [, where applicable,] [which prohibits environmentally damaging activities] and

integrated into the wider land[-]/[scapes] and seascapes [and national and regional ecological networks], [in accordance with national priorities and capabilities,] [including the right to economic development, will not affect the right or ability of all Parties to access financial and other resources required for the effective implementation of the whole framework,] [while ensuring that [sustainable use] of these areas, if in place, contributes to biodiversity conservation,] [recognizing the contribution of indigenous peoples and local communities to their management] and [respecting] the rights of indigenous peoples and local communities. Temporary placeholder: [[all land and of [seas] [ocean21] areas [including] all ecosystems22] [all terrestrial, inland waters, coastal and marine ecosystems] [ecosystems as defined by Article 2 of the Convention] [terrestrial, marine and other aquatic ecosystems], Subject to B.Bis and other relevant targets: [including] [over their lands, territories and resources] [, with their free, prior and informed consent] [, [and [including] acting] in accordance with [United Nations Declaration on the Rights of Indigenous Peoples and international human rights law] [national [circumstances and] legislation [and] [as well as] relevant international instruments] [, where applicable]].

Opportunities for Embracing Uncertainty

The first activity enables a group of students to attend deeply to a difficult global agreement that is very certain in its legal terminology and its implications. Such texts are not necessarily easy to read or to understand, and students will notice different things about the text. This activity enables everyone to explore what sense they make of it, together with others, in such a way that allows for multiple readings from a diverse collection of students. This includes them together identifying what matters to them from the text, through bringing their own experiences and knowledge. There is no shame, in this exercise, of not getting a firm grip of all that is implied and stated by the text. It is designed both to be fun and challenging, and it requires group collaboration to build a common understanding of the complex text. The extension ‘long brief encounter’ activity highlights how the final legal document, it all its certainty, emerges out of a messy and uncertain process of achieving consensus that everyone can subscribe to.

Opportunities for All Students

The substance and scope of this activity is most appropriate for students working at the level of secondary school (aged 11-16 years) or above. The extension activity offers the opportunity to engage for longer, more deeply and with great complexity, that some students may relish. For others, only the first brief encounter activity will be challenge enough. For background information, you can find out more about this agreement here: <https://www.cbd.int/gbf/targets/3>

Opportunities for Creativity

The students are required to be creative in crafting a narrative from the texts, that can include drawing

or text, and it respects their own means of doing so. The extension activity gives an insight into a creative approach of country representatives arriving at consensus.

Opportunities for Linking to Climate Justice

Key to this activity is the planetary justice of the need to pay attention to other species to reduce the harm and threats to their extinction as a result of human needs and desires. The activity begins to give insight into the complexity of engaging different stakeholders to negotiate an agreement. Ideas of social justice might be surfaced in the students' discussion and questions about how the final text was agreed. The centrality of social justice to these negotiations is picked up in the following 'Visual Encounter' and especially in the 'Deliberative Encounter.'



Visual Encounter

Exploring stakeholder roles

Watch this 3-minute film that explores different perspectives on negotiating an agreement at the United Nations COP 15 Biodiversity Conference that took place in Montreal, Canada, in 2022:



One or more interactive elements has been excluded from this version of the text. You can view them online here: <https://openpress.sussex.ac.uk/creatingwithuncertainty/?p=725#oembed-1>

<https://www.youtube.com/watch?v=cKCnUltiMOU>

Nearly 200 countries attended the conference to negotiate an agreement. There are four people who speak in the film.

When watching the film, think about the following, and then discuss together in groups:

- What are the roles of the four people?
- What position, if any, do they take on biodiversity conservation?
- Were there any differences in what they each emphasise?
- What are the key messages you took from the film?
- What more would you have liked to know that people didn't talk about?
- If you could take on one of the four roles, which one would you like? Why?

Opportunities for Embracing Uncertainty

This activity starts to explore the different perspectives that different stakeholders have on a UN policy agreement, depending on what their role demands. Students are invited to unpack these different perspectives and consider which they are most aligned to through identifying a role that they would like to take. This accepts that different perspectives are inevitable and integral to democratic processes of negotiation. There is no expectation that students should adopt any given perspective themselves, but each must think about their own values and which of the different roles fits with these.

Opportunities for All Students

Again, this activity is aimed at those working at secondary school level. Some may require the film to be played two or three times.

