TEACHER PACK

Engaging resources and activities to explore sustainable farming, food systems and environmental practices with students.

Dyson farming

ENGAGEMENT CENTRE

CONTENTS

INTRODUCTION

Reinvigorating the value in better tasting, healthier food grown in harmony with the environment. By growing crops and rearing livestock in a way that's sensitive to the needs of the land, we can be confident in both the integrity and the quality of our produce. Sustainable food production and food security are vital to the nation's health and economy, whilst there is also a real chance for agriculture to drive a revolution in technology and vice versa. Our farms are made of a diverse range of land types that allow a range of crops to be grown: Peas, potatoes strawberries, wheat, barley, oilseed rape, maize and rye.

This pack will enable students to:

Understand the journey of food from farm to fork. Children will explore how different types of food are grown, harvested and processed. They will learn to make connections between farming practices and the food they eat every day.

Explore the role of farming in protecting the environment. Children will investigate how farming can support biodiversity, reduce waste and promote sustainable land use while considering the impact of farming on local ecosystems.

Express farming concepts through creative activities. Children will use art, storytelling and design to creatively represent farming themes. Activities will encourage imaginative thinking and communication.

Recognise the wellbeing benefits of farming and nature. Children will reflect on how spending time outdoors, growing food and engaging with nature can support physical and emotional wellbeing, fostering mindfulness and healthy habits.

Our vision

We are excited about growing the future of sustainable agriculture through innovation and people.

PLAN YOUR VISIT
SUGGESTED ITINERARIES

Key stage: Year 2 (KS2)
Duration: Half a day

Areas of focus: Environment, Wellbeing, Creativity

	Group 1	Group 2	Group 3
Arrival 9:00am	Farm tour (45mins)	Zone 6: Painting with nature (30mins)	Zone 3: Bug hotel (30mins)
Move zone			
	Zone 3: Hula hoop transect (30mins)	Farm tour (45mins)	Zone 5: Outdoor music (20mins)
	Zone 5: Outdoor music (20mins)		Zone 3: Hula hoops (30mins)
Break 10:30am – 10:45am			
	Zone 3: Bird watching (20mins)	Zone 3: Hula hoop transect (30mins)	Zone 6: Painting with nature (30mins)
	Zone 3: Bug hotel (30mins)	Zone 5: Outdoor music (20mins)	Zone 5: Mini beasts (20mins)
Move zone			
	Zone 3: Painting with nature (30mins)	Zone 3: Bug hotel (30mins)	Zone 6: Farm tour (45mins)
	Zone 4: Mini beasts	Zone 5: Bird watching (20mins)	
Depart 12:30pm			

Key stage: Year 4 (KS2)
Duration: Half a day

Areas of focus: Energy, Wellbeing, Soil

	Group 1	Group 2	Group 3
Arrival 9:00am	Farm tour (45mins)	Zone 4: Soil texture analysis (30mins)	Zone 3: Outdoor exercises (25mins)
		Zone 4: Soil matching (10mins)	Zone 5: Growing sunflowers (20mins)
Move zone			
	Zone 4: Soil texture analysis (30mins)	Farm tour (45mins)	Zone 2: Circular farming roleplay (30mins)
	Zone 4: Soil matching (10mins)		Zone 2: AD energy equivalents (20mins)
Break 10:30am – 10:45am			
	Zone 5: Outdoor exercise (30mins)	Zone 2: Circular farming roleplay (30mins)	Zone 4: Soil texture analysis (30mins)
	Zone 5: Growing sunflowers (20mins)	Zone 2: AD Energy equivalents (20mins)	Zone 4: Soil matching (10mins)
Move zone			
	Zone 2: Circular farming roleplay (30mins)	Zone 2: Outdoor exercises (25mins)	Farm tour (45mins)
	Zone 2: AD Energy equivalents (20mins)	Zone 5: Growing sunflowers (20mins)	
Depart 12:30pm			

PLAN YOUR VISIT
SUGGESTED ITINERARIES

Key stage: Year 10 (KS4)
Duration: Full day

Areas of focus: Soil, Food, Commercialisation

	Group 1	Group 2	Group 3
Arrival 9:00am	Farm tour (45mins)	Zone 1: Oil food miles (25mins)	Zone 4: Soil texture analysis (25mins)
		Zone 1: Processed vs unprocessed foods (20mins)	Zone 4: Soil matching (20mins)
10:15am			
	Zone 6: Strawberry punnet design (45mins)	Farm tour (45mins)	Zone 1: Oil food miles (25mins)
			Zone 1: Processed vs unprocessed foods (20mins)
Break 11am – 11:15am			
	Zone 4: Soil texture analysis (25mins)	Zone 6: Strawberry punnet design (45mins)	Zone 5: Sunflower commercialisation (45mins)
	Zone 4: Soil matching (20mins)		
12am move zones			
	Zone 1: Oil food miles (25mins)	Zone 5: Sunflower commercialisation (45mins)	Zone 3: Biodiversity transect (45mins)
	Zone 1: Processed vs unprocessed foods (20mins)		
Lunch			
13:15pm	Zone 5: Sunflower commercialisation (45mins)	Zone 3: Biodiversity transect (45mins)	Farm tour (45mins)
14:00pm			

Key stage: Year 10 (KS4)
Duration: Half a day

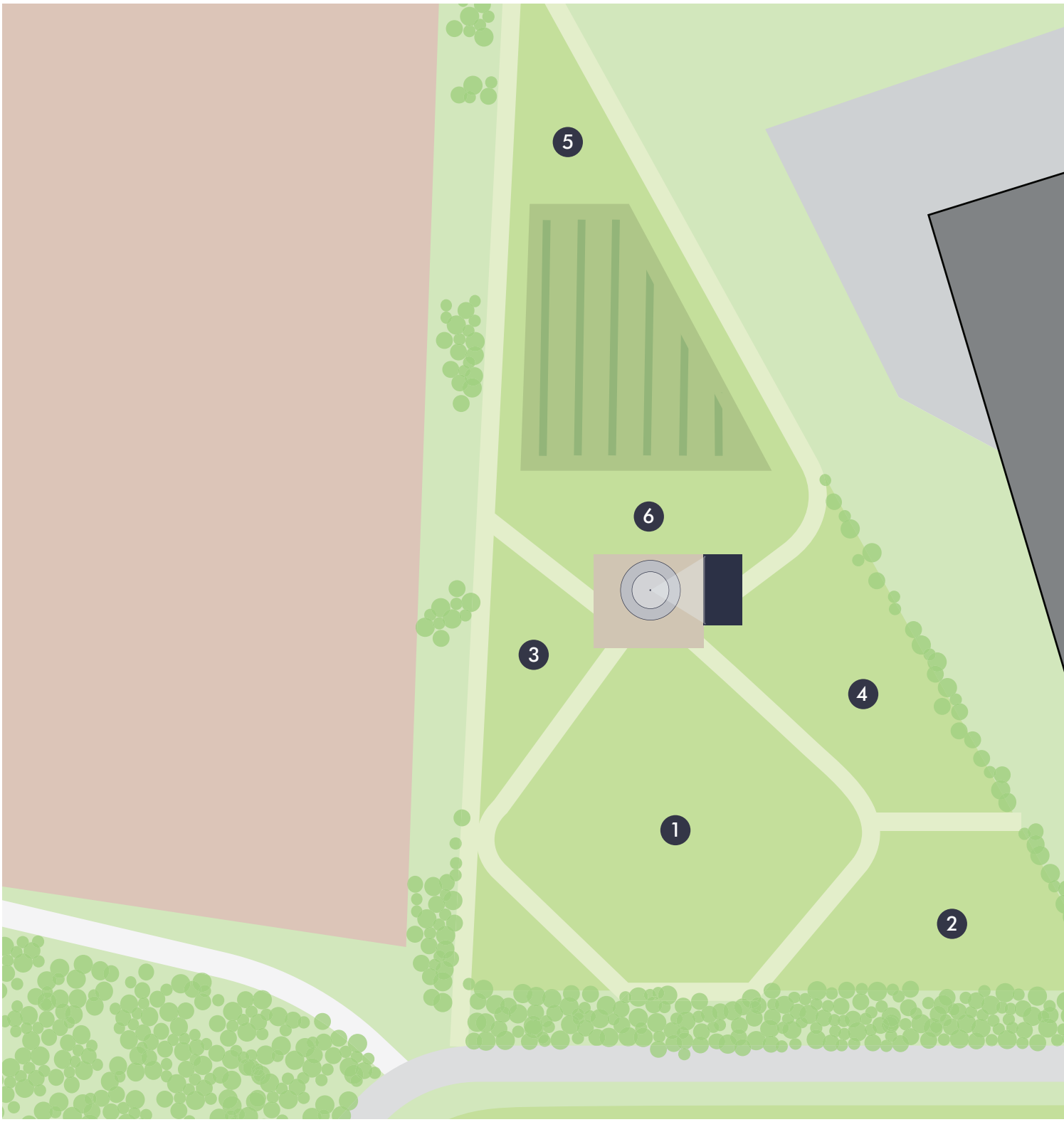
Areas of focus: Soil, Food, Commercialisation

