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Creative Learning:
Teacher Notes
Multispecies Banquet





Plan Your Visit

Our Time on Earth runs from 5 May – 28 August at the Barbican Centre. The exhibition takes place in the Curve, Pit Theatre and foyer. School groups can book to come any time, and we have limited slots for tours and workshops on Tuesdays at 2pm and Thursdays at 10am from 10 May – 28 July.

Please also find our digital [Exhibition Guide](#) to support your teaching.

Using this resource

This resource is for the classroom, and complements the exhibition *Our Time on Earth*, but you might use it even if you have not attended with your students.

Aimed at Key Stage 2.

In here you will find...

- An introduction to the artwork *Refuge for Resurgence* as a provocation to begin a discussion
- Teacher Notes on **ecosystems, classification, equality and empathy**
- **Discussion points and questions**
- New vocabulary
- Activities to reflect and challenge, as well as invent and illustrate.



"Life Forces" by Tim&Ed, 2021

Curriculum Links

Our Time on Earth brings together indigenous thinkers, artists, scientists, activists, architects and more. Our resources reflect the interdisciplinary, collaborative ambition of the project, as we acknowledge the climate emergency affects every realm of life and every subject on the curriculum. We aim to provide opportunities for teachers to engage students with climate action in a holistic way. Below is some guidance for where the subject matter links to the curriculum.

Key Stage 2 and 3 Science –

- recognise that environments can change and that this can sometimes pose dangers to living things
- the interdependence of organisms in an ecosystem, including food webs and insect pollinated crops
- the importance of plant reproduction through insect pollination in human food security
- how organisms affect, and are affected by, their environment, including the accumulation of toxic materials
- differences between species
- how changes in the environment may leave individuals within a species, and some entire species, less well adapted to compete successfully and reproduce, which in turn may lead to extinction the importance of maintaining biodiversity and the use of gene banks to preserve hereditary material

Key Stage 2 and 3 Geography –

- physical geography, including: climate zones, biomes and vegetation belts, rivers, mountains, volcanoes and earthquakes, and the water cycle
- human geography, including: types of settlement and land use, economic activity including trade links, and the distribution of natural resources including energy, food, minerals and water

Key Stage 2 English–

- Writing:
 - composition

Key Stage 2 Art –

- improve mastery of art and design techniques, including drawing, painting and sculpture with a range of materials [for example, pencil, charcoal, paint, clay]

Key Stage 2 Design and Technology –

- use research and exploration, such as the study of different cultures, to identify and understand user needs
- identify and solve their own design problems and understand how to reformulate problems given to them
- develop specifications to inform the design of innovative, functional, appealing products that respond to needs in a variety of situations
- Cooking and Nutrition:
 - understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed
 - understand and apply the principles of a healthy and varied diet

Key Stage 2 Citizenship –

- developing good relationships and respecting the differences between people
- to recognise and challenge stereotypes
- to learn that differences and similarities between people arise from a number of factors, including cultural, ethnic, racial and religious diversity, gender and disability



Courtesy of Superflux

A Multispecies Banquet

Refuge for Resurgence is an installation by Superflux, a design and experiential futures company. It imagines a new world where humans, animals, birds, plants, moss and fungi prosper together with resilience, adaptation, and hope. This multispecies banquet showcases crockery and cutlery designed for 12 different species, creating a welcoming environment that invites visitors to rethink their position within the natural world.

Do

Divide the class into groups to explore the characteristics of the 12 species invited to dinner for the multi-species banquet. Get the group to teach the class about the species, with curiosity and neutrality. From the creature's perspective, what are their likes and dislikes?

Lead a discussion on the human feeling about each of these species. Do we have a problematic or special kind of relationship with some species? If so, why?

Tip: Disrupt the order in which you explore each species, in order to disrupt the hierarchy of importance that we often artificially give them.



Rat

Mammal. Omnivorous. Lives 1-3 years.

Characteristics: Incredibly adaptable. They live in loose colonies and dig their own burrows. They are famously good breeders; a female brown rat can breed from around three months old, and has an average of five litters a year, each of up to 12 young. Only needs food and shelter. Lives in any habitat. Mostly lives alongside humans without issue. Spread across the world in 1700s during

industrialisation and colonisation of territories on ships. They were seen as the cause of the plague in the 14th century and hated ever since, but now scientists think the plague spread too fast for rats to be culprits.