Opportunities for Creativity

Students have to imagine themselves in the role of particular stakeholders, and those that are very unfamiliar to them and beyond their own experience. Some may enjoy role playing the different stakeholders to help them explore what it is that each might think, feel and say.

Opportunities for Linking to Climate Justice

The key justice issue that emerges further in the film is that of planetary justice. In identifying the different roles, the students will be able to reflect on those who specifically assert a perspective of planetary justice.

They will be able to explore how this is represented, especially through the role of the spokesperson from the World Wildlife Fund. Students can explore how much these issues align with their own values when deciding which role to take up. The activity also enables them to think whether the different spokespeople go sufficiently far, not far enough or too far, in representing a version of planetary justice that they themselves can articulate and identify with.



Deliberative Encounter

Negotiating different perspectives

Look at this piece of draft text on biodiversity conservation that you will need to refine and agree between all of you.

TARGET 3 Ensure and enable that by 2030 [at least 30 per cent] of terrestrial, inland water, and of coastal and marine areas, [especially areas of particular importance for biodiversity and ecosystem functions and services], are effectively conserved and managed through ecologically representative, well-connected and equitably governed systems of protected areas and other effective area-based conservation measures, recognizing indigenous and traditional territories, where applicable, and integrated into wider landscapes, seascapes and the ocean, [ensuring that any sustainable use, where appropriate] in such areas, is fully consistent with conservation outcomes, [recognizing and respecting] the rights of indigenous peoples and local communities, including over their traditional territories.

Form five groups, with each representing one of these different global stakeholders:

Indigenous and local community members living in a forested area in Ecuador, which has very high biodiversity, including some animal species, such as the spider monkey, threatened with extinction. A mining company wants to use the land to extract lithium (which is crucial for making the batteries in electric cars). You feel strongly about protecting your traditional values, and feel others should recognise you as important guardians of nature.

Young activists who are concerned about biodiversity loss, many of whom have grown up in cities, and feel strongly that the nature should have rights, just like humans have rights. You feel strongly that young people's voices should be heard.

Members of an elected government in a high-income country (e.g. USA, UK, Germany, Australia). You want to protect nature, and can afford to do so more than local income countries. You have also promised the citizens in your country, who elected you, that most cars will be electric by 2030; electric cars require using mined metals (e.g. lithium) from low-income countries such as Ecuador.

Members of an elected government in a low-income country (e.g. Bangladesh, Ethiopia, Togo) that is home to a rich biodiversity of animals and plant species. You value biodiversity but are also wary of rich countries pushing you to adopt strong conservation policies. Many of your citizens are poor and live rurally, and they want the government to invest money in jobs that will help them to achieve a minimum standard of living and provide basic necessities. You feel that those in the richer countries have a lifestyle that you are equally entitled to and that they should pay your country to protect biodiversity.

You are spider monkeys who have survived in the same area for thousands of years and are well adapted to the existing habitat. You are concerned about the threats to your life and those of your family as well as your habitat, which is your home and only means of food and survival.

Your task is to negotiate with the other groups to agree on a final text on biodiversity that will apply to all countries across the globe. You must achieve consensus. This requires everyone to agree on the final text, albeit with all or most having to compromise in one or more areas. Consensus strives to incorporate everyone's perspectives, needs, and ultimately their permission.

If anyone actively disagrees with the final draft text, no final decision can be arrived at. No decision at all, might arguably be worse for biodiversity and people.

- Start by discussing, in your own groups, what your group thinks about the draft text. What do you agree or disagree with? What do you want to keep the same? Which areas are you prepared to negotiate? Are there any 'red lines' for your group? (i.e. things you cannot negotiate on at all).
- Within your group, decide how you are going to represent your discussions with the other groups. Will one person speak for you all, with others advising, or will you share the role in some way?
- All together, between your groups, discuss the draft text and find a way to work towards a final agreement on the wording of the text, as though it were a legal text.

As you propose text, your teacher will act as Chair and change the text onscreen (or else on a large sheet of paper) as the negotiations progress so that all can see them, reflecting the reality

of how these negotiations work. The teacher will use track changes and red text to make changes. When text is not agreed by all groups, then it must stay in square brackets. If everyone agrees to the text, then it can come out of square brackets. The teacher will not delete text, but cross through it, if it is requested to be taken out.

As the Chair, your teacher will try to encourage compromise and agreement in the spirit of consensus negotiations. They will allow everyone to speak and respond to each other's suggestions and encourage you all to give reasons as to why you are proposing certain text.