	Group 1	Group 2	Group 3
	Zone 3: Biodivesity transect (45mins)	Zone 1: Oil food miles (25mins)	Zone 6: Strawberry punnet design (45mins)
		Zone 1: Processed vs unprocessed foods (20 mins)	
Depart 14:45			

SITE MAP
EDUCATIONAL ZONES

Zones:

1 Food 2 Energy 3 Environment 4 Soil 5 Creativity 6 Wellbeing



Health and safety

Defibrillator: Nocton Wood Yard
Access code: C159X
Nearest hospital: Lincoln County Hospital
Fire blanket and first aid kit: Located in the silo
Anaphylaxis kit: Nocton Wood Yard
What3words for field: ///tailing.downs.agenda

ZONE ONE: FOOD

Students will understand why it is important to support British food production, healthy eating and challenges around food security.

Health and safety note: This zone may contain gluten due to the activities. Please make sure children are washing hands before and after handling food. Whilst cooking children must be supervised at all times

Intense
Precision picked only when perfectly for maximum taste and nutrition

Sweet
Heat, light and CO_2 levels are controlled for optimum growing conditions in order to produce the best tasting crop.

Juicy
Sustainably irrigated with harvested rainwater precisely when the plants need it most.

Fresh
UV robots and beneficial insects protect the crop to ensure the highest quality.

ACTIVITY 01
PROCESSED V UNPROCESSED FOODS

Duration: 10 mins

Learning objectives

Identify 10 number of food products made or produced with British farmed ingredients.

Define processed and unprocessed foods and their impact on health.

Understand the key terms: unprocessed, processed and ultra-processed foods.

Activity outcomes

Group discussion around healthy v unhealthy foods

Ability to identify processed items and unprocessed.

Things you will need

Food packaging

Instructions

1. Separate into groups of three.

2. Distribute packaging between teams.

3. Discussion surrounding the products.
Consider:
– Do they recognise them?
– Would they eat them?

4. Set the task of lining up the foods in order from unprocessed to ultra processed and ask them to justify their results.

5. Follow with a teacher led discussion and defining key terms.
Key terms:
– Unprocessed
– Processed ingredients
– Processed
– Ultra processed.

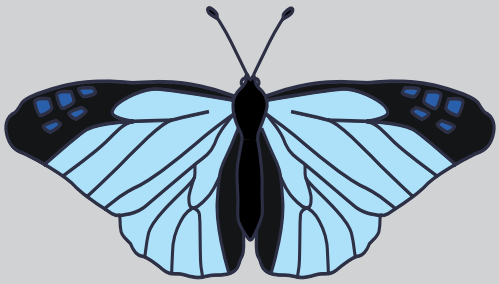
Please check the glossary for any definitions.

6. Discuss how not all processed foods are unhealthy but that many ultra-processed foods are high in calories and saturated fat.

7. In their groups, ask them to order, considering saturated fat, salt or sugar content with their new understanding.

26% of the UK's land area is used to grow food crops. On our farms we grow wheat, barley, oilseed rape, potatoes, peas and fruits such as strawberries.

Growing crops, farmers have to consider the impact on the environment and human health as well as sustainability and profitability.



Integrated pest management techniques help farmers to control pests by introducing beneficial insects.

Well–managed crops can out-compete weeds and are more resilient to pests and diseases, so less interventions are needed to produce healthy food.

ACTIVITY 02
OIL FOOD MILES

Duration: 60 mins

Learning objectives

Understand why it is important to support British food production and issues around food security.

Be able to identify the link between the crop and the product outcome.

Define what food miles are and understand their impact on the environment, cost and sustainability.

Activity outcomes

Competent with working out the food miles calculation.

Group understanding of the impacts of importing food.

Things you will need

Pencil

Paper

Clipboard

Instructions

1. Engage in a tour of the oil press facility. Then return to the food zone.

2. Lead discussion surrounding the benefits of British grown rapeseed oil compared with Greek olive oil.
Refer to below table.

3. Complete the activity on page 4 of the worksheet pack.

4. Teacher to lead discussion and consider the impact of food miles on preservatives, freshness, carbon emissions and global food security.

- Preservatives
- Freshness
- Carbon emissions
- Global food security

ACTIVITY 03
BAKE FOCACCIA BREAD

Duration: 60 mins

Learning objectives

Practice accurate measuring techniques for consistent results.

Learn and apply the principles of food hygiene and safety when cooking and preparing food.

Develop the ability to accurately follow recipes and adapt them to personal preferences.

Activity outcomes

Students understand the concept of adding ingredients together to make a dish.

Engaging with food preparation procedures.

Ingredients

Bread

250g strong bread flour

2 tsp yeast

15ml of Dyson Farming cold pressed oil

175ml of water

1tsp salt

Toppings

1tbsp of Dyson Farming cold pressed oil

1tsp of sea salt

Sprinkle of dried rosemary

Health and safety

The ingredients in this activity contain gluten. This activity must be supervised at all times and oven gloves must be used.

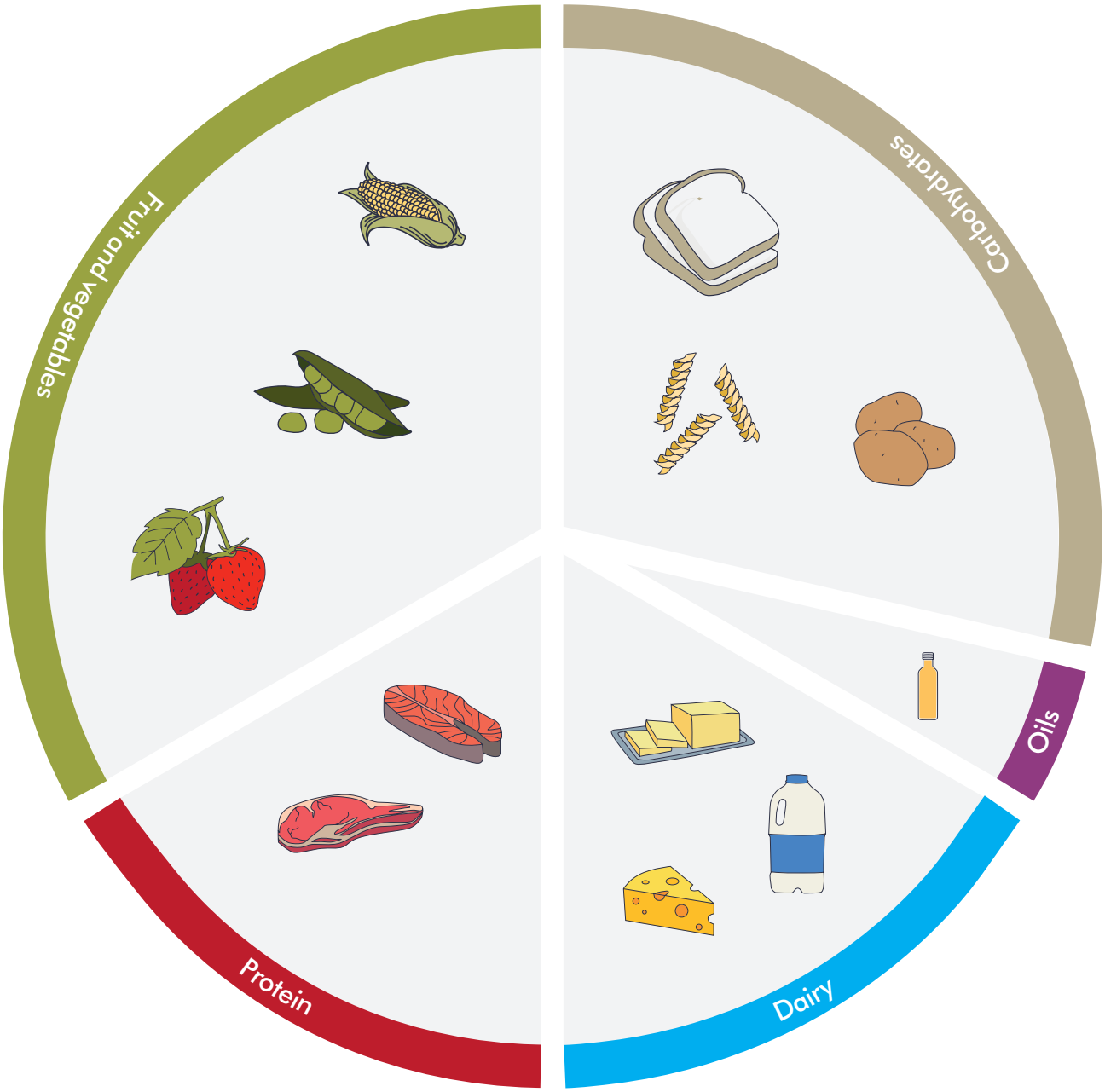
Instructions

Serves 8 people
Preparation time:15 mins
Proving time: Minimum 30 mins
Baking time: 15 mins