Not to be confused with: Mouse or water vole. Mice are smaller, and water voles have rounder faces, small ears that do not protrude and a furry tail.

Latin name: Rattus norvegicus



Beaver

Mammal. Herbivorous. Lives 10+ years.

Characteristics: Beavers are the engineers of the animal world, creating wetlands where wildlife can thrive. After a 400-year absence, beavers are back in Britain through rewilding projects in some regions, most notably in Scotland. Beavers were once found throughout Britain, but were hunted to extinction in the 16th century for their fur, meat, and the oil in their scent glands, which

was used in medicine and even perfumes. They are slow on land but excellent swimmers, so they feel safest when they're close to deep water. They use mud, wood and stones to build dams across shallow rivers, streams and ditches. The dams are leaky and let some water through, but slow down the flow enough for ponds to form, where the beavers can live and feel secure. They shelter in burrows they dig into the river bank. Beavers live in small family groups, formed by a pair of adults and any young they've had that year, and sometimes the young from the previous year, too. Pairs usually stay together for life.

Not to be confused with: A muskrat, otter or capybara. These animals are also semiaquatic, but on land you can spot differences. Beavers have large stocky bodies with a brownish, yellow coat and a scaly, flat tail, and huge yellow front teeth. They have webbed rear feet and like to spend the majority of their time in the water.

Latin name: Castor fiber



Wasp

Insect. Only eats sugars. Lives on average 18 days.

Characteristics: There are social and solitary wasps. Most of the ones we know are social, and live in colonies. They can't really function in winter - most wasps die off in the autumn, although some colonies hibernate and get back to work in spring. The sugars they feed on often come from flower nectar and honeydew produced by aphids, or the sugary

drinks we drink in the park. When on the hunt for nectar, wasps can also become accidental pollinators by travelling from plant to plant carrying pollen, making them vital to the ecosystem.

They also kill millions of insects. They don't eat the prey they kill - they feed it to their young. Social species capture insects, chop them up and carry parts back to the nest. Without wasps, the world could be overrun with spiders and insects. Each summer, social wasps in the UK capture an estimated 14 million kg of insect prey, such as caterpillars and greenfly. Perhaps we should be calling them a gardener's friend.

Not to be confused with: The hoverfly, which is easily confused with a wasp. There are over 270 types of hoverfly in Britain and about 120 of them have the distinguished black and yellow markings of a wasp. The key is in the name! They hover, which makes them different to the way wasps fly about and are also smaller than wasps.

Latin name: Vespula vulgaris



Human

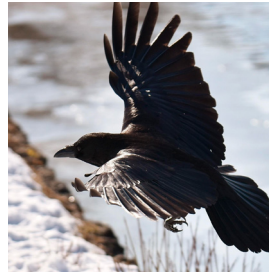
Mammal. Omnivorous. Lives 81+ years.

Characteristics: Animals that can survive in many climates on land and generally settle in groups. Their ability to think (cognition) is slightly different from the ape family, meaning they have a capacity for speech and abstract reasoning. Human behaviour in the last 12,000 years, particularly the behaviour that led to farming and industrialisation, has changed the face of the earth so drastically that we have

entered a new time period some scientists are calling The Anthropocene, which they say began in the 1950s. There were 2.5 billion humans on earth in 1950, and now there are almost 78 billion. Humans are very social, sharing food and ideas, caring for infants and building social networks - these behaviours help us meet the daily challenges of our environments. Humans also have culture, using symbols to express emotions and ideas.

Human children are born much earlier in their development than other mammals, after only nine months in the womb, meaning human babies are much more dependent on their parents than in other species.

Latin name: Homo Sapien



Raven

Bird. Omnivorous. Lives 10-15 years.

Characteristics: The common raven is a big black bird, the biggest member of the crow family. It is all black with a large bill and long wings. In flight, it shows a diamond-shaped tail. They are noisy, aggressive omnivores whose diet includes rodents, insects, grain, and birds' eggs. In winter, especially, it is a scavenger and feeds on carrion, dead fish and garbage. The raven is an intelligent bird with a large and varied vocabulary, including guttural croaks, gurglings and a sharp metallic "tok." Studies have shown that the common raven is capable of saving items of value that can be used later as tools or goods for barter, behaviour that strongly suggests that this bird has the ability to plan for a future when these items might be needed. You can see them all year round. The common raven is a near-universal symbol of dark prophecy - of death and disease. They are usually solitary but may feed in small flocks. The young remain in the nest for about a month. A raven can make an interesting pet capable of learning to mimic a few words.