Opportunities for Embracing Uncertainty

There is inherent uncertainty in the outcome of the groups' negotiations on the final text, with no one preferable outcome for everyone that can be foreseen in advance.

Opportunities for All Students

Some students will want to research the issues for their particular group in some detail, in order to consider what is important and how to negotiate from their perspective. This activity links well to [Topic 13: 'The Commons'](#), particularly the Deliberative Encounter which explores whether the Amazon Forest might be considered a commons, taking into account the perspectives of different stakeholders.

Opportunities for Creativity

Students have to imagine themselves in their particular role, bringing their own lived experience and what they know, to the particular outline in the brief. They must develop a clear storyline and a persuasive argument to promote their group's interest. This activity lends itself to greater dramatic effect through the use of role play, costumes and props.

Opportunities for Linking to Climate Justice

Climate justice is central to this activity, as it engages with the interests of those with differential power across the globe. It seeks to engage students in thinking through the implications of this in negotiating agreements, and the inherent imbalances to this process. What is important in the teaching of this activity, is enabling students to engage with a particular role in a way that avoids falling into easy stereotypes about their given group. It will be necessary to probe students' ideas and to challenge weak assumptions, so that they might think more deeply and with greater insight and nuance, without assuming the answer.

There is scope to extend the activity to deliberate the social justice implications of either using consensus

or majority vote, that might include discussion of how a minority interest can sway the outcome for everyone if consensus is required, and that consensus inevitably waters down the final possible agreement which can have greater negative outcomes for particular stakeholders, including nature. To demonstrate the reality and limits of consensus decision making is that only the two state member parties have a true say in the outcomes. After you have heard from all groups, you might tell them that only the first two groups would be able to change the text in reality so none of the text from groups 2 or 3 would be included unless a state member party adopted it in their negotiations. This gives an insight into the workings of global power. It shows the different strengths of voices in global decision making (i.e voices for nature and youth, and even low-income countries are weaker, and voices for high-income countries are strong). Another point to note is that in real life, group 1 would be much larger and well-resourced in the negotiations as compared to group 2, creating another inequitable dynamic.

It may be helpful to use the following information to feed into group discussions at different points:

- It is likely that lower income countries would try to reduce the percentage of protected areas and alter the text about prioritising high biodiversity areas as this places a significant pressure on them financially as most biodiversity is located in lower income countries. Resource mobilisation and sufficient financial support to enable this is at the heart of the entire Convention on Biological Diversity. They would push for a stronger text to be included on sustainable use, as they need to utilise biodiversity to ensure economic development.
- Higher income countries are likely to be more ambitious about the percentage of protected areas, as global biodiversity conservation is seen as important. Yet, they may not be willing to support ambitious enough financial commitment to support lower income countries. They may encourage the use of text that financialises biodiversity such as natural capital and ecosystem services, as this fits in with capitalist economic models, rather than text recognising intrinsic values, such as ‘mother nature’ and ‘rights of nature’. For a film about the Rights of Nature, see here:

<https://www.youtube.com/watch?v=XSdRFXTGrC4&t=931s>



One or more interactive elements has been excluded from this version of the text. You can view them online here: <https://openpress.sussex.ac.uk/creatingwithuncertainty/?p=725#oembed-2>

- Indigenous peoples will perhaps argue for stronger text than ‘recognising and respecting’ the rights of indigenous peoples as this is quite vague and non-binding. They may also champion the inclusion of text recognising the ‘rights of nature’ and ‘Mother Earth’ which better aligns with most indigenous relations with nature that suggest that humans are part of nature and should have a more respectful relationship with it.
- Young activists are likely to support higher percentages of protected areas and also to get some text

on intergenerational equity included.



Beyond the Classroom Encounter

Interspecies council

You will each explore and produce some information about one species in your neighbourhood. This might be a plant or animal species. To do this, we invite you to imagine and empathise with the needs of your chosen animal or plant. Think about the following:

- What concerns your animal or plant? Why?
- What do they most value in your neighbourhood?
- What would they like more of, and why?
- What would they like to get rid of or change? Why?

You might want to talk to others to find out what they know about your chosen species, including any changes in their population and habitat over the recent decades.

Create a card that includes visuals and text about the species, and anything you want to share in response to the above questions. This is to inform and share with others.