1. Put the flour into the mixing bowl.
2. Add the dried yeast and salt, then stir.
3. Add the rapeseed oil and water to the flour.
4. Mix into a soft dough using a wooden spoon.
5. Knead the dough thoroughly until it is smooth and stretchy. It should feel soft to touch.
6. Line the air fryer with baking paper, add your dough and shape.
7. Cover with cling film and prove for a minimum of 30 minutes.
8. Remove the cling film and make deep indents with your fingertips all over the dough. Drizzle rapeseed oil over the top.
9. Sprinkle rosemary and salt crystals on top of the dough.
10. Set the air fryer to 180C and bake for 10 minutes.
11. Bake until the top becomes crispy. Remove the basket and tip the bread onto a plate. Turn over the dough and return to the air fryer to bake for a further 5 minutes.
12. For a crispier top, turn the bread over again and return to the air fryer for 1-2 minutes.

A balanced plate

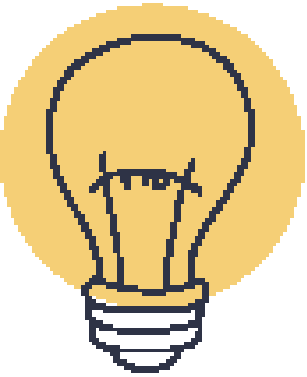
The Eatwell guide communicates how much of what we eat overall should come from each food group to achieve a healthy, balanced diet.



ZONE TWO:
ENERGY

Students will understand the relationship between the energy requirements for food production and the circular farming approach.

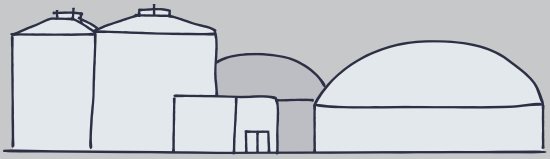
*Health and safety note: Due to the activities in this area, please wash you hands after the time spent in this zone before moving on. Also if your group is participating in the Energy Supply Chain activity ensure they do not eat and of the dried peas from this task. Please note that the activity worksheets can serve as a base summary for other topics and activities, and we can develop these further if they are specifically requested



Farmers can reduce their energy consumption through better monitoring, mapping and by using sustainable energy sources.

Energy is required for most farming practices: running tractors, combine harvesters and lighting livestock sheds.

An innovative farmer will optimise the energy used by adapting cultivation techniques and adopt a reduce, reuse and recycle approach.



Turning low–carbon, renewable energy sources such as wind power, natural sunlight and hydroelectricity. This can reduce the carbon footprint of the global supply chain.

ACTIVITY 01
ENERGY EXPLORERS

Duration: 5 –20 mins

Learning objectives

Ability to quantify energy productions to examples.

Maths calculations in relation to curriculum.

Understand key word definitions such as kWh.

Activity outcomes

Associating energy to familiar activities.

Familiarity with keywords such as kWh, Anaerobic digester (AD) and energy crop.

Things you will need

Calculator

Pencil

Paper/worksheet

Match up exercises

Key vocabulary

kWh (Kilowatt-hour): A unit of energy.

Anaerobic digester (AD): A system that breaks down crops and organic materials to produce biogas.

Energy crop: A crop grown specifically to produce energy (e.g. Maize)

Renewable energy: Energy that comes from renewable natural resources.

