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# Case Study: Exploring pre-schoolers' attitudes and behaviour towards the environment

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# Sustainability Matters in Early Childhood

Boyd, King, Mann and Neame (2022)



Robbie Barry, aged 4

**NCFE**

# Contents

Acknowledgements	4
Introduction	5
Experiences	10
A possible starting provocation	11
Plants Feed Me	13
Case study: Plants feed us and help fight climate change	13
Bird migration	17
Paper, plastic, and metal (recycle) activity	19
Case study: Exploring pre-schoolers' attitudes towards the environment	21
Food hero	25
Weather/seasons/climate change and animals	27
Case study: Climate action case study	31
Marine life activity	33
Case study: Participation of the child's voice	36
Case study: Childbase Partnership Ltd	38
Case study: Greasby Infant School – Reduced inequalities	41
Case study: Intergenerational Sustainable Skills Exchange	44
Useful links and references	50

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## Introduction

This document will support the sector, including early years students and parents/carers, to engage with the Sustainable Development Goals (SDGs) and learn more about our responsibilities to each other and the world in which we live. The purpose of this sustainability resource is to support you as practitioners, educators, childminders, parents/carers and students to take small green steps towards a better climate future globally. The focus will align with the Government Sustainability and Climate Change strategy of environmental sustainability at the forefront, through the SDG 13 Climate Action.

In April 2022, the Government launched their strategy (DfE, 2022) on sustainability for education and children's services systems. Within it there are several key messages that relate to learning and play in early childhood and care sector, which are:

- Nature
- The causes and impacts of climate change
- The importance of sustainability.

The strategy asks practitioners, educators, students and children to become empowered as global citizens, to be better connected to nature and understanding of the impacts of climate change (SDG 13).

There are 17 SDGs, and this introduction draws your attention to SDG 13, which focuses on combatting climate change in line with Governmental policy development. This resource is full of fun ideas, activities, and experiences that promote the creativity and curiosity of young children with a focus on SDG 13. This resource has been developed from the wider [Early Years Sustainability resource \(ncfe.org.uk\)](https://www.ncfe.org.uk).

This resource has also been developed to support early years practitioners as they engage with babies, young children, and parents/carers in the exciting world of science, technology, engineering, and mathematics (STEM). The Government strategy (DfE, 2022) asks that the sector harnesses children's passion and enable them to develop knowledge and skills in science, technology, engineering and maths (STEM) that are required for green jobs of the future. These skills also align with SDG 8 Decent Work and Economic Growth, SDG 9 Industry, Innovation and Infrastructure, SDG 11 Sustainable Cities and Communities, and SDG 12 Responsible Consumption and Production, as well as SDG 13.

The strategy states we must provide children with practical opportunities to "increase climate resilience, reduce carbon impact and enhance biodiversity," which will enable children to take positive action to improve their community and their planet. Suggestions here are as simple as growing vegetables or being part of the eco-school initiative (FEE, 2019), to engaging children in decision making that affects them, such as recycling, weather and energy monitoring, or the food choices offered to them.

### **What do we mean by sustainability?**

We all have a responsibility to sustainability – an appreciation of our relationship with the environment, a respect of the world around us and the greater order of nature. Through this resource we have identified opportunities to embed the SDGs, to contribute to a more sustainable environment.

### **Context**

In Paris 2015, the shared blueprint for peace and prosperity for our shared planet with its inhabitants (both human and non-human), was adopted by all United Nations Member States. The 2030 Agenda for Sustainable Development is an urgent call for action by all countries to work in collaboration and global partnership.

At its centre are the 17 SDGs which highlight the task ahead for the planet, now and in the future. They're ambitious and challenging, but the aim is to end poverty, improve health and education for all as lifelong learners, reduce societal inequalities and develop a sustainable economic growth. Our planet needs us to be environmental and ecological advocates, and what better place to start than the Early Years.

Key to the SDGs is the recognition that they're all interconnected and holistic, reflecting an early childhood pedagogical approach. Whilst focusing on one goal initially, there is a mutual connection between them all. [THE 17 GOALS | Sustainable Development \(un.org\)](https://www.un.org/sustainabledevelopment/)



### What is Climate Action?

At the Rio + 20 Conference in 1992, The Future We Want declaration recognised Climate Change as "an inevitable and urgent global challenge with long-term implications for the sustainable development of all countries". Thirty years later, the Intergovernmental Panel on Climate Change (IPCC)'s Climate Change 2022: Impacts, Adaption and Vulnerability report warns of the extreme urgency of "unfolding non-climatic global trends". These are described as "biodiversity loss, overall unsustainable consumption of natural resources, land and ecosystem degradation, rapid urbanisation, human demographic shifts, social and economic inequalities and a pandemic" (p 36).

Early childhood is a crucial period in developing fundamental values and attitudes that children will potentially take into adulthood as lifelong learners. Historically, early childhood is positioned as an advocate for sustainability, with pioneering giants championing social justice, equality and children's voices.



Equally, early childhood positions itself as environmental, with the origins of forest school and outdoor pedagogical play deeply embedded into the kindergarten. This resource draws on the wonderful history and philosophy of early childhood, to enable practitioners, educators, students and significantly, children, to be part of the Agenda 2030 Education for Sustainable Development, through provocations aligning to the EYFS (DfE, 2021) and Development Matters (2021).

By engaging young children in experiential climate change learning opportunities, promoting questioning and critical thinking, they will be actively participating in sustainability and climate change practice and be prepared for the DfE, 2022 Climate Leaders Award, as highlighted in the strategy when they start in primary school.

Activities within this resource are rooted in helping children connect with their environment and begin their journey into climate education. This is done through practical learning that supports a relationship with the environment, which then leads onto supporting their ownership of it and encourages dedication to sustainability. Furthermore, this is the beginning of their climate education and green skill development. Therefore, the activities within this resource subtly introduce the foundations for this ownership and ensuing dedication. As we move into the Green Industrial Revolution, it's important to embed the ability to think and live sustainability within young people, meaning this foundation will be invaluable as children move on through their education.

STEM is fundamentally an opportunity for children to explore, challenge and understand what they sense around them. Promoting STEM will only further the development in children as they learn to navigate the world around them. As the world is changing, it is only right that we encourage children to begin their climate education, learn more about sustainability and start developing their green skills to support with their future. A key component of the Government strategy (DfE, 2022) is the development of the National Education Nature Park [Sustainability and climate change: a strategy for the education and children's services systems - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/consultations/sustainability-and-climate-change-a-strategy-for-the-education-and-childrens-services-systems). The aim of this project is to encourage children to measure and improve biodiversity in their nursery, to increase their knowledge of local fauna and technologically develop key skills such as mapping, data collection and analysis. STEM supports this by providing children with the necessary skills to engage with the National Education Nature Park, not just in their locality, but to become global citizens by engaging globally too.

## Giving children agency

In 1992, the United Nations Convention on the Rights of the Child (UNCRC) was recognised in the United Kingdom. There are 54 articles incorporated into the convention and all are interconnected and must not be viewed in isolation. These articles provide rights for children that cover all civil, political, economic, social and cultural aspects of their life, linking to all 17 Sustainable Development Goals (SDG) (UNESCO, 2015). The characteristics of Effective Learning (DfE, 2021) encourage children to question, to think and to investigate.

There are four articles in the Convention that are known as the "General Principles", which help to interpret all other articles and play a fundamental role in realising the rights in the Convention for all children. They are:

1. Non-discrimination (Article 2)
2. Best interest of the child (Article 3)
3. Right to life survival and development (Article 6)
4. Right to be heard (Article 12)
5. UN Convention on the Rights of the Child - UNICEF UK.

The Government strategy highlights this as a crucial aspect of supporting children to understand climate change and what they can do to support the planet. It states the needs and views of children must be "taken into account in the development of climate change policies."

How can we ensure they are heard and that their world is protected, with their future needs in mind? Harry Shier (2001) built upon previous models of participation (Hart, 1992) and based his model on five levels of participation:

1. Children are listened to
2. Children are supported in expressing their views
3. Children's views are taken into account
4. Children are involved in decision-making processes
5. Children share power and responsibility for decision-making.

In addition, three stages of commitment are identified at each level: openings, opportunities and obligations.

[View the research Shier-PathwaystoParticipation.pdf](#)

## Experiences

In this section, we explore provocations that can support the children's experiences and make links to the Early Years Foundation Stage (2021), as well as the non-statutory guidance of Development Matters (2020). There are reflective questions throughout this section to support Early Years Educators in their continuous reflective practice.

Below are the links to climate education and green skills in each experience, as well as links to the Characteristics of Effective Teaching and Learning.

It's important to remember all these activities/provocations must be led by the children.