Bring your card to an 'interspecies council' as you come together to represent the interests of the different species that you have each researched. You will discuss, negotiate and agree together five key considerations that need to be taken into account in an imaginary (or real) planned development in your neighbourhood. You will each represent your chosen animal or plant species.

Think about how you would make the case for their interests (rather than your own). You can use the information on your card to prompt you.

Opportunities for Embracing Uncertainty

We cannot know how other species experience their habitats and, in many instances, the fast human-induced changes that are brought about within them. The activity links well to those in Topic 3 ‘Encountering Environments’. You can see a short article about a UK government-run ‘interspecies council’ here: <https://moralimagination.substack.com/p/article-in-ends-report-government>. And here is a film, entitled *River Roding Interspecies Council*, about one event exploring the concerns of different species living in or around the river that you might want to share with your students:



One or more interactive elements has been excluded from this version of the text. You can view them online here: <https://openpress.sussex.ac.uk/creatingwithuncertainty/?p=725#oembed-3>

(scroll down to the film on this site: <https://openpolicy.blog.gov.uk/2024/02/07/using-experimental-methods-to-reimagine-decision-making-for-the-freshwater-system-post-2043/>, undertaken by Phoebe Tickell of *Moral Reimaginings*)

This activity links well to those in [Topic 12: ‘Nature Conservation’](#).

Opportunities for All Students

This activity can involve children of all ages, with some collecting more basic information whereas others can go into detail. Students for whom play is integral to their educative experience might enjoy role-playing the animals and plants, and using their knowledge of what those animals need to thrive, having imaginary discussions, conversations, and arguments, about what they want and need to thrive. As plants, they will quickly find that they are unable to move, whereas animals usually can, and this can raise important discussions about what then might plants need that is different to animals.

Opportunities for Creativity

Again, this activity relies on the students imagining another perspective, and one they are unlikely to have done before. There is scope to create the cards using different media and to evoke the issues for their chosen species through a literary sensibility. They might be inspired to read poetry that similarly evokes the lives of different plant and animal species.

Opportunities for Linking to Climate Justice

This activity emphasises planetary justice, through requiring students to pay attention and to imagine the lives of other species in ways that detract from always placing themselves, and other humans, at the heart of any considerations. This is also important, even where there are humans with a diversity of needs that require attention, for example in the planning of a new town or a specific building development.

Perpetua Kirby

Funcertainty: further guidance

Map Tips

Interpret 'map' loosely. Use quick sketches, doodles, labels, speech bubbles, etc.

The very simplest way to play is to have the teacher do all the drawing, on a whiteboard or the biggest sheet of paper you can find.

However, it will be more fun and rewarding to involve more students in drawing. Choose an approach you think will work well with your group.

When you start the game, the map should be mostly blank. But you can prepare by adding just one or two landscape features. For example, a river or bit of coastline, and perhaps 1-2 local landmarks.

Variations

One big map

The student whose turn it is adds to the map. Alternatively, choose 1-2 'cartographers' to do all the drawing. You could swap them around occasionally to give more students a chance to draw.

Group maps

Seat students in groups of about 3-6. Each group has its own art supplies and draws its own version of the map. Having multiple illustrations of 'the same' future could be used in lots of exciting ways.

One big 'collage' map

Give each student their own small piece of paper. When it is their turn, they should draw something to represent their answer (or the answer that the group gives). Assemble these in a collage, e.g. using blu tack.

As many maps as students

Every student makes their own visual record of the story (on a single sheet or in a booklet). As

with the 'Group maps' option, this gives the group opportunities to explore multiplicity and uncertainty

Design note

The visual element helps with worldbuilding and storytelling in several ways.

- They help the group to remember what has happened.
- Some of the storytelling prompts may feel quite challenging. It is very natural to go blank when you're put on the spot and asked to imagine something. When you or your students get stumped, looking at the available 'ingredients' may give you ideas about how to answer them.
- During the activity, you may discuss lots of things that *could* go into the story. When something gets drawn, it makes it official.

Card Order

This is the recommended order for reading out the cards.

King of Spades, 7 of Spades, 6 of Spades, 9 of Spades, 3 of Spades, 4 of Spades, 10 of Spades, 8 of Spades, 5 of Spades, Jack of Spades, Queen of Spades, Ace of Spades, 2 of Spades.

3 of Clubs, 4 of Clubs, Ace of Clubs, 2 of Clubs, 5 of Clubs, 6 of Clubs, 7 of Clubs, King of Clubs, 9 of Clubs, Jack of Clubs, 10 of Clubs, 8 of Clubs, Queen of Clubs.