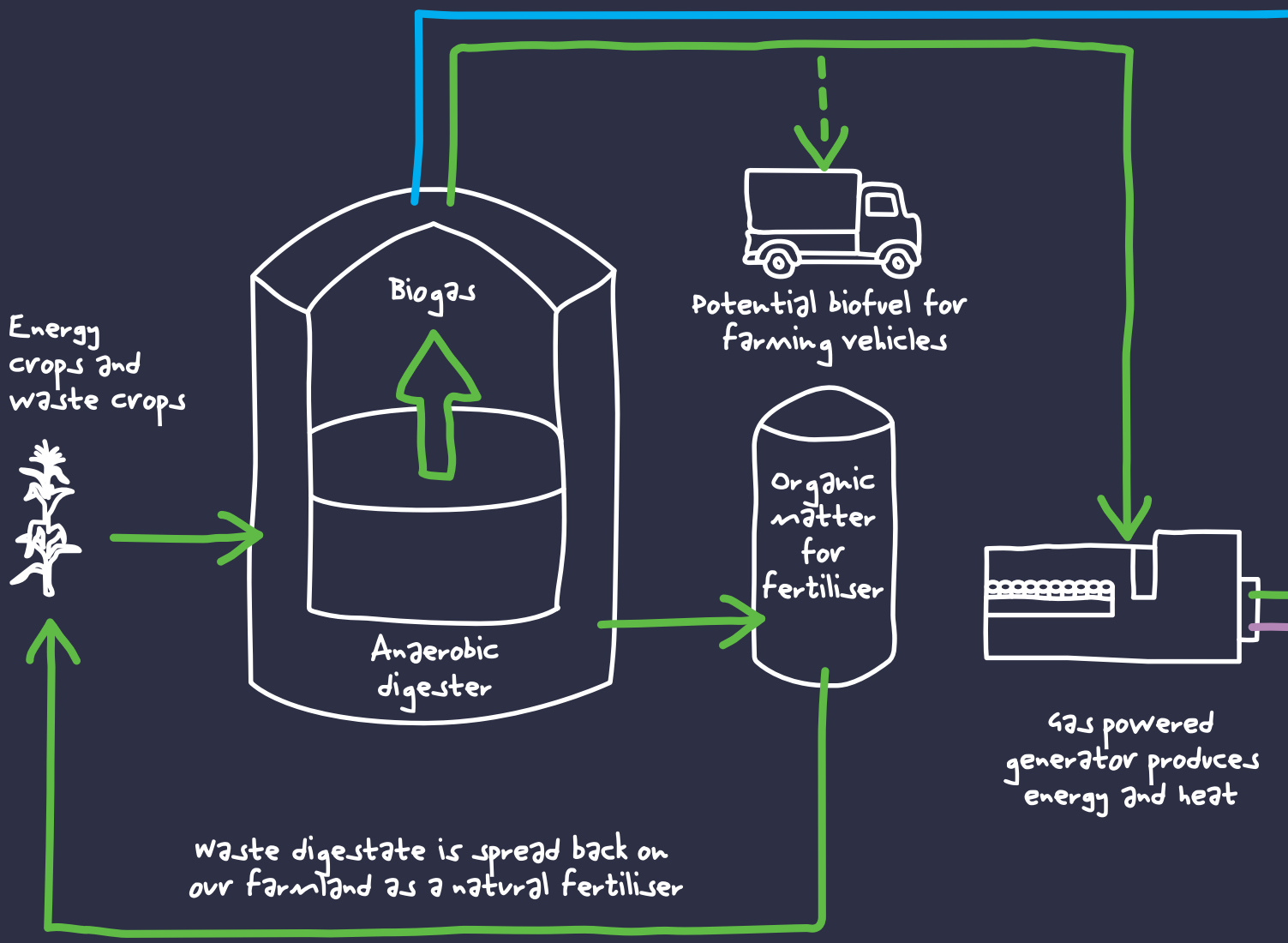
Instructions

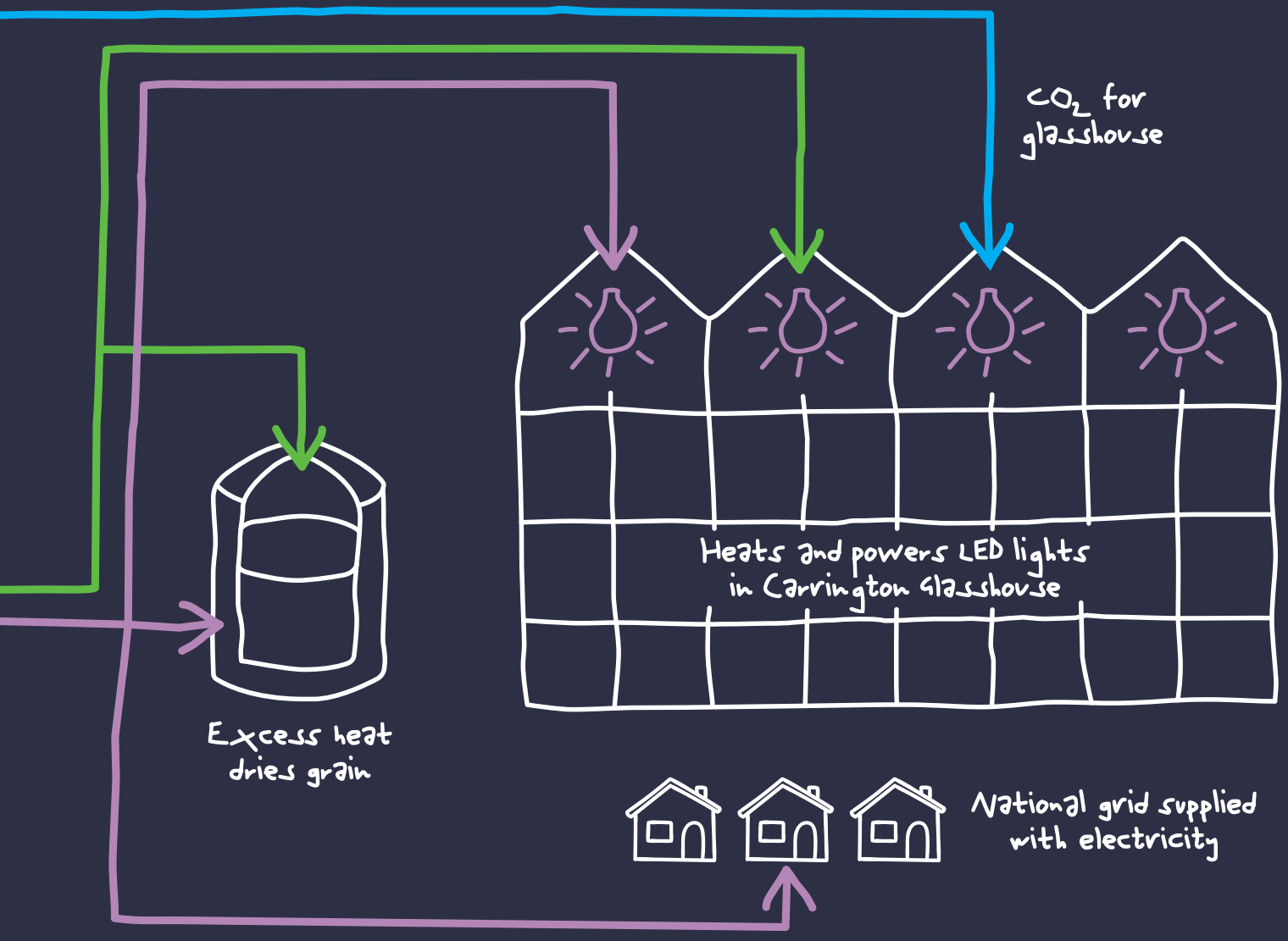
Students are 'Energy Explorers', they need to investigate how Dyson Farming produce renewable energy. They will use simplified real world data to calculate how much energy is produced and compare it to everyday activities they recognise.

Part 1: Using the sheet supplied in the activity pack ask, the students to identify what the images represent and what they have in common. Let them guess before revealing the answer. **Page 8 in the activity pack.**

Part 2: Energy detective challenge. Again using the sheet provided in the activity pack help the students calculate how many everyday activities the solar panels on Nocton Farm could produce. There are further questions in their activity book for this topic and extension questions aimed at key stage 3 and 4.

Across our farms we grow crops that produce energy to power the equivalent of over 10,000 homes through a process called anaerobic digestion. Our AD plants at Nocton and Carrington supply electricity for the National Grid. The heat produced during the process is not wasted, we use it for heating our Glasshouse to sustainably grow our strawberries in the winter.




CO_2 for glasshouse
Heats and powers LED lights in Carrington glasshouse
Excess heat dries grain
National grid supplied with electricity

ACTIVITY 02
CIRCULAR FARMING ROLE PLAY

Duration: 30 mins
This activitiy is designed for groups of 11.

Learning objectives

Explain the benefits of a circular approach to farming.

Things you will need

Velcro balls

Velcro vests

Role badges

Script

Instructions

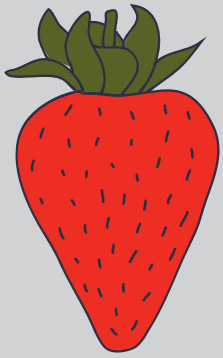
1. Teacher to introduce the activity through asking the students what Dyson Farming need to grow a strawberry.

2. Allocate 'roles' – sun, maize, tractor, AD, gas, generator, fertiliser, fuel, electric, heat and strawberry.

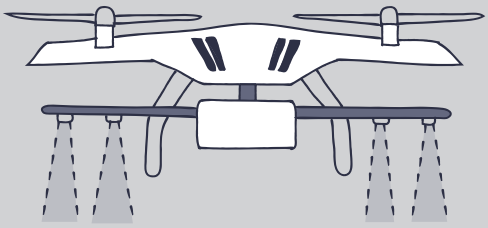
3. Distribute the velcro vests (one per role), and stand in a circle.

4. Evenly split the balls between the sun and the soil. Ensure they have one colour each. The balls given to the sun represent energy, the balls given to the soil represent nutrition. The teacher read the script aloud as the children act out the Dyson Farming circular farming story. Each student will have a phrase to say which is in their activity pack.

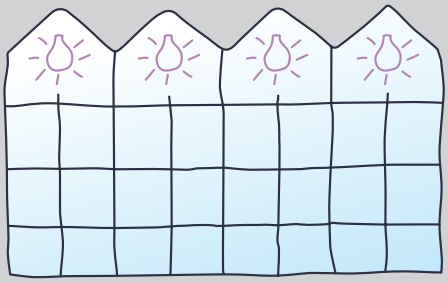
5. Which role was the busiest? Teacher to lead a discussion with the group considering why this was, if anyone was left out and if energy and nutrition passed around the circle.



Producing enough nutritious food for a growing population is a key challenge. Alongside your individual food choices, farming sustainably is critical.



Sustainable farming is about a whole farm approach, using the best of modern techniques alongside traditional methods.



Our mission is to produce high quality British food in harmony with the environment, enhancing valuable natural resources.

The UK imports around 46% of the total food it consumes each year. Food security is a critical factor in food production. At Dyson Farming, we are reinvigorating the value of British food.

ACTIVITY 03
SUPPLY CHAIN ENERGY

Duration: 15 mins

Learning objectives

Understand the energy requirements for food production.

Identify ways in which farms can use renewable energy to produce food.

Things you will need

Dried peas

Containers.

Instructions

1. Begin with a class discussion: Where do peas come from and what processes do they go through from pod to plate?

2. Use the supply chain cards provided and have the children take turns attaching to the jars in the correct order. As they match each card, they should fill in the blanks on their worksheet to record the correct answers.

3. Help the children consider what energy is needed at each stage. Ask them "What is required at each stage?" For example sun, machines, and fuel.

4. Give the group a handful of dried peas. Ask students "which stages use the most energy?" Direct the children to place the peas in the jars provided depending on how much energy is used at each stage. This createsa visual chart of energy across the supply chain.

Discuss their results. Answers: Energy use (per kg of peas) on total energy.1. Harvesting 70% 2. Transport 9% 3. Freezing 9% 4. Storage 12%

ZONE THREE: ENVIRONMENT

Students will develop observation and classification skills while exploring local biodiversity and understand ecological relationships.