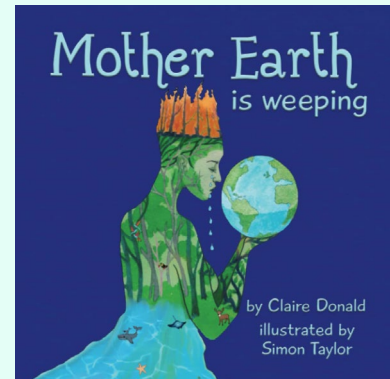
- A possible starting provocation
- Plants feed me - climate education
- Bird migration - climate education
- Paper, plastic, and metal (recycle) activity - climate education and green skills
- Food hero - climate education and green skills
- Waste activities - climate education and green skills
- Weather/seasons/climate change and animals - climate education
- Marine life activity - climate education and green skills.

## A possible starting provocation

Read this book together or watch the video: Mother Earth is Weeping by Claire Donald for children ages 3-11 years. [Mother Earth Is Weeping \(3-11 years\) - YouTube](#)

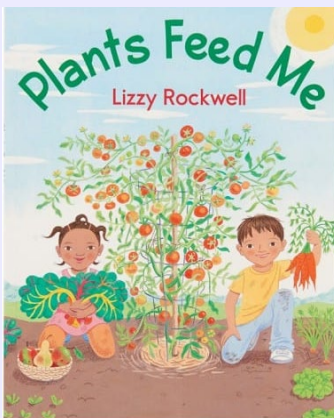
### Pause and reflect

Think about the sorts of questions that could provoke sustained shared thinking. Listen to the comments from the children and take the time to observe their reactions and wonderment at the pictures in the book.



### Characteristics of effective teaching and learning

**Active learning** - being involved and concentrating, showing high levels of fascination. Remove second line of active learning.



### Pause and reflect

How will the book continue to have an impact on the children's learning?  
What else could you do support the children's understanding of where foods come from?

### Characteristics of effective teaching and learning

**Playing and exploring** - Realising that their actions have an effect on the world, so they want to keep repeating them.

## Discuss with the children plant-based foods using this book as a provocation

### Read: *Plants Feed Me* by Lizzy Rockwell

Reflect on the difference between plant-based food and animal food - what foods do they eat that is animal or plant?

Make an audit of the most popular plants eaten and introduce them to new plant-based foods. Reflect upon the culture of the community too. Invite grandparents in to share traditional plant-based foods. Ensure children taste and feel the foods.

Supporting the children in considering the foods that are healthy for them and provide a nutritious, balanced meal will be important to future thinking. Discussions around how this can also have an impact on the planet will be especially important.



Credit to Codsall Community Nursery

#### In practice

3-year-olds began to plant their own strawberries in a group adult led activity. A conversation started with the key person and one of the children stated, "if we plant our own food, the farmer doesn't have to drive here". The adult then ensured that this was explored further with links to impact on the planet.

## Case study

### Plants feed us and help fight climate change: A group learning story

On Wednesdays, we usually cook a vegetable soup together for the children's snack. I provide a range of seasonal vegetables which I have bought from the shop, such as courgettes, potatoes, carrots, and leeks, then the children carefully chop them up and place them into a pan with stock and herbs.



As this is a part of their weekly routine, they're highly competent at this task and can manage the preparation with minimal support from the adults.

I then put the pan onto the hob and the children play while the soup cooks. This week, we've have been reading the book *Plants Feed Me* by Lizzy Rockwell (a starting provocation towards SDG 13) and discussing the many different types of plants and parts of plants we might eat, instead of relying on meat. This generated some interesting discussions around where and how food plants grow and the processes involved in them becoming food that the children recognise, for example, the children were curious about how wheat plants come to be bread.

I decided to use our weekly soup cooking as a provocation. As usual, I set out the pan on the table and the children gathered around me, keen to get started with the cooking. "Let's cook some soup," I said. Then, "Oh no! I can't believe it! I forgot to go to the shop and buy vegetables! How can we make soup without the vegetables?"

After many loud declarations of, "Silly Millie!" from the children, a four-year-old boy offered a solution: "I know... we could see if any of the vegetables in the polytunnel are ready? And we can cook them instead?"

I agreed that this was a good idea, and we all went together to see what could be found in the polytunnel.





Thankfully, there were large cabbage leaves, kale, and land cress to be harvested. We also visited the outdoor vegetable beds and collected purple sprouting broccoli and fresh thyme and bay for the soup.

The children carefully used scissors to harvest the ingredients we needed. They wondered what else we could add to this soup. "We normally put lots of ingredients in!" remarked one of them. I explained that some things in the garden are edible even though we don't grow them as food. I picked some leaves from our hawthorn tree and explained to the children that these are safe to eat so we could add them to our soup. Then, to the children's shock, I put on some rubber gloves and harvested stinging nettles! I explained that they are nutritious and contain a range of vitamins and minerals.

Then it was time to cook. I prepared the nettles and the children set to work chopping up everything else.



After it had been cooked for a while, I whizzed up the soup and called the children to the table to try some. They were still feeling sceptical about the nettles, but I reassured them they cannot sting you once they have been cooked, then I ate some soup to show them.



Tentatively, the children took small mouthfuls. It was brilliant to see them realising that the soup was absolutely delicious – every child scraped their bowl clean and many of them had second and even third portions of soup! I also enjoyed hearing them recount their experience of eating "real stinging nettles!" to their parents and carers at the end of the day.

**Review:** "Children, you showed real creative thinking when I forgot to purchase the vegetables for our soup, and thus we were able to make a soup from vegetables growing in our garden!" The children also showed lots of curiosity about things that grow in our garden that you never knew were edible, opening possible discussions around plant-based food instead of eating meat. We need to encourage children to have a willingness to try new plant-based foods and discover that they like new flavours.

**Opportunities and possibilities:** "Over the coming weeks and months, many new things will grow in the garden that we can cook with. Soon there will be edible flowers, leaves, herbs, fruit, and vegetables to try – I wonder what delicious snacks we might make!"

You might also like to plant some seeds and see the whole cycle from seed to plate. I noticed the children had lots of questions about how grains grow, and I wondered whether we could source a home flour mill and have a go at turning wheat into flour. By introducing the children to plant-based food in an authentic way, it offers opportunities to highlight how this supports their world, with less emissions into the atmosphere than meat production does.

"It is also important to remember that you must always check with an adult before you eat something you find growing in nature, as some plants are not safe to eat."



## **Case study links to other SDGs, demonstrating the interdisciplinary aspects of the goals**

**SDG 1 No Poverty** – the children are starting to understand the importance of food for healthy living.

**SDG 2 Zero Hunger** – Extensions will enable the children to understand that not all children are as fortunate to have a nutritious garden.

**SDG 3 Good Health and Well-being** – Eating health fresh produce that has no hidden sugars or preservatives in it – providing strong healthy bodies.

**SDG 4 Quality Education** – Millie is providing for the children in her care an 'enabling environment' that supports her sustainable pedagogy and gives the children natural opportunities to understand their world.

**SDG 5 Gender Equality** – all children are given inclusive equal opportunities to partake in the activities and no activity is restricted.

**SDG 8 Decent Work and Economic Growth** – The children are provided with real tools and are supported in understanding the practical requirements for maintaining a polytunnel and preparing soup.

**SDG 11 Sustainable Cities and Communities** – The children are part of a community of learners that are developing an understanding of sustainable living.

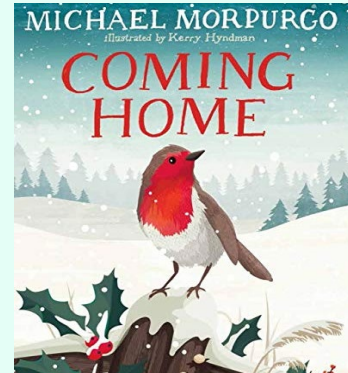
**SDG 13 Climate Action** – The children are being extended to consider how plant-based foods are nutritious and how eating them can support the planet.

**SDG 15 Life on Land** – The children are learning plant names and which foods are edible. They are following the seeds from the earth to the table – and into their tummy!

## Bird migration

### Pause and reflect

How will the book continue to have an impact on the children's learning?  
 Why and how do birds migrate?  
 How do we care for birds in the winter months?



### Characteristics of effective teaching and learning

**Active learning** - being involved and concentrating.

**Creative and critical thinking** - finding ways to solve problems.

### Read: Coming Home by Michael Morpurgo

A plucky little robin sets out on an epic journey. Through dark forests, driving rain, clapping thunder and flashing lightning. Across frozen wastes, huge mountains and stormy seas he flies. And all the while he's dreaming of home. But will he ever get there? Talk about how birds migrate at different times of the year and why.

- [Migration of Birds: Migration of Birds , Animals for Kids -Lesson - YouTube](#)
- [Migrations: Big Animal Trips | Science for Kids - YouTube](#)

Reflect upon how habitats are being destroyed and, as a consequence, birds and animals are losing their homes. Think about foxes coming into towns looking for food – houses being built on green spaces. Research campaigns about different habitats and get involved – for example, hedgerows.

Why and how do birds migrate? Look at the patterns birds make as they fly together (maths).