6 of Hearts, 9 of Hearts, King of Hearts, 7 of Hearts, 8 of Hearts, 5 of Hearts, 10 of Hearts, Jack of Hearts, 2 of Hearts, Queen of Hearts, 3 of Hearts, 4 of Hearts, Ace of Hearts.

Design note

Why not just play the cards in a normal order, 2, 3, 4 etc.? That will work too, if you prefer the simplicity. But we think the unpredictability (from the students' perspective) is a bonus. If you know when your turn is, then you're just waiting for it.

Variation: Instead of using the order given above, the teacher uses a second deck of cards to generate a random order. Shuffle each suit separately. First read out all the Spades, then Clubs, then Hearts.

Variation: See the Appendix for some different prompts (Diamonds). You could shuffle in a few of your favourites to lengthen play, or replace cards that you don't want to include.

Storytelling Tips

- It is okay to make up your own rules and conventions to make the game run more smoothly.
- Encourage students to listen generously to each other. Remind students to listen to one another's ideas. Even if they don't like an idea at first, they can ask themselves, 'How could we fit this into the story?'
- **Safety tools** such as the "X-Card," "Lines And Veils," or "Roses and Thorns" can empower more responsible and sensitive storytelling. The "**X-Card**," for example, is a piece of paper with a big X written on it, placed somewhere where all students can easily get to it. If a student feels uncomfortable with what has just been suggested for the story, they tap the X-card, or hold up the X-Card, and the content is removed — they don't need to explain why. For more information about safety tools, look up "TTRPG safety tools" online and decide if they are right for your classroom.
- If you want to find more educators using storytelling games, Discord could be a good place to go looking. Search for the 'TTRPG in education' server.
- See below for more ideas, including alternative prompts (using Diamonds cards), and a different set of rules you could use to continue the story after the main game is concluded.

Prompts Variations

Variation

Depending on space and equipment, you might want to project the text of the questions. You can find slides for doing this at bit.ly/FuncertainSlides.

Timings Tips

One session: There are 39 cards. If you play a very brisk game (about two minutes per card) you might be done in 90 minutes. But with more time (2-3 hours), you can do things like:

- Spend more time pondering different options, till the perfect idea comes along.
- Explore the facts that underlie the fiction (e.g. climate and sustainability science).
- Draw at a more leisurely pace.
- Make more space for spontaneous fun.
- Be even more supportive of the shyer storytellers.
- Introduce related material before and/or after.
- Have break-out groups or pairs where students discuss ideas together then present to the group.
- Feedback on the experience afterward.
- Have breaks.

Three sessions: The game breaks quite naturally into three acts (Spades, Clubs, Hearts). You could play each one in a session of 45-60 minutes. Only deal the suit you will be using during that session.

Two sessions: You could play it over two sessions of 60-90 minutes each. For the first session, deal the student all the Spades cards, plus the Ace, 2, 3, 4, and 5 of Clubs. For the second session, deal the remaining Clubs, and all the Hearts.

Many sessions: What about playing slowly over a longer period of time, perhaps alongside other material, for example? That's certainly possible. You will have to adapt things a little.

Variation

Very longform play

If you want to play the game gradually over time (ten minutes per lesson, over the course of the whole term), you could forget about the playing cards, and use the following method instead.

Get two containers. Write each student's name on a slip of paper. Fill up one of the containers.

Each lesson, draw a student's name, and get them to play the next move from the tables below. Put the student's name in the second container.

When the container is empty of names, start again.

1. CUSTOMISING PLAY

1) First of all, you don't really have to stick to the questions here! They have been designed to more-or-less build a little story, if you're lucky. But if you think the story needs something different from the prompt listed, make one up on the spot.

2) Second, you can pre-prepare your own set of prompts, your own deck, and/or your own order for the cards. For example, remove cards you think you won't need, and choose some diamond cards (see below) for alternative prompts.

(3) Afterward, you can continue the story in smaller groups using *Funcertain Futures: The Tabletop Roleplaying Game* (see below).

Design note

You may notice something a little sneaky about this game. Similar oracle-based games (such as *Kampala Yénkya* or *The Quiet Year*) have the cards randomly shuffled. That offers more replayability. For this game, it is assumed that the teacher probably won't play the game more

than once with the same group of students. So a recommended order is given that will probably give the narrative a good shape. We've also checked to make sure that going lowest to highest works fairly well. However, you could also plan your own order, perhaps mixing the suits more fluidly, removing cards, and/or adding the diamonds below.