Not to be confused with: Crows, which are related but different, smaller and have thinner beaks. A magpie, which has white stripes and longer tails.

Latin name: Corvus Corax



Fungi

Fungi is a “kingdom” of organisms under this classification, with millions of species within this category. It is as big as the term “animal” or “plant”.

Characteristics: Fungi include microorganisms such as yeasts, moulds and mushrooms. The appearance of black spots on bread left outside for some days and the yeast cells which are commonly used for the production

of beer and bread are also fungi. They are also found in most skin infections and other fungal diseases. Most types of fungi grow in moist conditions. Thus, we can say that fungi usually grow in places which are moist and warm enough to support them.

Fungi consist of long thread-like structures known as hyphae. These hyphae together form a mesh-like structure called mycelium. They reproduce using tiny spores, and their reproductive organ is usually the mushroom, which appears only occasionally to spread these spores. This is the part of the fungi humans usually eat. It is similar to the “fruit” of a plant. Fungi can break through concrete, live inside other organisms, and span the length of a forest floor. We know very little about fungi, as humans have only started to discover their importance to the whole of the planet’s ecosystem. Fungi are what turn old plants into soil and allow nutrients to move between plants and animals. While they can live as diseases, they often exist in harmony with other living beings in a beneficial relationship.

Not to be confused with: Bacteria. They can seem similar but they are different at the cellular level. Bacteria are unicellular, not multicellular organisms, and they are asexual – they don’t “reproduce” via spores in the same way as fungi.

Latin name: Fungi



Wild boar

Mammal. Omnivorous. Lives 15-20 years.

Characteristics: Wild boars live in groups in forests, except for old males, which are solitary. The animals are swift, nocturnal, and omnivorous and are good swimmers. They have stocky, powerful bodies with a double layer of grey-brown fur – the top layer harsh, bristly hair; the under layer much softer. Mature males have tusks that protrude from the mouth. Piglets are a lighter ginger-

brown, with stripes on their coat for camouflage. Although they are normally unaggressive, they can be dangerous. The majority of their diet is made up of roots, bulbs, seeds, nuts and green plants. However, as opportunistic feeders, they will eat much of what they come across on the forest floor. This can include dead animals, small mammals, birds’ eggs, earthworms and other invertebrates.

Not to be confused with: Domestic pigs. All wild boars are pigs, but not all pigs are wild boars. This just means that the wild boar is a species of pig. The two are not the same animals. Wild boars are hairy and smaller, and pigs are generally bigger and pink or black.

Latin name: Sus scrofa



Fox

Mammal. Carnivores. Lives 10-15 years.

Characteristics: Urban foxes live in cities where they have learned to adapt and survive. They take refuge in abandoned buildings and in small plots of land that still have a few trees and bushes. They live in any place where they can safely raise their young, feeding on rats and vegetation. They successfully live with humans, and this is not based upon their mythical cunning, but rather their ability to

adapt to a range of changing conditions. Wherever you live, you probably have at least one fox visiting your garden. They have very varied diet: foxes eat earthworms, insects, fruit and vegetables as well as a wide variety of both domestic wild birds and mammals. They like cooked or raw meat and tinned pet food. Foxes also like other savoury items such as cheese, table scraps, bread soaked in fat, fruit and cooked vegetables. However, be aware that anything you put out for foxes could equally be taken by dogs, cats and other wildlife. Foxes can sometimes bury extra food they have in flower beds. They don’t care if the food has gone off or is full of maggots, they will still eat it with relish!

Not to be confused with: Dogs. These are wild animals and will be much more shy. They have fluffier tails and are red in colour.



Longhorn

Mammal. Omnivorous. Lives 20-30 years.

Characteristics: The British Longhorn is a type of cow, a breed of beef cattle characterised by long curving horns. They are kept by farmers for beef and milk. Their horns are very long and curved down to around the nose. They have a white patch along the line of their spine and under their bellies. They are usually very friendly and have a relatively docile temperament, and there are wild types

in the UK. The industrial farming of cattle is one of the key causes of climate change globally, including the mass deforestation of rainforest in order to grow grains to feed cattle. However, the keeping of cattle in smaller groups in areas where they can graze can support the biodiversity of ecosystems, if managed correctly.