Health and safety note: Caution in this area due to the nature of activities wasps may be in this area. Due to the activities in this area, please wash you hands after the time spent in this zone before moving on.

ACTIVITY 01
HULA HOOP TRANSECT

Duration: 30 mins

Learning objectives

Identify common farmland species and the ecosystem services they provide.

Considering and using sampling and data collection to complete the simple diversity index calculations.

Things you will need

Hula hoop

Clipboard

Pencil

Paper

Instructions

1. Hand out the hula hoops dependant on whether you would like students to work in pairs or individually.

2. Demonstrate the activity to the group first.

3. Drop a ring on an area of the field.

4. Within the ring identify as many plants as possible, insects and traces of animals using the guide provided.

5. Record the results in a table (table example on next page and included in worksheet pack)

6. Drop a ring again in another spot and repeat the process.

7. The students can now conduct their own.

8. Bring the group together to discuss their findings.

9. Teacher to lead discussion surrounding diversity, scientific sampling, data collection and simple diversity index calculations.

Recording data in the field

Pick the appropriate table for the data that you wish to collect.

1. Determining the abundance of an individual plant species
Species being recorded:

Hula hoop number	Number of individual plants
1:	
2:	
3:	
Total number of plants:	
Mean number of plants:	

2. Determining percentage cover of an individual plant species

Hula hoop number	Number of species
1:	
2:	
3:	

3. Determining frequency of plant species

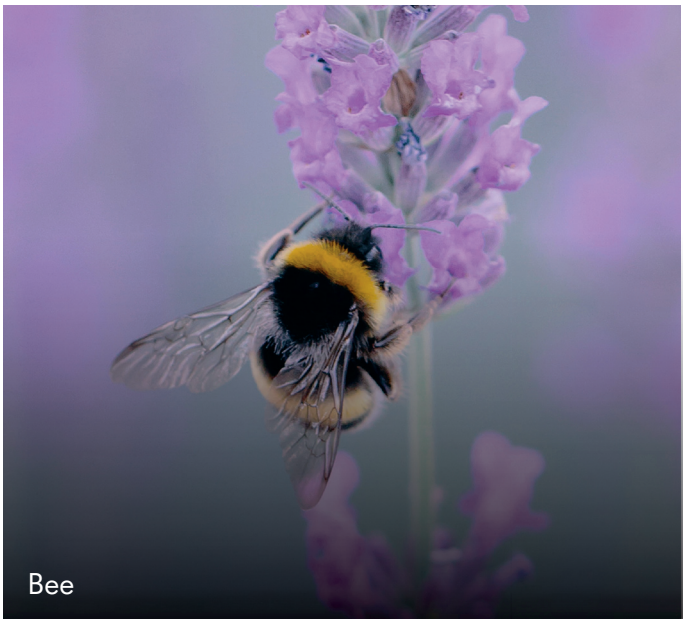
Plant name	Hula hoop 1	Hula hoop 2	Hula hoop 3	% Frequency
1:				
2:				
3:				
Total number of plants:				
Mean number of plants:				


Millipede


Spider


Butterfly


Ladybird


Bee


Caterpillar

ACTIVITY 02
SWEEP NETTING

Duration: 30 mins

Learning objectives

Understanding of common bugs found in the field along with their purpose.

Communicate: Take part in conversation within a real situation, share experiences, ideas and information.

Identity, classify and group living things in the environment.

Develop a dense of size and amount by observing and exploring the environment.

Things you will need

Net

Tray

Instructions

1. Choose an area to sample, this could be in the long grass or hedgerows.

2. Drag the net through tall grass and/or wildflowers for predetermined amount of time.

3. Empty the nets on a tray.

4. See whether the students can identify any of the species.

5. Extension: Students can collect insects at random places to compare transects in different sections or habitats.

6. Teacher led discussion on the concept of how many species are present and how this might suggest species richness or diversity.

ACTIVITY 03
FOOD WEB

Duration: 20 mins

Learning objectives

Understand what a food chain is.

Consider how the farm can support and help provide for food chains.

Things you will need

String

Badges of food chain players

Instructions

1. Hand out the badges to the children and put on the front of their shirts (make sure one of them is the 'sun').

2. Form a circle, with the sun standing at the centre of the circle.

3. Create a discussion and ask:
   - Who in the circle would I give my energy to?
   - Who might eat me?
   - Who in the circle could give me energy?
   - Who could I eat?

4. Explain that the ball of string represents energy from the sun. Ask the sun to hold onto the loose end of the string and throw the ball to someone who can use that energy (for example a green plant).

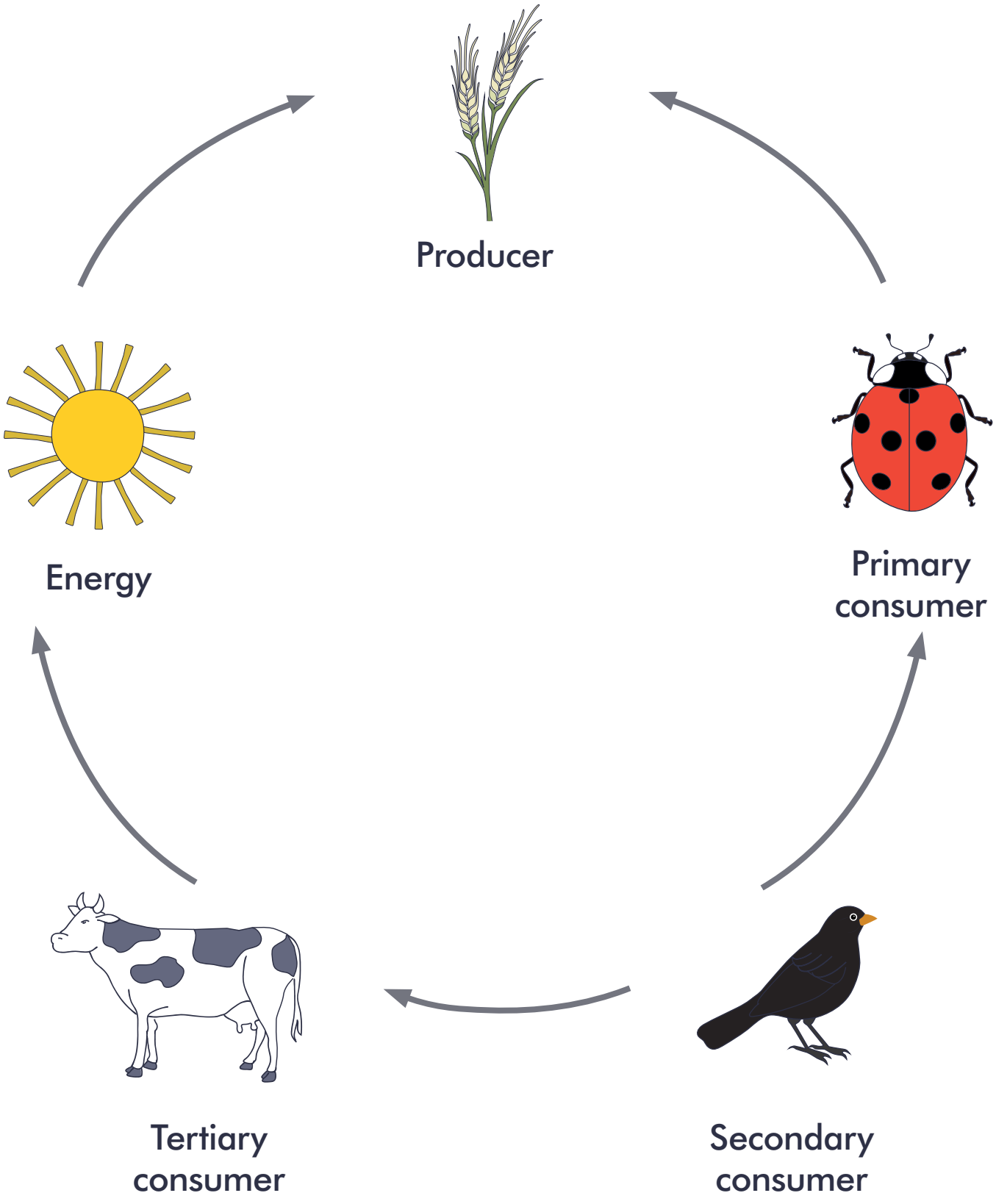
5. The green plant then throws the ball to someone else in the food chain. Keep going until the string reaches the animal at the top of the food chain (carnivore).