2. DIAMONDS

Diamond cards are not used in the standard version of the game. But if you want, you can customise the story by adding in some Diamond cards (perhaps to replace Spade, Club or Heart prompts you don't want).

Ace ♦	A friend of the Main Character is visiting for the Big Festival from somewhere else. It is their first time in town. What impresses them about what they see?	This is a worldbuilding-style prompt. You might want to include it early in the game, perhaps to replace a spades card.
2 ♦	Somebody supposedly spotted a strange new creature . Let's mark on the map where it was spotted. Then let's mark where it is hiding now.	This is a worldbuilding-style prompt. You might want to include it early in the game, perhaps to replace a spades card.
3 ♦	Does the United Kingdom still exist? If so, is it England, Scotland, Northern Ireland and Wales like in the 2020s, or has it changed? If it doesn't exist, what exists instead?	This is a worldbuilding-style prompt. You might want to include it early in the game, perhaps to replace a spades card. If you're playing outside of the UK, replace the country name.
4 ♦	What is a danger that _____ has faced in the past 30 years? How did the city overcome this? Add something to the map that is a reminder of these events.	This is a worldbuilding-style prompt. You might want to include it early in the game, perhaps to replace a spades card.
5 ♦	Things are not perfect. Add some kind of pollution, danger, or damage to the map.	This is a worldbuilding-style prompt. You might want to include it early in the game, perhaps to replace a spades card.
6 ♦	Is food different in the future? Draw something to do with food. Add something mysterious at the very edge of the map.	This is a worldbuilding-style prompt. You might want to include it early in the game, perhaps to replace a spades card.
7 ♦	Is it: (1) A high security camp (2) A place where something is buried (3) A machine of unknown purpose (4) Something else Birthday party. The Main Character's nan, Dana Milks, is 100 years old today, and she's trollied! Just about everyone on the map has come to her birthday party.	This is a worldbuilding-style prompt. You might want to include it early in the game, perhaps to replace a spades card.
8 ♦	She loves reminiscing about the old days. What do you all learn about _____, and how it has changed? After you have played this card, the class takes a vote. Does the story end (go to the Final Scene), or continue a little longer? A big plot moment! First, let's decide what it is.	This is an adventure-style prompt. You might want to include it in Act 2 or Act 3.
9 ♦	(1) A betrayal (2) A big secret revealed (3) An act of self-sacrifice (4) A relationship revealed — two people (or things) we thought were unconnected are actually linked in some way (5) Something else Now let's talk together about what the details might be.	This is an adventure-style prompt. You might want to include it in Act 2 or Act 3.

“Patience cooks a stone.” After years of debate, the community have agreed on a comprehensive plan to completely transform, maybe to abolish and replace something — what is it?

10 ♦	<p>(1) The internet (2) Prison (3) Family (4) Money (5) Police (6) Borders (7) Schools (8) Farming? (9) Something else? Discuss and draw how this changes the local area.</p>	<p>This is an adventure-style prompt. You might want to include it in Act 2 or Act 3. You could also use it as more of a worldbuilding prompt in Act 1.</p>
Jack ♦	<p>There are rumours that a glowing cube has been spotted flying in the sky, several nights this week. Everybody is arguing about what it is and what should be done. What does the Main Character decide to do?</p>	<p>This is an adventure-style prompt. You might want to include it in Act 2 or Act 3.</p>
Queen ♦	<p>In two weeks there will be the Big Race. What is the Big Race? What are the stakes? How is the Main Character involved?</p>	<p>This is an adventure-style prompt. You might want to include it in Act 2 or Act 3.</p>
King ♦	<p>Most of the artworks that were stolen during Western colonialism have now been returned. However, there are a few that remain outstanding. A mysterious figure approaches the Main Character, asking them to join a heist team to steal back the artwork.</p> <p>Where is the artwork being kept? What is the plan to steal it back and return it to its rightful home?</p>	<p>This is an adventure-style prompt. You might want to include it in Act 2 or Act 3.</p>

3. CONTINUING THE STORY AFTERWARDS

After students have played *Funcertain Futures: Building New Worlds*, they can continue to have adventures in the world they have imagined. Here are the rules for *Funcertain Futures: The Tabletop Roleplaying Game*¹.