Not to be confused with: Bulls. The long, curved horns that serve to distinguish this breed from others can make them look aggressive like any young bull, although by temperament they are usually friendly and easy to manage.

Latin name: Bos primigenius



Pigeon

Bird. Omnivorous. Lives 3-5 years.

Characteristics: City pigeons are descendants of pigeons that were kept by humans and have returned to the wild. Owing to their abilities to create large amounts of excrement and be an occasional disease carrier to humans combined with crop and property damage, pigeons are largely considered a nuisance and an invasive species, often being referred to as 'rats with wings'.

Pigeons are gentle, plump, small-billed birds. All pigeons strut about with a characteristic bobbing of the head. Because of their long wings and powerful flight muscles, they are strong, swift fliers. They are very intelligent and were once used for carrying information (carrier-pigeons), as they can recognise areas from the sky with incredible accuracy. They are smart enough to be able to recognise themselves in the mirror, known as the 'mirror test'. They eat mainly seeds and leftovers, and they spread rapidly in cities as people feed them.

Not to be confused with: Dove. Urban pigeons are actually in the same family as the dove, and are genetically almost identical. You can sometimes see a white dove/pigeon cross in the city, which is partly white and partly grey. Urban pigeons are descendent of the rock dove which are wild birds that live on the coast. If you search for what a Rock Dove looks like, you might be surprised!

Latin name: Columba livia



Moss

Plant. Absorbs water and nutrients through leaves. Lives 2-10 years.

Characteristics: On the roofs above our heads, on garden walls and in cracks in the pavement; mosses are growing all around us. They are ancient species that can survive huge varieties in habitat. Because of their range of adaptations, they are able to occupy areas that are otherwise uninhabitable such as rocky

ledges on mountainsides. They are non-flowering plants which produce spores and have stems and leaves, but don't have true roots. Often overlooked, these tiny plants have incredible properties. From hot deserts to damp caves, they can survive in extreme conditions and play an important role in biodiverse habitats across the world. The individual plants are usually composed of simple leaves that are generally only one cell thick. Mosses function like sponges, and can hold water in the same way. They help to soak up rainfall, maintain moisture in the soil below and keep conditions around them humid. This enables other plants and fungi around them thrive, such as in habitats like marshes and woodland.

Not to be confused with: Grass. Mosses typically form dense green clumps or mats, often in damp or shady locations. Different from grasses e.g. in lawns, where there are roots in the ground and they thrive in the sun.

Latin name: Bryophyta



Snake

Reptile. Carnivorous. Lives 20-30 years.

Characteristics: Snakes are a type of reptile distinguished by the fact they have no limbs and a long body and tail. All snakes are predators, but venomous snakes have given an inaccurate reputation to the entire group, as most people cannot tell the dangerous from the harmless. In Mexico, ten times as many people die annually from bee stings as from snakebites. Most snakes are not aggressive.

Statistics show that the vast majority of snakebites occur while either catching and handling captive snakes or trying to molest or kill wild ones. In either case, the snake is only defending itself. Given their exquisite colours, patterns, and graceful movements as they crawl, swim, or climb, some snakes can be considered among the most beautiful animals.

Nearly every culture since prehistoric times has worshipped, revered, or feared snakes. Serpent worship is one of the earliest forms of veneration, with some carvings dating to 10,000 BCE. Many stem from the snakes' biological peculiarities: their ability to shed their skin is associated with immortality; their ever-open eyes represent being all-seeing; their ability to suddenly appear and disappear links snakes with magic and ghosts; a phallic resemblance embodies procreative powers; and the ability to kill with a single bite creates fear of any snakelike creature.

Not to be confused with: Lizards are classified with snakes in the same order, but snakes are simplified lizards, usually distinguished by their lack of limbs or eyelids.

Latin name: Serpentes



New Vocabulary

Ecosystem – an ecosystem (or ecological system) consists of all the organisms and the physical environment with which they interact

Biodiversity – the variety of life in the world or in a particular habitat or ecosystem

Anthropocene – the name given by some scientists to the current geological age, viewed as the period during which human activity started to have a significant impact on the planet's climate and ecosystems

Mass Extinction – an event on planet Earth in which at least 75% of all the species go extinct within 2.8 million years – which is a short amount of time in terms of geology. Humans have only existed for about 200,000 years so far

Biodiversity – why does it matter?

From microscopic organisms and miniature plants to gigantic whales, “biodiversity” refers to the incredible variety of all life on earth.