Familiarise yourselves with the native birds that live in your locality over the year. Observe their migration patterns and use picture charts to help the children observe them in their bird hides. Recognise the seasonal changes that occur in the garden/setting. Devise a tally system to support their understanding of counting observations. Discuss how you could help birds during this period and notice any birds that seem to not be returning – keep year by-year



Name	Tallies	Total
Blackbird		
Blue Tit		
Chaffinch		
Gold Finch		
House Sparrow		
Magpie		
Robin		
Starling		
Wren Tit		
Other		

Credit to Jenson Boyd

tallies to analyse as a group. Pose questions – what does this mean and why?

EYFS (DfE, 2021, p15) Understanding the World – The Natural World: Understand some important processes and changes in the natural world around them, including the seasons (patterns of seasonal migration).

Development Matters (2021, p110) Understanding the World: Use images, video clips, shared texts and other resources to bring the wider world into the classroom. Listen to what children say about what they see.

Audit birds in the garden at home or school/nursery – when do they arrive and leave?

Link to SDG 13 and SDG 15 Life on Land – how do we care for our birds in the winter months?

**In practice**

Students from Bodmin College practised making bird feeders whilst learning about sustainability in Early Years. They were able to make links to the EYFS (2021) and planned to carry out the activity with the children in their industry placements. This is an experience that the staff team could also participate in during staff development days.



"Sunflower seed production is relatively sustainable since there is no known significant damage to air, water, land, soil, forests, etc."

"Making bird feeders from items that we would normally throw away, to help feed the birds. The children will love this!"

Credit to Bodmin College

## Paper, plastic, and metal recycling activity

New terminology: ecosystems – waste – consumption – classification

### Pause and reflect

Thought track together what they think recycling means. Ask them what they do at home, if they recycle rubbish at home can they explain how and why they do this?

### Characteristics of effective teaching and learning

**Creative and critical thinking** - developing ideas of grouping, sequences, cause and effect.

**Active learning** - showing high levels of fascination.

By 2030, the goal is to halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses. By 2020, the goal was to achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimise their adverse impacts on human health and the environment.

By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse.

### First step is to raise their awareness of recycling (SDG 13)

Ask them to photograph and detail (with support) about the recycling bins at home both inside and out, and what goes in the different coloured bins. Place-based learning (SDG 4 Good Health and Well-being) – on your daily/weekly walks look for any large recycling bins. How are they different to the bins at home/school? Research local waste centres and what's recycled there.

Ask them to look at some packaging in their home and ask if it can be recycled or not. How can you tell?

**Science experiment** – have a selection of paper, plastic and metal. Ask how they know if it is recyclable. Some packaging may have a recycling logo on it. Help them to find the logo or see where it says the packaging can be recycled.

**Technology** – research examples of recycling logos online. Use different materials, both artistic and technological, and make a poster for the setting/class reminding everyone to recycle their waste.

Link to recycling logos: [Recycling Symbols Explained | Identify What You Can Recycle \(pureplanetrecycling.co.uk\)](https://www.pureplanetrecycling.co.uk/Recycling-Symbols-Explained-Identify-What-You-Can-Recycle)

Watch and discuss what colour bins are applicable for different materials: [Early childhood journey of waste - YouTube](#)

Encourage children to recycle their snack waste – invite families in to build a compost bin with recycled materials and utilise this in your gardening process. Encourage them to understand how it supports the soil's nutrition. Discuss different types of waste – food, plastic, etc.

If in a larger school setting, ask the children to sign up for a compost team – collecting fruit/scraps from each classroom. Have plenty of compost bins around to use. Design compost signs to hang above the bins.

As you add new food scraps, cover with dry carbon materials like straw, sawdust and fallen leaves, as this will help the compost process to develop nicely.

Another type of compost to make! During the autumn, collect all the fallen leaves – mix them with used coffee grounds and wet thoroughly. It provides nutrition for the soil but also recycles.

Make a wheelie wonderful worm farm: [Early childhood journey of waste - YouTube](#)



Reflect on how worms are part of our ecological systems. Consider them as equal participants in our world – discuss this with the children.

Development Matters (2021, p101) Encourage children's exploration, curiosity, appreciation, and respect for living things.

Suggestions:

- Sharing the fascination of a child who finds woodlice teeming under an old log
- Modelling the careful handling of a worm and helping children return it to the dug-up soil
- Carefully planting, watering, and looking after plants they have grown from seeds.

Do a science experiment and compare the different 3 examples above of compost making. Which seems to be the most nutritious? How do you measure this?

## Case study

### Exploring pre-schoolers' attitudes and behaviour towards the environment

#### Kathrin Paal

In the woods, the children built bug hotels, went on a swing that was hanging from a tree or explored the surroundings independently. The teachers took magnifying glasses and mirrors for the children to use for their explorations.

Some of the children gathered sticks and leaves and piled them up like a fire pit. With their teacher, they talked about what would happen if a fire was left unattended in the woods. The children concluded that the fire would spread, and trees and animals would die. They then decided to turn their fire pit into a bug hotel. They went to get more sticks, leaves and flowers.

Teacher: "What could bugs find to eat in there? What do they like?"

Child: "Leaves. [pause] We are making this for caterpillars and snails. [pause] We can put more leaves in there."

Teacher: "What happens when we take all the leaves from a tree?"

Child: "They don't grow back. The tree might be dead. [pause] They [the trees] need it for energy."

We went back to the woodland area, the children immediately checked on their built bug hotel and inspected it with magnifying glasses. They couldn't see any insects in there but assumed woodlice and ladybugs were living there.

I took colouring pens and paper with me to the woods and beach in case a child wanted to draw, or the opportunity arose to ask the children to draw a picture of their idea of what is good or healthy for our planet.



*Drawing by a child (4:1 years old)*

The child started by drawing green grass at the bottom, with brown bits of soil, green trees and shrubs. They then drew a yellow sun at the top and an orange sky. They went on drawing colourful rain and black thunderstorm clouds, explaining that the plants need rain to get water to drink.



In the garden, there were raised beds and pots with vegetables, herbs and fruit, sheds with garden tools and toys, a sandpit and wooden playground equipment as well as water basins and mud kitchen. There are also natural tunnels within shrubs for the children to explore and a wildflower area, one of the children established.

I was able to observe various situations in the garden, with children harvesting bean pods from the raised beds, snacking herbs, and watering the plants. Children also dug in the soil and observed earthworms.



*Drawing by a child (4:9 years old)*

Teacher: "I wonder why worms are digging into soil."

Child: "Because they would die if they are not in the soil. Their food is in the soil."

Teacher: "And is anybody eating the worms? Are you eating them?"

Child: "No!" (laughs) "Birds!"

Another child found a piece of plastic wrapper in the garden and told their teacher:

Child 1: "If an animal eats it, it might die".

Teacher: "What shall we do with it?"

Child 1: "Put it in the bin."

Child 2: "It's bad for the planet."

Teacher: "Yes, do you know what else is bad for the planet?"

Both children: "Rubbish!"

Teacher: "Yes. Why is rubbish bad for the planet?"

Child 1: "If the animals eat the plastic they will die."

The teachers told me they were keen to establish environmentally friendly routines in the nursery, for example recycling and collecting waste that goes on the compost in the nursery's garden. Throughout the year, they discuss different topics with the children, for example plastic-free lunch box content.

The interview with the teachers and the parents' answers on the questionnaire revealed that the families were deeply passionate about climate action, and took various steps, e.g., car sharing, electric cars, cycle instead of taking the car and a vegan lifestyle. All parents mentioned growing vegetables and fruit in the garden at home and talking with their children about switching the light off when leaving the room or turning the tap off when brushing teeth to save water and electricity, for financial and environmental reasons. Recycling and the purpose of different bins was also mentioned by all parents. One parent mentioned that they often went to the beach to "explore rock pools [...] talk about the things we see/ find [there]. We pick up litter to put in the bin and talk about how it might have got there and why it's important to remove it".

The results show that the children were familiar with the terms "planet" and "earth". They also had ideas of what might be good or healthy for our planet, although the children communicated what we should avoid keeping the planet healthy rather than what we could do to protect it.

The older children picked up litter and talked about the consequences of leaving the litter in the woods or at the beach. They also spoke with their teacher about how to treat trees and plants. The younger children took care of plants by watering them, and said the plants need soil. They also took care of insects by building "houses" and feeding them with leaves and flowers.

Within the analysis, four themes were identified:

1. Handling of rubbish (litter picking)
2. Care and protection of plants (not damaging trees and watering plants)
3. Care and protection of wild animals (litter picking and provide food they like)
4. Care and protection of insects (provide housing and food they like).

This research confirms previous research that found that understanding and awareness of what is good for our planet differs in this age group. Children at preschool age can comprehend the effect of polluting the earth and how to avoid it (Borg, 2019). Some demonstrate an understanding of the causal relationship between human behaviour and its influence on the natural environment (Yanez et al., 2017; Borg, 2019). Some children indicate a greater understanding of how to take care of nature (Sageidat et al., 2019). Others have a limited understanding of nature (Yanez et al., 2017) and issues related to taking care of nature (Sageidat et al., 2019). Some of the children in previous studies were able to understand the scientific background and meaning of different pro-environmental behaviours (Kos et al., 2016).