You will need:

- Three to seven players.
- Paper and pen.
- Two dice.

1. [1] Funcertain Futures: The Tabletop Roleplaying Game is a hack of Kampala Yénkya Multiverse, inspired by the fiction of Dilman Dila.

- Your imagination!

The story should will have two to six **playable characters**. Usually each student will create their own character and control their actions in the story. If you want to try it with a bigger group, see **PLAYING WITH A BIGGER GROUP** below.

CHARACTERS

One player is the **Storyteller**. The Storyteller is in overall control. The Storyteller describes what is happening, and decides when a player must roll dice. The Storyteller will usually be the teacher.

Each student should create a character. This could be one of the characters from the story you told earlier, or a completely new character. This character is now you. You will portray this role. Take a piece of paper and record these details:

1. What's your name? Write it down.
2. What do you look like? Write down some words, or draw a picture.
3. What is something you are good at? Write it down!
4. What are two things you often carry with you? Write them down!
5. What is an interesting fact about yourself? Write it down!

HEALTH POINTS

Your character begins with 15 Health. Write it on your character sheet!

If you sustain a minor injury, lose 1 Health. If you sustain a big injury, roll one die and lose that many Health. If your Health falls to zero or below, it could be game over! Or maybe you just get knocked out and wake up the next day. The Storyteller will decide.

You can heal Health through rest or medicine. The Storyteller decides how much you heal by.

Storyteller tip: If you are a teacher, you should probably should never *actually* kill a student's character! Health can be used to create a sense of danger, or a major setback (such as getting captured by the bad guys).

LUCK POINTS

Read to the students.

Now write 'Luck: 0' on your character sheet.

Every player starts with 0 Luck Points. When themes of nature and climate come up in the story, if a player demonstrates good knowledge, the Storyteller can reward them with a Luck Point. At any point in the game, you can spend a Luck Point to reroll one die roll. Keep the best of the two results.

Storyteller tip: Or if you like, you could use counters to represent Luck Points. This might make them feel more precious.

GAME PLAY

The Storyteller makes up a situation and describes it. Each player describes their own character's actions. The Storyteller describes the results. Players can also ask questions to clarify what is happening.

Storyteller: As you are running down the street, you see a strange sight coming toward you. A robot is pedalling a bicycle. There is an angry crowd chasing him.

Namazzi: What does the robot look like?

Storyteller: Appears to be an older model. His paint is peeling. There is black smoke coming from the top of his head. You have been distracted by the robot, and in the meanwhile, the museum guard has almost caught up with you! What are you doing?

Namazzi: As the robot rides past, I jump onto the bicycle seat behind him.

Storyteller: OK, please roll the dice! Let's see if you make it!

If there is disagreement about what is happening, the Storyteller has the final say.

CHALLENGES

When a character tries to accomplish something risky or uncertain, the Storyteller may ask the player to roll dice to determine the outcome.

1. Roll two dice and add them together.
2. Can the class think of some advantages that may help the character succeed? For each advantage, add +1 to your roll (maximum of +3).

Example advantages: *You have prepared for this moment. A friend is helping you. You have a useful piece of equipment. This is something you are good at.*

1. Are there some disadvantages too? For every disadvantage, the Storyteller takes -1 from the roll (maximum of -3).

If the total is 8 or higher, the character succeeds! Otherwise, they don't succeed. Either way, the Storyteller describes the consequences.

For example:

Namazzi: As the robot rides past, I jump onto the bicycle seat behind him.

Storyteller: OK, please roll the dice! Let's see if you make it!

Namazzi: Can I have a +1 bonus? I used to be a bike courier!

Storyteller: Hmm, I don't think so. Riding a bicycle is different from jumping onto one.

Namazzi: Me and my friends used to do this all the time!

Storyteller: OK, OK, I'll let you have +1.

Namazzi: I rolled a 3 and a 4, plus 1 is 8. I made it! I grab onto the robot and yell, "Pedal faster my big metal friend, they're after us!"

Storyteller: The robot makes a bleeping noise that sounds like a complaint. But seems to pedal faster. There's a roadblock ahead. OK, meanwhile, Felix, you are still on the roof. What are you doing?

Felix: I'm looking around across the city. Can I see Namazzi?

Storyteller: She's nowhere to be found. But you can hear a commotion in the distance. Could that be her?

Felix: I can't risk taking the stairs. Is there a drainpipe I could climb down?