6. Return the string back to the sun and start a new chain, continue making food chains until every child has held the string at least once.

7. Create a discussion around what the string looks like (a food web) and why supporting different beings within the food chain are so important.

Food chain

The linear sequence that illustrates how energy and nutrients flow through an ecosystem as one consumes another. This natural cycle occurs with the life across our farms.



ACTIVITY 04
BUG HOTELS

Duration: 30 mins

Learning objectives

Identify common farmland species and the ecosystem services they provide.

Discuss why it is important to support pollinators and invertebrates within a farmed environment.

Things you will need

Building materials. E.g. logs, twigs, pine cones and stones

Instructions

1. Use the resources in the field to create and build a home for a range of different insects by using leaves, twigs, pine cones and stones.

2. Teacher led discussion to consider why insects are essential to have on the farm and in gardens for pollination.

ACTIVITY 05
BIRD WATCHING

Duration: Unrestricted

Learning objectives

Identify common bird species.

Understand the concept of habitats and their importance.

Listening for bird sounds within the environment.

Things you will need

Binoculars

Species guide (Find in activity pack)

Pencil and paper (optional)

Instructions

1. Take a seat quietly in the bird hide area.
2. Take in the surroundings.
3. Use the species guide to help spot and identify birds that are in the area.
4. Use this space to take a minute with peace and quiet. The quieter the group can be the more their senses will be able to pick up bird sounds.
5. Interact with the squeaky bird noises to identify what they sound like.

Fun fact

Did you know this bird hide is made from Willow that has been carefully planted by the Dyson Farming Estates team. The willow has been woven so that it fits into the environment.


Blackbird


Blue Tit


Wren


Lapwing


Chaffinch


Great spotted woodpecker

ZONE FOUR:
SOIL

Students will understand a variety of soil types and how they play an important role for the crops we grow and the environment.

Health and safety note: Caution in this area due to the nature of activities wasps may be in this area. Due to the some activities in this area, please wash you hands after the time spent in this zone and after the mini beast activity before moving on.

ACTIVITY 01
SOIL TEXTURE ANALYSIS METHOD (A)

Duration: 30 mins

Learning objectives

Identify different soil types found around Lincolnshire on the Dyson Farming land.

Able to consider the characteristics of the soils and map them on the soil texture triangle.

Things you will need

Soil texture traingle (Activity pack page 42)

Soils from the patches

Water

Pencil and paper to record findings

Instructions

1. Conduct a demonstration of the activity for the students.

2. Collect a soil sample, add just enough water for the soil to become moist.

3. Rub the wet soil between your fingers to check whether it is smooth or gritty (or use jar method – teachers' choice).

4. Follow the flow chart to identify the soil type.

5. Repeat for all four soil types in the patches and record their findings.

6. Teacher discussion surrounding the differences between the soils and their key characteristics.

ACTIVITY 01
SOIL TEXTURE ANALYSIS METHOD (B)

Duration: 30 mins

Learning objectives

Identify different soil types found around Lincolnshire on the Dyson Farming land.

Able to consider the characteristics of the soils and map them on the soil texture triangle.

Things you will need

Clear, straight-sided jar

Soil sample

Water

Ruler

Washing up liquid.

Instructions

1. Prepare the soil: Sift your soil sample to remove large debris like rocks, sticks and roots.

2. Fill the jar: Place the sifted soil into the jar, filling it to about one third of its capacity.

3. Add water: Pour clean water into the jar until it's almost full, leaving a small space at the top.

4. Add soap (optional): Add about a teaspoon of liquid soap water to help separate the fine clay particles.

5. Shake vigorously: Screw the lid on tightly and shake the jar for atleast one to two minutes until the soil is thoroughly mixed and a uniform slurry forms.

6. Let it settle: Place the jar on a level surface where it wont be disturbed and allow it to settle.

7. Observe the layers:
After a few minutes you should see large particles like gravel and sand settle at the bottom.

After a few hours (e.g 2–3 hours) A layer of silt, which is smaller than sand will settle on top of the sand.

After 24 hours to few days: The smallest, lightest particles will settle on top of the silt, often making the water cloudy.

8. Analyse: Use a ruler to measure the height of each layer and calculate the percentage of sand, silt, and clay in your soil sample.

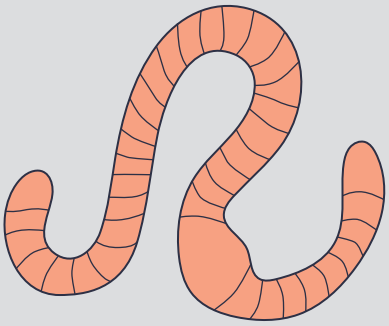
What the layers tell you:

Sand: The heaviest and largest particles, settling at the bottom

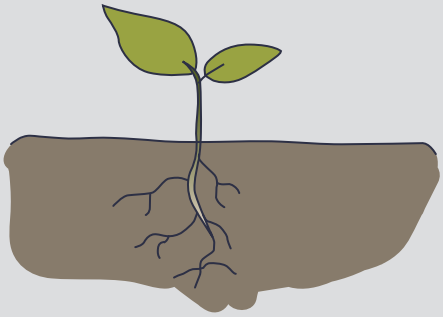
Clay: The smallest, lightest particles, settling last

Silt: Smaller and lighter than sand, settling on top of the sand

Organic matter: Leaves, twigs and roots will remain at the very top, floating.

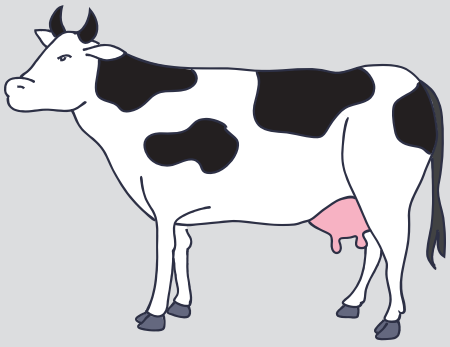


Soil is a complex ecosystem. Leaving them undisturbed allows microbes, fungi and earthworms to do their work, enhance the soil health and store carbon.



Soil, like air and water, is critical to life. Healthy fertile soils are essential to grow nutritious crops sustainably.

Farmers protect, monitor and improve the health of solid using a range of techniques.



Keeping animals inside the winter avoids compacting the soil. Cows are moved into the barn during winter. Growing different crops in rotation regenerates nutrients.

ACTIVITY 02
SOIL MATCHING

Duration: 10 mins

Learning objectives

Consider what crops are best suited to different soil types.

Discuss the methods farmers use to improve and protect the soil..

Things you will need

Soils from the patches

Crop cards

Activity worksheet in worksheet pack

Instructions

1. Split into groups of three.

2. Using the resources provided and the crop cards as well as the findings from the soil texture activity, ask the students to work through which crops are most suited to that kind of soil.

3. Ensure they consider how the soil might be cared for, for that crop type.

4. Teacher led discussion around the impact of the soil type on growing a healthy crop.

5. Teacher led discussion to also consider the practicality, environment and climate and, how this impacts the type of crops that can be grown in the area.

6. Bring the groups back together to discuss their thoughts and ideas.

ACTIVITY 03
MINI BEAST SOIL TRAY

Duration: Unrestricted

Learning objectives

Understand what a diverse soil ecosystem is and what it could include.

Things you will need

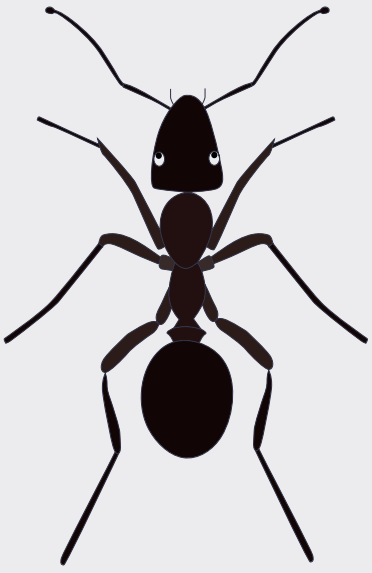
Tray with beasts

Instructions

1. Discussions to address what the children understand by the term 'mini beasts' and why they are important to us:
   - Pollination and food production
   - Soil
   - Biodiversity

2. Ask the children to sort mini beasts that live above and below ground out through the soil tray.

3. Teacher led discussion covering diverse soil ecosystems and the importance of creatures in the soil.



ZONE FIVE:
WELLBEING

Students will explore how creative, active and outdoor experiences can support their wellbeing. Helping them feel calm, stay active and enjoy time in nature.