## **Case study links to the other SDGs - how interconnected climate action is to all of the other SDGs:**

**SDG 3 Good health and Well-being** - Physical exercises and movement outside is good for young bodies and minds.

**SDG 4 Quality education** - The preschool is providing a quality environment with supportive staff and resources.

**SDG 5 Gender Equality** - All children can be as active, exploring, investigating and make choices.

**SDG 8 Decent Work and Economic Growth** - children are understanding how tools can support their learning, such as magnifying glasses.

**SDG 11 Sustainable Cities and Communities** - the children are demonstrating an awareness of non-human communities as part of our ecological world.

**SDG 13 Climate Action** - Their thinking demonstrates young children are capable of understanding climate change, and with supportive peers and adults they all are provided with opportunities to reflect on their planet.

**SDG 15 Life on Land** - They're starting to recognise different habitats and names.

## Food hero

Peter Rabbit has become a Food Hero – the United Nations, FAO, and UN Foundation have teamed up with Peter Rabbit and his friends on a digital campaign to encourage their fans to be Food heroes.

[PETER RABBIT™ teams up with the United Nations, FAO and the UN Foundation on global campaign to mobilize more food heroes – United Nations Sustainable Development](#)

### Pause and reflect

Look at the waste – talk about all of these objects being suitable for recycling and why. Explain that recycling is the process of waste being made into something new that can be used again. Give examples.



### Characteristics of effective teaching and learning

**Creative and critical thinking** – making links and noticing patterns in their experience.

**Playing and exploring** – showing curiosity about objects, events and people.

As a school, nursery or setting, become part of this campaign. This campaign wants to encourage youth and their families to become #FoodHeroes like Peter and his friends, by choosing healthy food, reducing food waste, and celebrating other Food heroes who work hard to get food to our plate every day.

Try an activity that is linked to mathematics – classification/sorting – sorting waste to introduce them to recycling. What items seem to be thrown away a lot? For example, plastic bottles.

Have a school policy that each child has their own water bottle to discourage waste.

EYFS (DfE, 2021, p14) Numerical Patterns: Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity.

Development Matters (2021, p94) Use vocabulary: "more than", "less than", "fewer", "the same as", "equal to". Encourage children to use these words as well.

Development Matters (2021, p96) Mathematics: Place objects into a five frame and talk about how many spaces are filled and unfilled.

When washed, place a selection of objects of each material out, making sure none of the objects have ragged or sharp edges or corners. This is perhaps better to do outside.

Check to see if they can identify from which material each object is made. For example, paper, plastic, metal – use correct terminology. Use all senses to examine materials. Encourage the children to sort the objects into three groups of paper, plastic and metal.



Do a waste audit of the bins at school/nursery – this will need parental support/gloves – but ask the children to reflect upon the items found. Are there materials that keep reappearing? How can you reduce rubbish?

By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature. (SDG 12 Responsible Consumption and Production)

Introduce the children to the language "ecosystem". Watch together – pause and discuss the language. Make small world trays of different ecosystems. Remind the children we are part of the ecosystem.

[Ecosystems for Kids - YouTube](#)

Development Matters (2021, p104) Understanding the World: Begin to understand the need to respect and care for the natural environment and all living things. Encourage focused observation of the natural world.

Start to develop an understanding of environmental rights – we are aware of the UNCRC article 12 Rights of the child – but remember to consider our environment too. In New Zealand for instance, rights have been awarded to rivers, mountains and land. Discuss this – what rights do children feel they have? How do they see their relationship with living things in their world?

Become part of a rights perspective – Rights of Nature is the recognition and honouring that nature has rights. It is the recognition that our ecosystems – including trees, oceans, animals, mountains – have rights just as human beings have rights. Rights of Nature is about balancing what is good for human beings against what is good for other species, what is good for the planet. It is the holistic recognition that all life, all ecosystems on our planet are deeply intertwined in a global ecosystem. Food production threatens to be the greatest casualty of climate change, but sustainable agriculture can be part of the solution. (SDG 13)

[What are the Rights of Nature? - Global Alliance for the Rights of Nature \(garn.org\)](#)

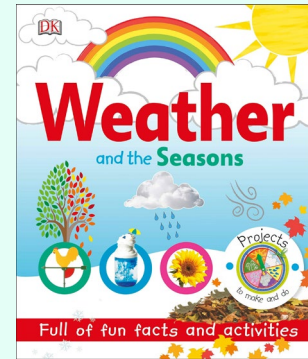
## Weather/seasons/climate change and animals

**Key words:** climate – crisis – weather

Nature-loving and crafty 3 to 5-year-olds will love finding out all about weather in this charming crafty science book. From sun and snow, to thunder and lightning, children will find out what goes on up in the sky, and why. They'll discover simple answers to difficult questions – what makes a rainbow?

### Pause and reflect

Ask questions – for example, do they notice how fog changes perceptions of space. How does the weather affect our feelings? How does the weather affect our bodies (sweat, goosebumps) clothes and actions? Can we walk on ice? How does snow feel?



### Characteristics of effective teaching and learning

**Active learning** – showing a belief that more effort or a different approach will pay off.

**Playing and exploring** – using senses to explore the world around them.

SDG 13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries.

SDG 13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning.

Ensure you have a good selection of texts in the reading area that encourages choice, investigation and interest.

Introduce the children to the rainbow – how does it form? What colours are in the rainbow? Use mathematical language: before, next, between etc. Make the colours of the rainbow.

Sing along to the I Can Sing A Rainbow song: [Rainbow Song | I Can Sing A Rainbow & Lyrics on repeat. – YouTube](#)

Go on weather walks – try to ensure children experience rain, wind, snow, fog and sun.

Encourage children to listen to a range of weather music and in physical development dance and move to it.

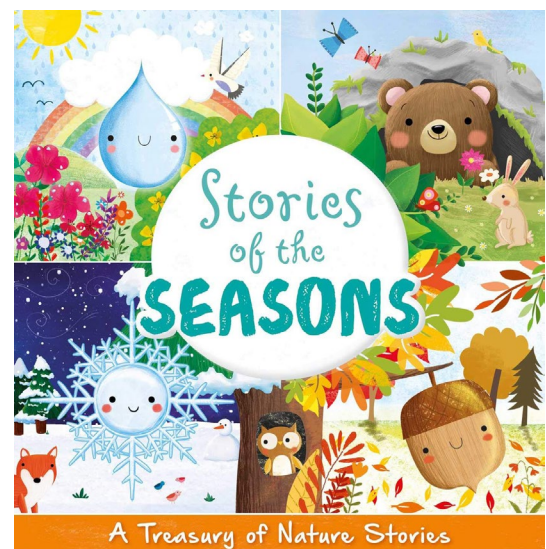
Listen to the sound of rain if you are able to in your setting – for example, if you have a glass roof! Splash in puddles – ensure they use all of their senses to experience the weather.

Sing and make music to weather songs such as Incy Wincy Spider, Doctor Foster and It's Raining, It's Pouring. Whilst listening to weather music – thunder/lightning/rain – make paintings to reflect the mood. Use multimodal ways of doing, making and recording.

EYFS (DfE, 2021, p15) Expressive Arts and Design: Being imaginative and expressive – Invent, adapt....

Discuss the four seasons and how they're different. Make a video of the seasons in the setting garden over a year.

- Highlight significant changes. Introduce terminology "hibernation" – what does it mean? This book explores the seasons through 4 different eyes
- Learn how the world changes as the year goes by with
- Identify and gather key elements of each season – conkers.



### **Make conker soap:**

Smash up your conkers into small bits – add to a pan of hot water on the fire (adult supervision) – watch how the material changes into a soap texture. Add ground lavender flowers for their smell and put into recycled hand canisters and use!

EYFS (DfE, 2021, p15) The Natural World: Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.

Discuss the difference between weather and climate.

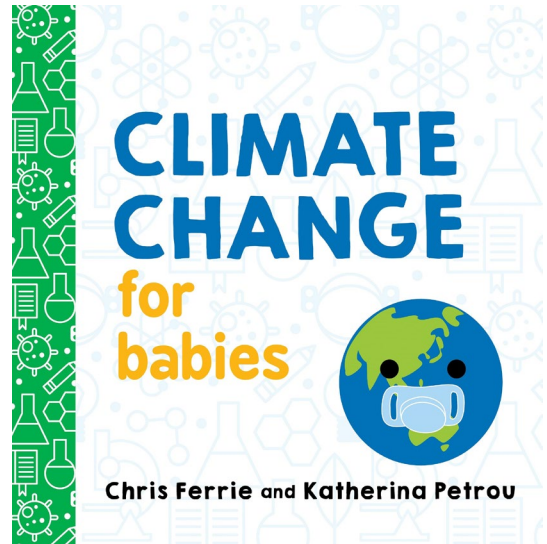
Make a weather chart for a week/month. Can you notice that the weather changes – how can we record different weathers? Look at the TV weather symbols.