Storyteller: No, but there are a lot of vines growing on the side of the building. They look pretty strong.

Felix: I'm going to climb down. Do I need to roll?

Storyteller: Yes, roll the dice!

Students who have previously earned Luck Points can spend them to increase their chances of success.

Storyteller tip: When a player fails a roll, think of a way that it can advance the story. Don't just block progress: create new obstacles and complications for the players to tackle.

THE WORLD IN 2070

TTRPGs usually work best if the Storyteller doesn't bring fixed ideas about what kind of story will be told. The story should emerge naturally from the players' actions (and the outcomes of key dice rolls).

However, it is a good idea to prepare the setting in advance, so that students feel that they are exploring a believable, cohesive world. What are some places the students might visit? What are some characters they might encounter?

You can use some or all of these approaches.

If you have already played *Funcertain Futures: Building New Worlds*, you are all set!

1. Think about the local area of the school, and how it might change by the year 2070. Try to imagine a future that is realistic (a world reshaped by climate change) but also optimistic (rapid action has prevented the worst effects of climate change, and we have found ways to adapt).
2. Take inspiration from science fiction, especially solarpunk, climate fiction, Afrofuturism, Africanfuturism, and Indigenous futurism. For example, ASU Center for Science and the Imagination have several great free fiction anthologies online. Explore writers like Vandana Singh, Ernest Callenbach, Starhawk, Andrew Dana Hudson, Cory Doctorow, Kim Stanley Robinson, Nisi Shawl, Janelle Monae, Ursula K. Le Guin, Alaya Dawn Johnson, Rem Wigmore, and Alia Gee.
3. You could spend a session getting the students to design the world they want to play in. For example, you could create groups and get each one to think about a different aspect, e.g. transport and the built environment, disaster preparation, democratic institutions, the future of work, the future of food.
4. Explore existing tabletop roleplaying games, adventures, and supplements. The website itch.io is a great place to start. Look up the Applied Hope Games Jam.
5. Try reddit.com/r/solarpunk/ for more inspiration.

STORY HOOKS

1. Something or someone on has gone missing. Why do the players' characters want to solve this mystery? Where do they begin? What clues do they find?
2. The players' characters all volunteer in a repair cafe, where people can bring broken things to get fixed. But it is developing a reputation as more than just a repair cafe, as people start to bring all sorts of problems that need solving ...
3. Uh-oh. The nanotech experiment has got loose and got into some of the 3D printer ink. Now there is a blob of the stuff wandering around the neighbourhood getting bigger and bigger.
4. The early warning system says there's a big storm coming. Your little sister has wandered off. You've only got two hours to find her!
5. Nowadays most decisions are made via direct digital voting, with a little help from AI. But there have been some very strange choices made recently. What are some of these decisions? (Look at your map for inspiration). Could there be a glitch in the system? Or is there actually a good reason for decisions that seem strange at first? You have been recruited to get to the bottom of it.
6. There are rumours that a glowing cube has been spotted flying above the lake, several nights this week. Everybody is arguing about what it is and what should be done. The players' characters decide to investigate. How will they investigate? Will they try to find some eye-witnesses? Interview people with different theories about the cube? Find a good place to watch from? And/or something else?
7. A strange pestilence has started to spread in the mushroom farms which are used to make sustainable plastic. The players must deal with the consequences of the mushroom shortage, and at the same time investigate the source of the problem.
8. Forest fire! It is a good thing that your town is so well-prepared for this. How do the players' characters help to control the blaze?

PLAYING WITH A LARGER GROUP

What if you wanted to play *Funcertain Futures: The Tabletop Roleplaying Game* with a bigger group?

It is a little brave, but it can be done!

Teams. One approach is to divide the class into teams. Each team is responsible for one character. "Okay everybody, take five minutes in your groups, and discuss what your character is going to do next."

Referenda. Alternatively, create characters beforehand — maybe just one main character, or maybe two or three or four. If there are several characters, print out a picture of each one and pin them in front of the class. The entire class decides what characters do. Have a discussion, get some suggestions, then take a vote.

You can also experiment with incorporating more drawing. When there is a new scene, a significant turning point, a new character, etc., assign a student or a group of students to create an image. As they are completed, hang them on the walls to create a storyboard. This can be a good way of keeping lots of students feeling engaged, even if their suggestions aren't ending up in the official narrative. Be aware that some students may find the drawing distracts from the storytelling, so include plenty of reminders and summaries.