The number of species of plants, animals and microorganisms, the enormous diversity of genes in these species, the different ecosystems on the planet, such as deserts, rainforests and coral reefs – these are all part of a biologically diverse Earth. The Earth is a huge system, where every living creature plays a part. There is always a “why” in nature, nothing exists without playing some part in the ecosystem. The more variety and balance, the more robust the system is.

Without this diversity, the Earth is vulnerable to devastating changes that could affect life on earth with even greater severity than global warming or climate change caused by the emission of greenhouse gases. Declining biodiversity is therefore a concern for many reasons.

Western forms of agriculture, industrialisation and urbanisation have swept across the globe and depleted levels of biodiversity to alarming levels.

Ask

What do you think are the main causes of biodiversity depletion?

Do

Explore biodiversity across the globe. As a class, view the Biodiversity Intactness Index created by the Natural History Museum. This is a tool created by scientists to campaign for nature positivity and measure it accurately across the globe.

Looking at the map, which areas of the globe might you suggest are the originally most rich in biodiversity? What kind of territories are they – deserts, forests, coral reefs, wetlands?

Tip: The proposed planetary boundary is a BII index of 90. There are some areas that have retained this (the areas shaded black). However, these are not always areas with much wildlife to begin with.

Anthropocene – where do we come in?

There have been five mass extinctions on the planet – and some scientists are suggesting we are heading for a sixth one. A famous extinction is the one you may have heard of already, where the dinosaurs were wiped out by meteors that hit the Earth.

The five previous mass extinctions are:

440 million years ago was the first mass extinction, during the “Ordovician” Period. Life was in its early stages on Earth, but there were some aquatic life forms and some land species. The cause of this extinction event is thought to be the shift in the continents and drastic climate change. It happened in two stages: an ice age and then a sudden melting of the ice, meaning species were too slow to adapt to the changes. Up to 85% of all living species were eliminated. The few surviving aquatic species allowed for new life forms to evolve.

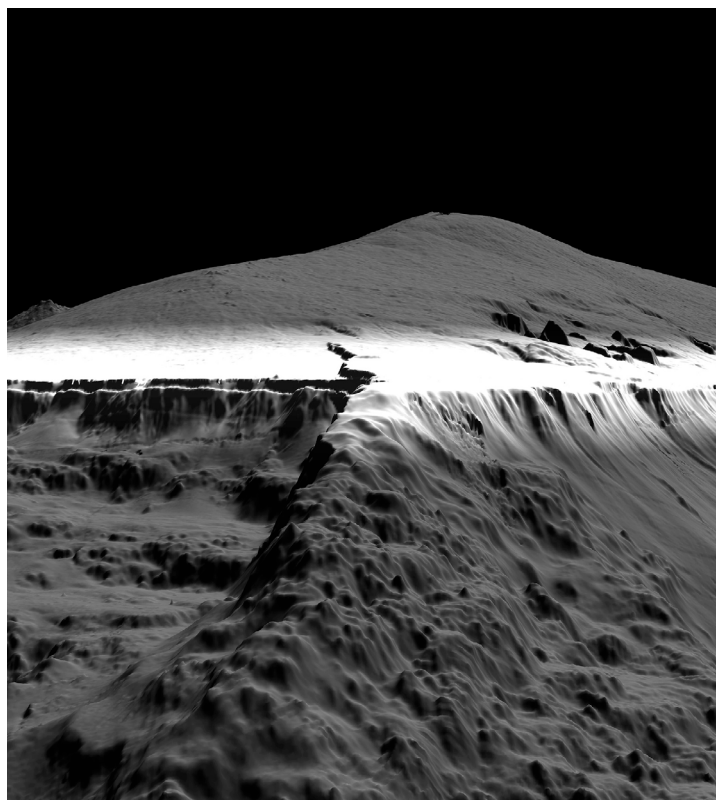
375 million years ago was the second mass extinction, during the “Devonian” Period. Quite soon after the previous one, just after life on Earth, land and sea had begun to adapt and flourish, up to 80% were wiped out. Some believe that as sea creatures moved to land, oxygen levels in the sea dropped rapidly leading to mass death in the oceans. Similarly, having so many plant species adapting to land decreased the level of carbon dioxide in the air very quickly, so the greenhouse gases in the air plummeted, cooling down the globe rapidly.