Health and safety note: Warning sunflower seeds are present in this area which are an allergen.

ACTIVITY 01
GROWING SUNFLOWERS

Duration: 20 mins

Learning objectives

Developing the concept of acts of kindness.

Understand the journey of plant growth stages.

Learning the key requirements to enable growth of a healthy plant.

Things you will need

Branded Dyson Farming plant pot

Sunflower seeds

Soil

Water

Paper

Pencil/pen

Instructions

1. In the group, discuss kindness and the act of giving.

2. Introduce the task to the children of writing a kind message about someone and passing this on to make someone feel better.

3. Teacher choice: Students can either write a separate note or letter to go with the sunflower pot or on a small slip of paper the children can write their message and plant in the bottom of the pot to grow with the sunflower.

4. Using the Dyson Farming plant pots, take the group over to the soils area of the field.

5. Go to the soil patch and allow the children to fill up their plant pots with soil up to the halfway mark with the silty clay soil.

6. Create a small crater with their finger for the seeds to sit in.

7. Take 1–2 sunflower seeds and place them in the crater.

8. Top up the pot with soil leaving 1cm gap from the top edge for watering.

9. Assist with watering the sunflower slightly to dampen the soil.

10. Add the child's name to the bottom of the pot.

11. Ensure children wash their hands afterwards.


Nutrients from soil
The best soil is well drained loam that warms up quickly. Sunflowers have adapted to grow in any soil type.
Spring crop
Sunflowers are grown in spring which provides rotational advantages such as a break for cereal crops.
A consumer good
Sunflower seeds pressed for oil offer a rich nutrient profile and antioxidant properties.

ACTIVITY 02
MUSIC WITH NATURE

Duration: 20 mins

Learning objectives

Use voices, movement and instruments to explore emotions.

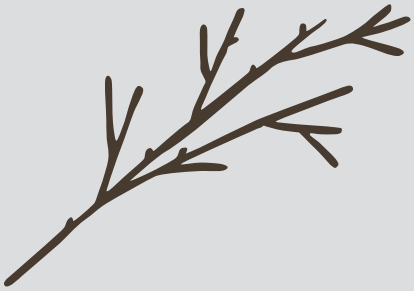
Create music by experimenting with rhythms, pitches and sounds with various objects.

Things you will need

Natural materials.

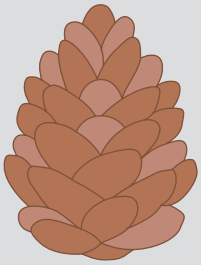
Instructions

1. Split into groups of three.
2. Use the objects in the environment to make music and sounds.
3. Task each group with making genres such as soft, quiet, happy, exciting and dramatic music.
4. Teacher to lead discussion and guidance around rhythm pace, pitches and contrasting sounds.
5. Peform their creations to the group.

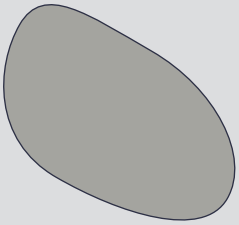


Twigs
Tap together for beat making, clicking and tapping.

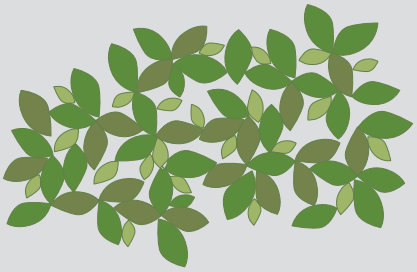
Leaves
Scrunch for gentle background textures of wave for soft rhythms.



Pine cones
Shake in a container or tap on logs for percussive effects.



Stones
Hit together, scrape on bark. Clinking and scraping.



Moss
Rub gently for quiet, textured sounds. Use in soft mood pieces.

Bark
Knock on larger pieces for drum-like hollow sounds.

ACTIVITY 03
OUTDOOR EXERCISES

Duration: Unrestricted

Learning objectives

Explore using the senses.

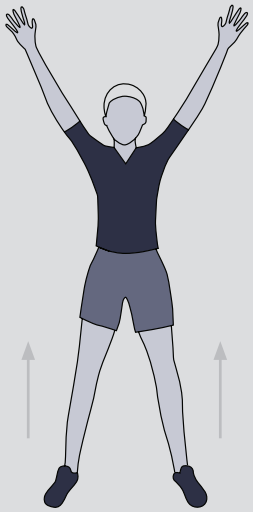
Demonstrate an understanding that physical fitness can impact on happiness and health.

Instructions

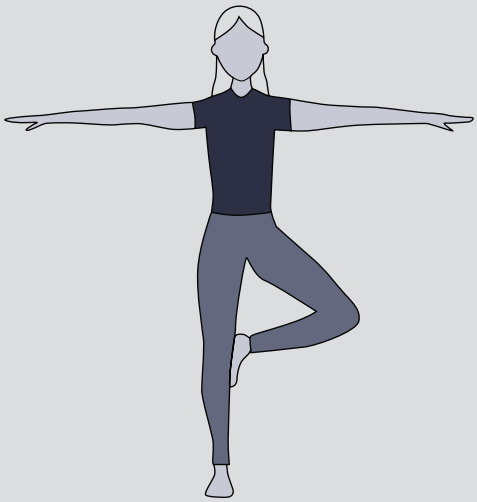
1. Teacher led exercises within the space in the field.
2. Incorporating the outdoor space and the environment.
3. Suggested exercises: Star jumps, jumping, balancing and lunges.

Why we excercise

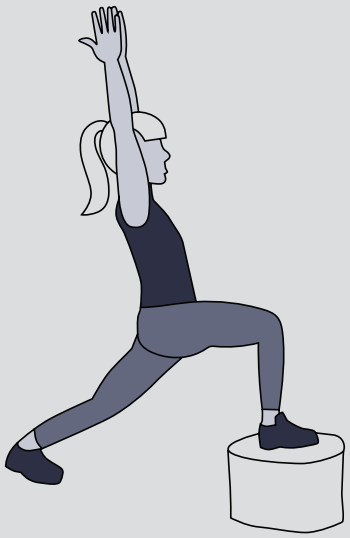
Exercise helps keep your body strong and healthy. When you run, jump, or play, your heart gets a workout, your muscles grow, and you feel full of energy. Moving around also makes you happy and helps you with focus and concentration.



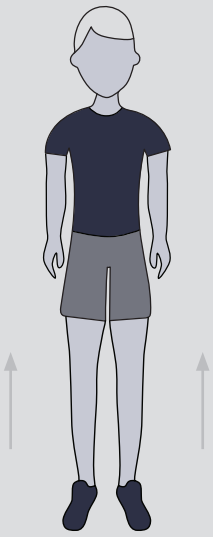
Star jumps
Jump, stretch wide like a star, then land and repeat.



Balancing
Stand on one foot and hold still. Try for ten seconds, then switch.