Watch and discuss: CAFOD: [Climate Change Animation for Primary Schools - YouTube](#)



Development Matters (2021, p112) Understanding the World: Understand the effect of changing seasons on the natural world around them.  
Read together and reflect on what they have already heard and seen: Climate Change for Babies by Chris Ferrie and Katherina Petrou.

Climate Change for Babies is an engaging, basic introduction for youngsters (and grown-ups) to the complex questions of what climate change is and what we can do about it.



Full of scientific information and written by experts, this timely instalment of the Baby University board book series is perfect for enlightening the next generation of geniuses. After all, it's never too early to become a scientist!

Development Matters (2021, p103) Understanding the World: Provide equipment to support these investigations. Suggestions: Magnifying glasses or a tablet with a magnifying app. Encourage children to talk about what they see. Model observational and investigational skills. Ask out loud: "I wonder if...?" Plan and introduce new vocabulary, encouraging children to use it to discuss their findings and ideas.

Observe and interact with natural processes.

Development Matters (2021, p105) Understanding the World: melting – leave ice cubes out in the sun, see what happens when you shake salt onto them (children should not touch to avoid danger of frostbite).

The United Nations is asking children to become Climate Action Superheroes – there are eight different heroes with downloads and certificates to gain: [Climate Action Superheroes - United Nations Sustainable Development](#)



### **In practice**

Children in early years settings are becoming ambassadors for change. Practitioners report that children are reminding staff to turn down the heating, to not waste food and to turn off dripping taps. Children as young as 3 years of age are asking questions around materials and properties. Sustainability is really beginning to embed in the early years!

It is widely acknowledged that experiences in the early years form attitudes and behaviour in a child and can have a long-lasting effect into adulthood (Pramling Samuelsson et al., 2019). Through life experiences with the natural environment, attitudes and behaviour towards the environment will be developed (Newhouse, 1990). Through education and with the support of influential role models such as their teacher, children can become active and informed participants in shaping the environment they live in (Davis, 2015), to care sustainably for it (Prince, 2010). Researchers have found that children ages three to six are able to hold their own views and opinions, but further to this have shown the ability to express valuable perspectives related to their context and worldviews (Clark & Statham, 2005; Dayan & Ziv, 2012).

## Case study

### Climate action case study: Home education for mum and child Gemma and Kenton Plumb

The initial provocation for this learning opportunity came from Kenton's own questions and interest in viewing the weather, in different parts of the world. Kenton (child) wanted a weather chart so he could see the degrees and compare them to their own weather at home. Mum (Gemma) immediately responded to his questioning as it coincided with a conversation on the radio that morning that they had listened to about global warming. Kenton was interested and asked questions about climate change and why actions were needed to save the planet. As a result of listening to the radio and hearing scientific terminology, and their concern for rising temperature, they connected the two ideas together and wondered if they could track the weather over a period of time to observe the temperature change. This is an ongoing project that will develop over the course of the year(s).



Kenton was particularly interested in Antarctica and the ice and asked to see it, so they co-researched images from Google Earth and photos on their laptop. They discussed the images and Kenton was interested in the melting ice caps. Gemma asked him what he thought would happen to the ice there if the earth warms up, and his response showed a clear understanding of the materials, replying that the ice would melt. This deepened their conversation into where the water would go.

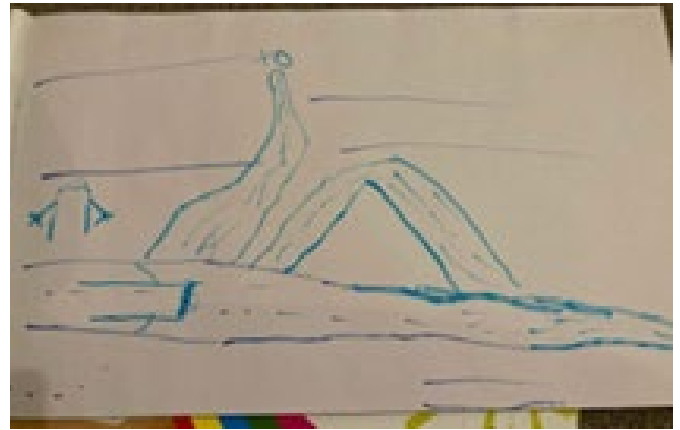
Consequently, to support his understanding further, they used an ice experiment, with cubes of ice representing ice caps, coconuts for mountains, leaves for trees, and a towel representing land. As the ice melted it caused the water to overflow onto the towel (land). This prompted further discussions and as co researchers they made estimates and predictions about the ice in the context of Antarctica and Alaska.

To further support his understanding of the consequences of climate change through the melting ice caps, we discussed the habitats of Antarctica and Alaska. This resonated with a children's documentary called Octonauts he'd seen earlier that day (The Octonauts and the Snag Hotel; The Octonauts and the Stubborn Albatross; Octonauts: Above & Beyond Season 2), and Kenton became concerned about particular birds on smaller islands. His concern highlights young children's capacity to demonstrate empathy for others and in this case, it was the albatrosses living there. Kenton was concerned that 'the albatross eggs will be washed away and won't be able to live anymore'. He then drew a picture of the sea levels rising, a person being washed away and the 'very strong sea currents' taking him far away.



Once the ice had melted in the bowl, he then put a stone into the bowl which represented a small island being covered by the water. This demonstrated an understanding of the effects of climate change and was an authentic learning exchange.

This case study resonates not just with SDG 13, but also SDG15 and SDG14 Life Under the Sea.



**Case study links to the other SDGs - examples of how interconnected they are:**

SDG 3 – Good Health and Wellbeing- Kenton knew that he had time to consider and reflect upon his thinking. He is demonstrating empathy to others.

SDG 4 Quality Education – Kenton's questions are extended and developed through thoughtful experiments and activities, consolidating his understanding of climates and weather changes.

SDG 6 Clean Water and Sanitation – Kenton is being to become aware of the consequences of climate change to the oceans and the conservation of water.

SDG 13 Climate Action – Kenton is starting to recognise through ICT /experiments and discussions the effects of human actions on 'others'(non-human) and the environment. He is starting to understand climate changes globally.

SDG 14 -Life below Water – Kenton is starting to understand that climate change has serious consequences for life in the oceans.

SDG 15- Life on Land- Kenton is making connections to actions and consequences. He understands that climate change is reducing both land masses and ice caps.

## Marine life activity

### Pause and reflect

How much do you know about marine life and how can you add to your current knowledge?

How can you add to the provision to enhance the understanding of marine life?

### Characteristics of effective teaching and learning

**Playing and exploring** - showing particular interests.

**Active learning** - paying attention to details.

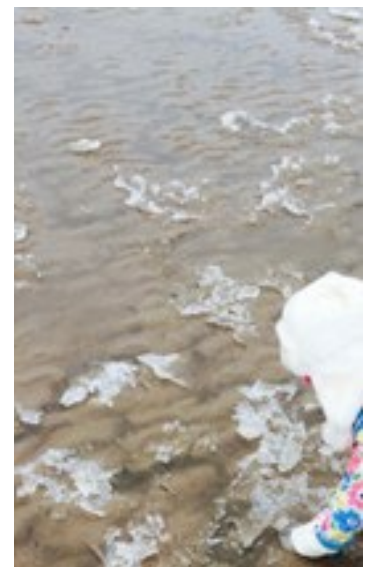
Develop your small world area with marine life materials and a large tray for play. Provide real materials – seaweed, pebbles and sand to create the environment. Take regular visits to the beach if you live near the water. Aim to become familiar with changes over the year. Know the names of the biodiversity (fauna/species) so you can share this knowledge with the children.

Research the seaweed on your local beach as parts of the UK have different species. Seaweed lives in the sea, dependent on the temperature. Notice if seaweed from southern waters moves up into northern seas – what does this mean? Make seaweed/fauna cards to search for on the beach – do not laminate as this is not biodegradable.

Let the children use iPads to record changes in the environment. Take the biodiversity collected back to the setting – paint their observations.

EYFS (DfE, 2021, p11) Communication and Language:  
Make comments about what they have heard and ask questions to clarify their understanding.

Visit the beach during all four seasons so children don't just play and build sandcastles or think picnics! Let the children experience the beach in winter and see the ice coming in on the tide. By doing this, you'll constantly build on their understanding of ecosystems and highlight marine ones. SDG 13 can be introduced here, considering effects of climate change on our waters and ocean pollutants.



Safety warning when close to open water.

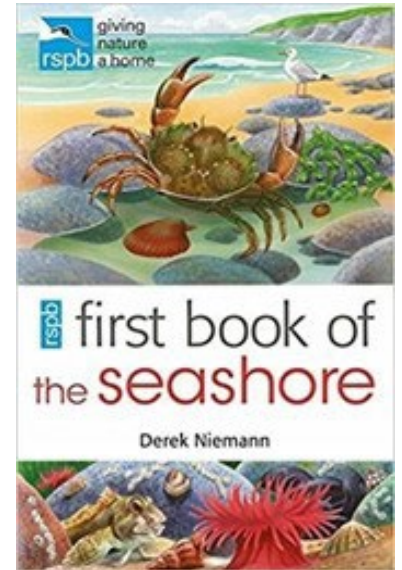
Development Matters (2021, p115) Expressive Arts and Design: Ensure (Utilise) that the physical environment includes objects and materials with different patterns, colours, tones and textures for babies and young children to explore.