250 million years ago was the third mass extinction, during the “Permian” Period. This is the largest known of all mass extinctions with a massive 96% of all species on Earth lost. It is given the nickname “The Great Dying”. All aquatic and land species died quickly, and the cause is unknown – some scientists suggest asteroid strikes or volcanic activity that subsequently caused climate change or an increase of a type of microbe that killed life in the sea.

200 million years ago was the fourth mass extinction, during the “Triassic” Period. More than half of all living species were eliminated, caused by major volcanic activity bringing about global climate change and a change of pH levels in the sea. This was a combination of many, smaller extinction events happening over 18 million years. Extinction of other vertebrate species allowed dinosaurs to flourish.

65 million years ago was the fifth mass extinction, during the “Cretaceous” Period. It is named the K-T extinction, and this is the most well known of all the extinctions when dinosaurs were wiped out by an extreme asteroid or meteor impact. 75% of other living species were also eliminated. Huge space rocks hit Earth and sent debris into the air, producing an “impact winter” across the entire planet. Scientists have studied the large craters left by the asteroids and can date them back to this time. This event caused a new age, with a major turning point in the Earth’s history.

Some scientists believe we are in a new era called the Anthropocene. The Anthropocene Epoch is an unofficial unit of geologic time, used to describe the most recent period in Earth’s history when human activity started to have a significant impact on the planet’s climate and ecosystems. It could be that this period begins the sixth mass extinction on earth, caused by climate change, pollution and land used by humans for industry, urbanisation and agriculture. Extinctions can take millions of years, and many people think that the rate of biodiversity loss is so fast that we are likely to be at the beginning of the next one.



Courtesy of Territorial Agency

Useful stats:

- The UK is the most nature depleted country in Europe
- 60% of mammals on the planet are livestock, 36% are humans, and 4% are wild
- Dinosaurs were around for 200 million years until they became extinct, while humans have only been on the planet for roughly 200,000 years

Do

Create a timeline showing the five mass extinctions in the history of planet Earth. Draw an image next to each one to depict the change. Brainstorm what humans can do at the end of the timeline to suggest how we might reverse the sixth extinction.

Come Dine With Us

Look at the images from *Refuge for Resurgence* by Superflux. Expand on the experience the group had at the exhibition, or if you have not visited, lead an enquiry into the artwork, encouraging responses from the group. You may find more information about the exhibit [here](#).

Part 1 – Plan your dinner party

- List four of your favourite animals
- List four other living creatures, that are not animals, for example an insect, microbe, fungi or plant. This might require you to do some research, or you might invite types you know: a daisy plant, penicillin, a beetle, or COVID-19
- List four creatures you, or the general public, don't like, for example common "pests" such as a rat, a cockroach or pigeon. You may want to complete further research on the ecological impact of this species – for example, is it food for another species? Is it a pollinator? Does it attract another life form into its habitat?
- Invite them all to dinner. Think about all of their needs, likes and dislikes. Think about if there's any guests who definitely can't be seated together.
- How can you be the best host for them so that everyone feels welcome and equal?
 - What temperature would you set the heating?
 - What time of day would it be?
 - What would you cook?
 - What would you discuss?
 - How would you seat them?
 - Also, where would you sit the human at this table? Why?
- Imagine you are sitting at the table after all the guests are gone, with the washing up to do. Write a diary entry about the dinner explaining what happened and how you felt it went.
- Pick another of your guests. They are the next hosts on *Come Dine With Us* – how might they think about you as a guest? Who would they sit you next to? What would the experience be like?



Credit: Courtesy of Superflux

Part 2

Decorate and accessorize a plate for your dinner guest, thinking about your dinner party.

Imagine this is a new world, where this dinner is a chance to celebrate the variety of species in the ecosystem. Pick one species. What would you give your species as a gift at the table? Explain your choices.

Based only on the plate and gift, can you see if your classmates can guess which creature your guest is?

Can I Live?

By Fehinti Balogun

Produced by Complicité

A new online performance about the climate emergency. With rap, theatre and animation, Fehinti links the climate crisis & social justice, finding hope, through activism, for the future.

Catch the Trailer of the film [here](#)

If you want to discover more about the ecological emergency, climate justice and the creatives behind this filmed performance download the digital resource pack [here](#).

To screen the film at your school contact creativeengagement@complicite.org

Credits

These Learning Resources were created by Hannah Calascione for Barbican Creative Learning, with ethical consultation from Angela Chan, Angela Camacho and Sarah Melia.



Courtesy of Julia Watson



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