Development Matters (2021, p21) Communication and Language: Through conversation, storytelling and role play, where children share their ideas with support and modelling from their teacher, and sensitive questioning that invites them to elaborate, children become comfortable using a rich range of vocabulary and language structures.

Encourage trips to the local library to look for research books – ask the librarians to share books with them, for example, *The First Book of the Seashore*. Ensure children realise there is plant life/bird life/insect life at the beach as well as creatures that live in the sea water.

Learn all about identifying nature at the seaside with this beautifully illustrated spotter's guide, with 35 seashore creatures and plants to learn about, the RSPB book is perfect for budding wildlife explorers and naturalist.

Develop your small world area with marine life materials and a large tray for play.



Provide real materials – seaweed, pebbles and sand to create the environment. Take regular visits to the beach if you live near the water. Aim to become familiar with changes over the year. Know the names of the biodiversity (fauna/species) so you can share this knowledge with the children.

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EYFS (DfE, 2021, p11) Communication and Language: Make comments about what they have heard and ask questions to clarify their understanding.

### **In practice**

Environmental issues, resulting from global warming, have made care for the environment an increasingly urgent matter. The careless usage of limited and valuable resources such as water, fossil fuels and forests, as well as the pollution of air, water, and soil, has led us to a situation where we are at a tipping point and in need of an urgent change in attitudes and behaviour towards the environment (Brundtland, 1987; Defra, 2008).

### **Ecological anxiety**

There's increasing concern recognised by the Government about ecological anxiety as a result of climate change and the early childhood sector must recognise this and support children when questions arise. By working within your setting and in your community to develop the environment and the biodiversity it supports, these activities will support children's mental health. Research shows that increased time and being connected to nature benefits the holistic development of young children. By giving them agency and answering their questions honestly, their ecological anxiety will lessen, as well as their physical and mental capacities.

This aligns with SDG 4 Quality Education and SDG 3.

[A climate of anxiety - The Lancet Child & Adolescent Health](#)

## Case study

### Participation of the child's voice

Michelle and Felicity Reid

Research highlights young children form their fundamental values and attitudes in early years, and this example of one young girl Felicity, demonstrates such capabilities articulating environmental and ecological thinking.



Felicity is the young daughter of a farmer and is used to seeing cows and other animals around her. She's surrounded by family members that garden and grow vegetables, as well as an abundance of animals, so she is constantly immersed in wildlife of all forms. She can name the local flowers and different ducks on the pond and enjoys foraging. She has always enjoyed close observations of plant life, animals and understanding natural processes. This is her awareness of her locality and place (SDG4).

Felicity has always been aware of the circle of life involving cows on the farm, giving birth or needing surgery, and perhaps resulting in death of either the mother or calf. However, Felicity started to question unnatural deaths and started to ask why some animals died due to human actions. Building upon this new thinking was her awareness and discussions with her dad about farming cows and their emissions of methane gases. To counter these gases, Felicity requested walking rather than using the car as much as possible. This also led to a challenging conversation with her about the emissions from cows and the need to eat meat vs plant-based foods.

During a family film night watching *Early Man- Rabbit* (2018) Felicity was again provoked to think from a non-human perspective, and suddenly realised that man was chasing the rabbit to kill it. Michelle, her mum remembers her being profoundly upset because to Felicity the rabbit was cute and interestingly, she said it had a 'right' to life. Felicity decided because of this provocation, that all animals have a right to life and to be able to live in their habitats safely, she wanted to eat more vegetarian dinners. Michelle respected her decision and together they co researched different plant-based foods they could eat, recognising it would also help save the planet from climate change. This is about respecting a child's voice, respecting their new thinking and allowing it to evolve naturally.

[EARLY MAN Clip - "Rabbit" \(2018\) - YouTube](#)

**Case study links to the other SDGs – examples of how they support all aspects of early childhood pedagogy:**

SDG 3 Good Health and Well-being - as she was being listened to and her decisions being respected.

SDG 4 Quality Education - Felicity questions were being considered and extended. Her knowledge of her world is developed by supporting adults.

SDG 11 Sustainable Cities and Communities - Felicity was thinking about the level of traffic on the roads.

SDG 12 Responsible Production and Consumption- Felicity was recognizing that plant-based foods are better than meat production as it harms the atmosphere.

SDG 13 Climate Action – Felicity's observations of her world and her thinking, enabled her to start to question the affects of choices made on the planet.

SDG 15 Life on Land - Felicity was starting to consider 'others' – the frightened rabbits, the cows to be eaten and the squirrel's habitats and the consequences of traffic



## Case study

### Childbase Partnership Ltd

At Childbase Partnership, a private early year's group with 45 settings operating in England employing approximately 2200 people, we opted to formally measure and accredit our annual carbon emissions as a target of our then Environment Policy. We partnered with PlanetMark primarily because they have a requirement to commit to a reduction in emissions per annum in order to maintain their certification. This commitment to continual improvement is central to the process not being a one-and-done activity.

What became clear, via reports from the Intergovernmental Panel on Climate Change (IPCC) amongst others, was a relatively progressive target of 5% reduction year-on-year was not quick enough considering the increasing urgency posed by climate change. The opportunity arose to trial PlanetMark's "ZeroBy30" program which expanded our focus to encapsulate all three carbon emission scopes and bring our emissions to net zero by the end of the decade.

This program focused on "roadmaps" targeted at key emissions areas within the business based on a comprehensive and detailed carbon footprint program. The roadmaps were developed in consultation with our Energy Assessment partners at Brightest Fuels with costed strategies encompassing heating, lighting, vehicles, catering, supply chain and commuters.

At the time of writing, we've finished a £270,000 LED upgrade to our lighting throughout the sites which is one of the first main milestone investments. Alongside this, we have launched near real-time electricity and gas meter monitoring and leveraging that responsive data against simple efficiency measures. Adjusting thermostats and timers to ensure we're only heating the settings when we need to, and only heating to a temperature that provides the level of comfort for the children will yield financial and carbon savings.

Other developments include investing in electric vehicles for fleet drivers supported by in-house car charging facilities and heavily subsidised home chargers. These measures combine to enable our fleet drivers to move freely around our businesses geography without being reliant on the public charging network. Outside of our corporate carbon footprint activities, we have championed Eco-Schools as an educational function for the children with 44 of our 45 settings holding at least one Green Flag Award, indeed 50% hold two or more.



This was another of our Environment Policy targets and formally started in 2016. We worked closely with Eco-Schools on the development of the specific early years toolkit and framework based on our worked experiences and we continue to work closely with them to this day. The delivery of Eco-Schools is firmly a standard part of our pedagogy and the activities also lead in to the daily lives of those delivering providing a double-level of engagement.



Food is another important area that is often overlooked. We provide breakfast, lunch, snacks and dinner for children five days a week via a rotational menu covering Spring/Summer and Autumn/Winter. In 2017 we were awarded the Soil Associations Food for Life Served Here Bronze Award and in 2018/19 we were awarded the Silver Award which we have retained yearly thereafter. In addition, we voluntarily include a range of the Gold Award criteria and progressing remains an operational focus. The Food for Life Served Here award criteria include serving responsibly and ethically sourced produce via accreditation bodies such as RSPCA Assured, Red Tractor and Marine Stewardship Council (MSC).

We broadened our offerings to include additional sources of proteins such as beans and pulses alongside this focus on higher welfare produce and serve a dedicated meat-free day once a week across the entire estate with entire vegetarian menus offered in parallel.





## **Case study examples connecting to the SDGs – Childbase initiatives can be connected to other SDGs alongside SDG 13:**

**SDG 1 No Poverty** – Providing all children breakfast, lunch, snacks and dinner ensuring all can participate healthily as a result in activities.

**SDG 2 Zero Hunger** – Ensuring all children are fed and safe.

**SDG 3 Good health and Wellbeing** – The Childbase Partnership settings ensure children are comfortably warm. The outside environment is utilised effectively to support their wellbeing.

**SDG 4 Quality Education** – Developing links with Eco School through quality practitioners and gaining green flag status.

**SDG 5 Gender Equality** – Ensuring all children have access to the outside environment through Eco school pedagogy.

**SDG 7 Affordable and Clean Energy** – Childbase Partnership management is working towards a reduction in emissions in line with the DfE, sustainability and Climate Change Strategy, using for example, LED lighting.

**SDG 9 Industry, Innovation, and Infrastructure** – encouraging electric cars to reduce climate emissions.

**SDG 11 Sustainable Cities and Communities** – Being part of a community of sustainable providers, forums and working closely with a multitude of organisations such as the Soil Association.

**SDG 12 Responsible Consumption and Production** – Monitoring and ensuring a Zeroby30 with all aspects of energy, gas, and electricity.

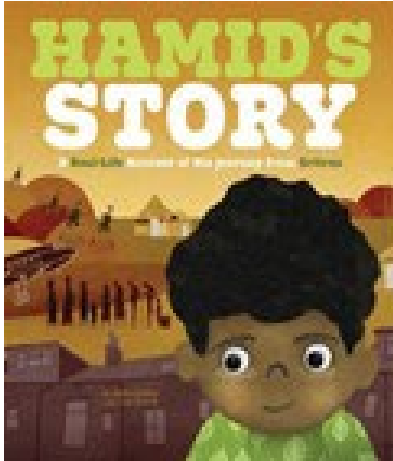
**SDG 13 Climate Action** – a full sustainable policy that connects all 3 pillars of sustainability.

**SDG 15 Life on Land** – introducing children to the idea of plant-based foods to reduce reliance on meat-based products and reducing carbon emissions.

**SDG 17 Partnership for the Goals** – Working in collaboration, for example, with Brightest Fuels and Planetmark has supported Childbase Partnership to work towards Agenda 2030 through their Zeroby30 programme.

## Case study

### Greasby Infant School, SDGs 10 and 13: Reduced Inequalities



Greasby Infant school is a suburban school with 220 pupils aged between 3-7 years old. As a school we recognise that it is important our pupils understand and respect the rich cultural background of our local city of Liverpool, we also feel it is vital that our children learn about the plight of children and young adults less fortunate than themselves. With this in mind we made a decision to weave the Sustainable Development Goals through our Eco curriculum for all year groups therefore broadening the children's experiences and understanding of how they can make a difference both environmentally and support them in developing a social/moral conscience in relation to the wider world.

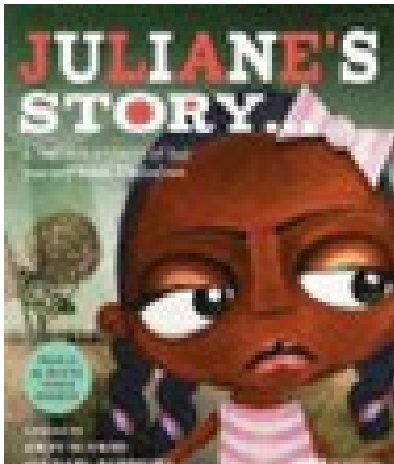
Starting in the Early Years their focus has been on the SDGs, and they have used the Sustainability resource as a planning tool. Staff began by identifying two different books based around the experiences of two refugee children. We felt this was important as the war in the Ukraine was prevalent and the children were keen to talk about what was happening and make sense of snippets of conversations and new stories they were hearing. We used two books written by Andy Glynn that used real life stories told by children.



Hamid's story talks about his journey from Eritrea to the UK. The book reveals the hardships of being a refugee and the experiences Hamid had on his journey.

Staff used the book as a starting point to discuss migration and being a refugee and what that meant for Hamid and his family. Children role played having to leave home and grab whatever they could. They made small suitcases out of boxes and packed them with things they thought were





We also used Julianne's Story, which covers the conflict in Zimbabwe and how she was separated from her family aged 3 and placed in an orphanage before being reunited with her mother and moving to a new country. Julianne's story initiated a lot of conversations around feelings of anxiety and acceptance. The children explored how refugees travel, set up new homes, start new schools and make new friends. The children talked about how we can be more welcoming to new pupils and especially pupils from different countries.

This created a feeling of hope for the future and helped the children put themselves in the place of a refugee.

The final story we used related to the idea of migration and that people and animals migrate linked to SDG13. We focused on Michael Morpurgo's book Coming Home. The children learned about habitats and how they are being destroyed we linked this to war and the effect it has on people and their homes. We all made birds using brightly coloured feathers that we added to the migration display. We looked at climate change and global warming and the effect this has on habitats. We made mind maps of animals that are affected and then linked this to the effect animal migration and human migration.

The Sustainability resource was invaluable in terms of creating a starting point that could be developed by staff and children. The ideas in the book were used across EYFS and KS1 with huge success. As a result of our work on SDG 10 / SFG 13 the children now have a deeper understanding of the term refugee and have developed their emotional intelligence with relation to respecting others and acceptance of difference. They now know how they can help reduce their carbon footprint to slow global warming.

## **Case study examples connecting to the SDGs – Greasby Infant School, Deputy Head Siobhan Cooper - initiatives can be connected to other SDGs alongside SDG 13:**

**SDG 1 No Poverty – Consequences of war and refugee status.**

**SDG 2 – Zero Hunger – Ensuring all children are fed and safe regardless of position or culture. Ensure all birds within locality can access water and seed.**

**SDG 3- Good health and Well -being- Recognising the impact of conflict and migration has on children's happiness and comparing the migration routes birds make with human migration. Supporting discussions around anxiety and difference.**

**SDG 4 – Quality education- Understanding that others are less fortunate and be able to reflect through dialogue, story and visual images different cultural contexts of children, families, and nonhuman life.**

**SDG 5 Gender Equality – Ensuring all human and non-human life is given equal status and opportunity.**

**SDG 7 Affordable and Clean Energy – Understanding how carbon footprints are a result of travel and how they are linked to climate change.**

**SDG 9- Industry, Innovation, and Infrastructure – the impact of war and conflict upon homes of both human and non-human.**

**SDG 10 Reduced Inequalities – engaging children in conversations around choices that affect 'others' and ensuring all have equal access to food, safety, and home.**

**SDG 11 Sustainable Cities and Communities- Being part of a community of learners in a school context that supports children's awareness of all aspects of sustainability.**

**SDG 12- Responsible Consumption and Production- using recycled materials to create a wall chart demonstrating migration paths.**

**SDG 13 Climate Action- Ensuring all opportunities support children to discuss all aspects of climate change and sustainability.**

**SDG 15- Life on Land- Consequences of human action through war and consumption on land – destroying livelihoods and homes, both human and non-human.**

**SDG 17 – Discussing war and conflict and highlighting peaceful conflict resolutions.**

## Case study

### Intergenerational Sustainable Skills Exchange, Liverpool, Catherine McNeill

An early childhood setting in North Liverpool have been operating a school uniform repair and exchange service for over 12 months and it has been a huge success.

The idea was borne from an Intergenerational Sustainable Skills Exchange programme that was running in the school. Older adults, parents and children came together to sew, knit, crochet, with older adults passing on these dying skills. Over time, parents began bringing in blazers that had ripped pockets, pant hems that had fell down and the older adults began showing the parents how to repair them. The parents were amazed! Items they thought were destined for landfill were brought back to life and looked as good as new. More parents began to bring in clothes for altering, winter clothing items such as long sleeved t shirts were made into cropped t shirts, and jeans were made into jean shorts. Clothes that parents were throwing away were redesigned to give children a whole new wardrobe! Children were shown how to make headbands and bobbles out of old t-shirts, we made bags out of jumpers, children, and older adults and parents all working together sharing skills that are a dying art. School staff members noticed how much enjoyment children and parents were enjoying these activities and asked us to expand the programme and we introduced the "School Uniform Exchange Service".

#### School Uniform Exchange Service

Parents, children and members of the community can drop off used uniforms at collection points, located in the main reception, that need repairing and the intergenerational group of parents, older adults and children will repair them in order for them to be worn again. Each month, our newly mended items are put on display in the school reception and parents and carers visit the stand and take any item they need. They can also deposit their old uniforms for re use.

#### What is the Skills Exchange Programme?

The Sustainable Skills Exchange Programme was created in order to demonstrate the benefits of intergenerational practice. Intergenerational practice aims to bring people together in purposeful, mutually beneficial activities which promote greater understanding and respect between generations and contribute to building more cohesive communities. Intergenerational practice is inclusive, building on the positive resources that the younger and older generations have to offer each other and those around them.

## What is intergenerational learning?

Intergenerational learning is where people of all ages can learn together and from each other, classically common within families where knowledge is shared down the generations.

## Why intergenerational learning?

Intergenerational learning develops mutual learning relationships between different generations and helps to develop social capital and social cohesion. Each generation learns about the other and gains a better understanding of the other generations' strengths, fears, and weaknesses. Understanding each other's views and values will allow different generations to increase their appreciation of one another. This, in turn, will lead to better communication and collaboration because people are now talking from a sense of appreciation and acknowledgment. Intergenerational relationships help strengthen families, the individuals and the community by bringing everyone together. Growing intergenerational friendships with others can offer a unique perspective on life, as the older generations help the younger ones learn what to expect in their futures and offer advice to ensure they're living their best lives. In turn, a younger person can help someone older be a little more adventurous, getting them out of their daily routines. Both parties can benefit from these different perspectives and approaches to life.

## Why recycle uniforms?

Around £52 million is spent each year on new items with parents, guardians and carers discarding uniform that still has lots of wear in it. Uniform which has been cared for can and should be reused. By extending the life of clothing by just nine months can reduce carbon and water usage by up to 10%, while helping reduce the staggering volume of clothing that is sent to landfill each year.

Over the last decade, clothing has become the fastest growing stream of waste in the UK, and it now represents the fifth biggest environmental footprint of any industry in the UK. With our growing awareness of the environmental impact of discarding wearable uniform, it is important for us all to re-evaluate how our attitudes towards the disposal of uniform could be affecting the planet in various ways and how we can adopt more sustainable behaviour patterns and keep sustainable living at the forefront of our minds.

Statistics show that 1.4 million wearable school uniforms are thrown away each year! In order to tackle the rapidly growing global environmental challenges for a sustainable future, we aim to normalise the reusing of pre-loved college uniform to reduce our carbon footprint whilst helping families in need of support.





This is a great opportunity for schools to embed environmental awareness within our school community, strengthen our green credentials and extend the lifespan of uniforms whilst supporting a recycling culture.

For every 1 tonne of clothing reused, as opposed to being thrown away, greenhouse gas emissions are reduced by 7 tonnes. Being sustainable and driving a real change towards clothing and ecological integrity should be a focus for us all.

### **How does throwing away clothing contribute to climate change?**

Throwing away clothing not only wastes money and resources, but it can take over 200 years for the materials to decompose in a landfill, in which the decomposition process involves the leaching of toxic chemicals and dyes into the groundwater and our soil.

### **Air pollution**

Throwing away clothing either puts them in landfill or gets them incinerated, creating a tonne of carbon emissions that harm our environment. This affects the planet significantly, as they are the greenhouse gases with the highest levels of emissions in the atmosphere, causing global warming and ultimately, climate change.

### **Water usage**

The fashion industry relies on water throughout the production process for textiles and garments. It takes 2,700 litres of water to cultivate just one t-shirt depending on material and the location in which it is grown. As such, when multiplied by the number of uniforms produced in total, through its excessive water usage, unnecessary wastage of uniform uses up our precious water resources.

### **Water pollution**

A lot of clothing with synthetic fibres can never fully break down. This means that throwing away your clothes with these fabrics will eventually cause them to find their way into groundwater and the ocean. These non-biodegradable fibres pollute the water itself and also do active harm to marine wildlife, engendering an 'invisible' water pollution crisis.

### **Increased clothing demand**

Throwing away clothes contributes to climate change in various ways. The more you throw away, the more you buy to replace what you throw out. The more you buy, the more you increase the demand for new clothing. This demand translates to more air and water pollution as well as more water usage. You can break this cycle by choosing to donate or recycle your old clothing.

To enable all students to access classroom learning, the need for adequate clothing is vital.

Having access to a full uniform means that a child's attendance is much more likely to improve and allows them to focus on their learning whilst promoting pride, self-confidence and a sense of belonging within the school environment, all of which contribute to a child's/student's wellbeing whilst reducing socioeconomic disparities.

As such, it is crucial that we enhance the longevity of use by donating old uniforms. To support this campaign and our aim in creating a more sustainable provision, can help not only deliver cost effective benefits for parents, guardians and carers, but also spread the important message of sustainability and aid in improving our environment by reducing the amount of clothes in landfill.

This in turn will contribute to the long-term goal of achieving a carbon-neutral, environmentally sustainable, toxic-free and fully circular economy in future years.

## **Case study examples connecting to the SDGs – School Uniform Intergenerational exchange project:**

**SDG 1 No Poverty** – Providing all children have school uniforms and an awareness of supporting others in less fortunate situations.

**SDG 3 Good health and Wellbeing** – Bringing together different generations offers numerous opportunities for sharing skills, decreasing loneliness, developing self-esteem and mental well-being.

**SDG 4 Quality Education** – Developing links different generations supports knowledge transfer and quality mentoring.

**SDG 5 Gender Equality** – Encouraging all children regardless of gender to participate in any activity.

**SDG 6- Clean water and sanitation.** Through encouraging children to reuse and recycle clothing/uniforms highlights the excessive use of water to make one item of clothing.

**SDG 8 -Decent Work and Economic Growth-** through modelling and sharing knowledge, children are learning valuable practical skills using needles, sewing machines and terminology such as darning.

**SDG 9 Industry, Innovation, and Infrastructure** – encouraging clothes swapping to reduce climate emissions.

**SDG 10- Reduced Inequalities** – reducing gender bias and ageism through shared community working,

**SDG 11 Sustainable Cities and Communities** – Being part of a community of learners /volunteers of different generations.

**SDG 12 Responsible Consumption and Production** – understanding the impact of clothing choices on production and working towards a Zero by 30 with all aspects of energy, gas, and electricity.

**SDG 13 Climate Action** – reducing land fill, reducing clothing production and wasting water through a reduction in school uniform production.

**SDG 17 Partnership for the Goals** – Working in collaboration and partnership to develop a school based intergenerational sustainability programme.

Through using the information and examples in this document we will be able to further engage with the Sustainable Development Goals (SDGs) and learn more about our responsibilities to each other and the world in which we live. The purpose of this Sustainability Matters resource will support you as practitioners, educators, childminders, parents/carers and students to take small green steps towards a better climate future globally. The focus will align with the Government Sustainability and Climate Change strategy of environmental sustainability at the forefront, through the SDG 13 Climate Action.

Your reviews, opinions and any feedback are valuable to us, so please do get in touch with the authors:

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## Useful links and references

Barraza, L. & Robottom, I. (2008). Gaining representations of children's and adults' constructions of sustainability issues. *International Journal of Environmental and Science Education*, 3, 179-191.

Borg, F. (2019). A case study of a Green Flag-certified preschool in Sweden. *Hungarian Educational Research Journal*, 9, 607-627.

Boyd, D. (2018a) Early Childhood Education for Sustainability and the historical legacies of two pioneering giants. *International Journal of Early Years*, Vol 38 (2), pp227-239.

Boyd, D. (2018c) Utilising Place based learning through local contexts to develop agents of change in Early Childhood Education for Sustainability. *Education 3-13*.

Brundlandt, G. H. 1987. Report of the World Commission on Environment and Development: Our Common Future. United Nations General Assembly document A/42/427.

Clark, A. (2017). *Listening to young children, expanded third edition: A guide to understanding and using the Mosaic approach*, Jessica Kingsley Publishers.  
Clark, A. & Moss, P. (2011). *Listening to young children: The Mosaic approach*, London, National Children's Bureau.

Clark, A. & Statham, J. (2005). Listening to young children: Experts in their own lives. *Adoption & Fostering*, 29, 45-56.

Davis, J. (2015). What is early childhood education for sustainability and why does it matter? *Young children and the environment: Early education for sustainability [2nd edition]*, 7-31.

Dayan, Y. & Ziv, M. (2012). Children's perspective research in pre-service early childhood student education. *International Journal of Early Years Education*, 20, 280-289.

Department for Environment, Food and Rural Affairs (DEFRA) (2008). *A framework for pro-environmental behaviours: Report, January 2008*. [[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/69277/pb13574-behaviours-report-080110.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69277/pb13574-behaviours-report-080110.pdf)]

Hsiao, C.-Y. & Shih, P.-Y. (2016). Exploring the effectiveness of picture books for teaching young children the concepts of environmental protection. *International Research in Geographical and Environmental Education*, 25, 36-49.

Iliopoulou, I. (2018). How young children think they can act for the environment: The case of forest and waste. *Education 3-13*, 46, 249-263.

Kos, M., Jerman, J., Anžlovar, U. & Torkar, G. (2016). Preschool Children's Understanding of Pro-Environmental Behaviours: Is It Too Hard for Them? *International Journal of Environmental and Science Education*, 11, 5554-5571.

Madden, L. & Liang, J. (2017). Young children's ideas about environment: Perspectives from three early childhood educational settings. *Environmental Education Research*, 23, 1055-1071.

Prince, C. (2010). Sowing the seeds: Education for sustainability within the early years curriculum. *European Early Childhood Education Research Journal*, 18, 423-434.

Sageidat, B. M., Christensen, M. & Davis, J. M. (2019). Children's understandings of environmental and sustainability-related issues in kindergartens in Rogland, Norway and Queensland, Australia. *International Journal of Environmental and Science Education*, 14, 191-205.

Webber, L. (2020). Researching with children using Skype interviews and drawings: methodological and ethical issues explored. *Journal of Early Childhood Research*, 18(4), 339-353.

Yanez, R. E., Fees, B. S. & Torquati, J. C. (2017). Preschool children's biophilia and attitudes toward nature: The effect of personal experiences. *The International Journal of Early Childhood Environmental Education*, 5(1), 57-67.

[The Big Garden Birdwatch - The RSPB \(https://www.rspb.org.uk/get-involved/activities/birdwatch/\)](https://www.rspb.org.uk/get-involved/activities/birdwatch/)

[A Future Without Waste learning resource with LEGO Group - Ellen MacArthur Foundation \(https://ellenmacarthurfoundation.org/news/new-learning-resource-launched-with-lego-group\)](https://ellenmacarthurfoundation.org/news/new-learning-resource-launched-with-lego-group)

[Sustainability and climate change: a strategy for the education and children's services systems - GOV.UK \(www.gov.uk\)](http://www.gov.uk)