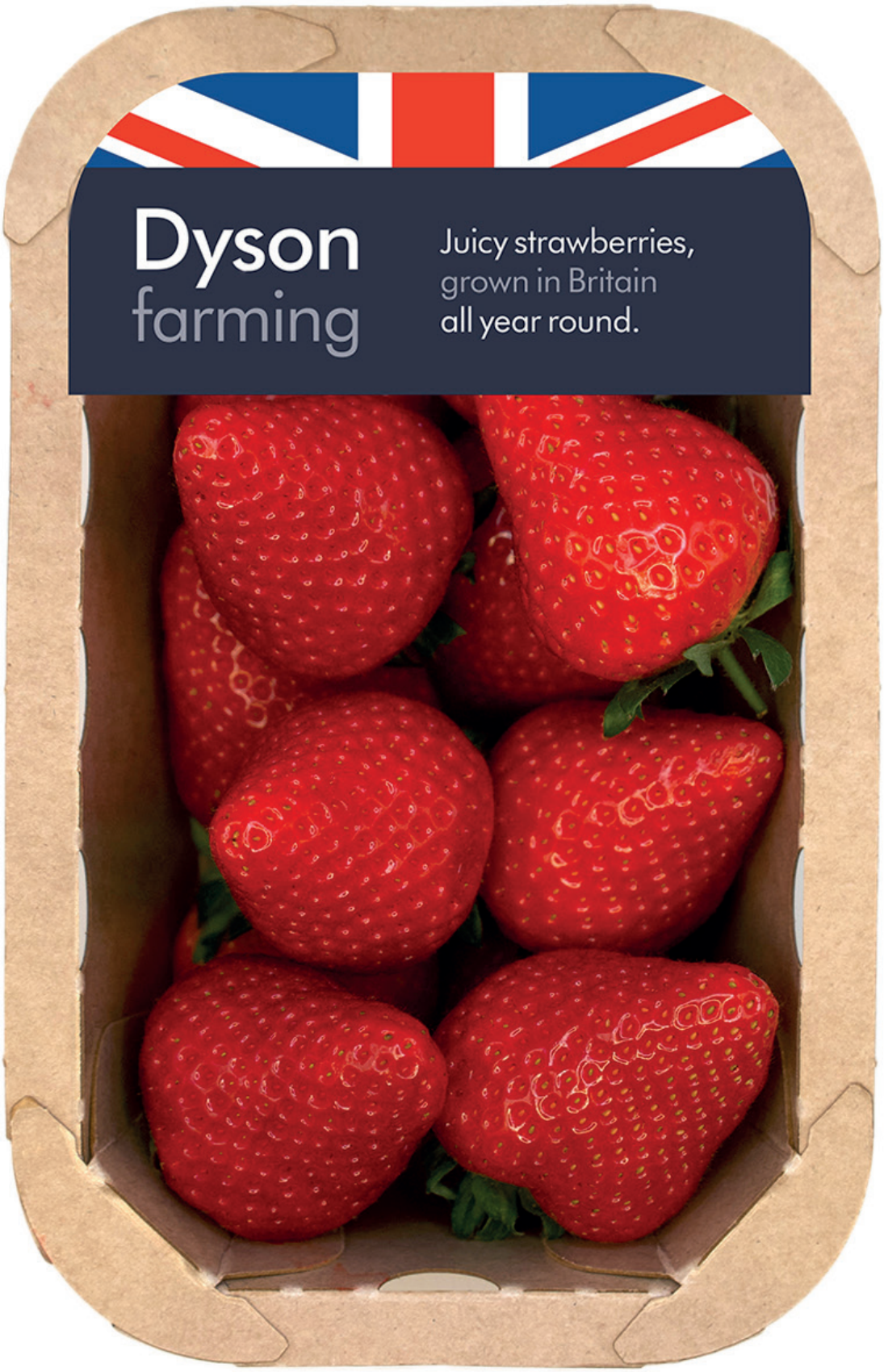
Lunges
Step forward, bend your front knee and keep your back and other leg straight.



Jumping
Bend your knees, push off the ground, and land softly with bent knees.

ZONE SIX:
CREATIVITY

Students will use natural materials in creative activites to develop practical skills, explore artistic ideas and engage with their surroundings in a thoughtful way.


Dyson
farming
Juicy strawberries,
grown in Britain
all year round.

ACTIVITY 01
PAINTING WITH NATURE

Duration: 30 mins

Learning objectives

Explore natural patterns and textures.

Developing expression.

Understanding how natural resources can be used in art.

Things you will need

Natural materials

Pestle and mortar

Powder paint

Plastic apron

Paper/card

Elastic bands

Clipboards

Instructions

1. Collect sticks, plants, leaves and natural resources they can find in the environment.

2. With guidance from the teacher, tie a soft item to the stick with an elastic band.

3. You can use items such as berries to experiment with the colours that are naturally expressed as well as the textures created.

4. Extension: Use the pestle and mortar to crush up natural resources, see if any colour is expressed and use this to then paint with.

5. Swap and share the paintbrush creations with one another.

6. Class discussion surrounding which materials worked best.


Dyson farming
British strawberries
Sustainably grown
all year round using
renewable energy.
Our anaerobic digester, which creates electricity and heat, is fuelled by the green gas we create from crops and waste vegetables.
This green heat, in turn, powers our strawberry greenhouses all year round, whilst the green electricity powers 10,000 homes. The waste digestate it produces, is put back onto the soil as our fertiliser.
James Dyson
Watch James Dyson explain his vision of the future of farming.
At home refrigerate for freshness. Serve at room temperature for best flavour. Please wash before use.
Dyson Farming Ltd, Cyclone Way, Nocton, Lincoln, LN4
TRAY Recycle
FILM Don't Recycle
Dyson farming
Fresh. Juicy. Sweet. Intense.
British strawberries
Dyson farming
Fresh. Juicy. Sweet. Intense.
British strawberries
Dyson farming
British strawberries
Sustainably grown
all year round using
renewable energy.

ACTIVITY 02
BRANDED PUNNET

Duration: 45 mins

Learning objectives

Brand identity.

Consider sustainable and suitable packaging choices.

Additional point: Experiment with persuasive writing.

Things you will need

Punnet template (Activity pack page 37)

Scissors

Glue

Pencil

Colouring pencils

Clipboards

Instructions

1. Using the punnet template provided, conduct a group discussion around sustainability, durability and communicating messages through packaging. Set the task of using the blank template to design their own punnet.

2. Prompt the students to consider
– Effective product messaging/design
– What is inside? Where is it from? Branded?
– Aesthetic
– Cost
– Customer
– Environment
– Function
– Materials
– Persuasive and descriptive text

3. Once completed, cut out the punnets and use the glue to stick the tabs together to create a 3D version.

ACTIVITY 03
INNOVATING WITH BRITISH CROPS

Duration: 45 mins

Learning objectives

Apply the new product development process to create additional opportunities for revenue generation.

Identify market gaps and trends.

Use SWOT (STRENGTHS, WEAKNESSES, OPPORTUNITIES and THREATS) analysis to evaluate business ideas.

Communicate business ideas effectively through short pitches.

Things you will need

Dyson Omega™ Project case study (Activity pack page 40)

SWOT template (Activity pack 43)

Pens and paper

Instructions

1. Introduce the scenario to the students. Talking through the Dyson Omega™ case study.

2. Introduce the task and explain that the farm now want to explore further commercialisation of its arable crops to increase ROI.

3. Once completed students to move onto brainstorming two new products using arable crops.
They will need to consider the following:
– Target market
– USP
– Price point
– How Dyson innovation elevates the product
– Environmental benefits
– Health benefits
– Potential ROI
– Sustainablity

5. Examples they might explore if you feel that students are needing a prompt:
– Bio-plastic packaging
– Snack bars
– Edible oils
– Eco-cleaning products
– Floristry/pick your own crops
– Seed butter
– Biofuel
– Cosmetics and skin care

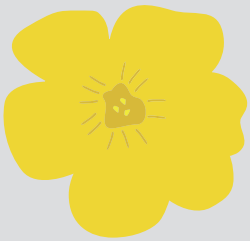
6. Ask the students to complete a SWOT analysis but for the new ideas.

7. At the end of the session, give each group time to pitch their strongest idea covering the above.

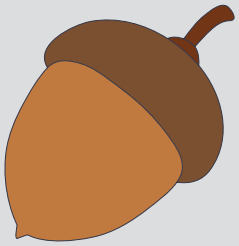
Commercial collaboration

The Dyson Omega™ nourishing range is the first Dyson product to ever feature an ingredient grown on Dyson farms: sunflower oil.

Daisies
Daisies bloom in grassy areas from spring through summer, brightening lawns with tiny white petals.



Buttercup
Buttercups shine like little yellow stars in meadows during late spring and early summer.



Acorns
Acorns fall from oak trees in autumn, often hiding under crunchy leaves.

Barley
Barley grows tall in fields through summer and is usually ready for harvest by late summer.

Holly
Holly stays green all year, with shiny leaves and red berries appearing in winter. Handle with care.

Maple leaves
Maple leaves turn brilliant red and gold in autumn before dropping to the ground

ACTIVITY 04
NATURE COLLAGES

Duration: 30 mins

Learning objectives

Understanding natural resources.

Seasons and the variation in items found at different times of the year.

Things you will need

Branded collage template (provided in area)

Glue

Natural materials

Instructions

1. Collect items from the surroundings i.e sticks, plants, leaves, flowers and natural resources they can find in the environment.

2. Using the card template provided and glue, stick items onto the card to create a collage.

3. Conduct group discussion surrounding seasons, colours and evergreen plants.

GLOSSARY

Acre
Unit used to describe an area of land.

Agronomy
The science and technology of producing and using plants by agriculture for food, fuel, chemicals or land conservation.

Anaerobic digester (AD)
A biological process where micro-organisms break down organic matter in the absence of oxygen, producing biogas and digestate.

Biodiversity
The variety of plant and animal life in a world or a particular habitat, a high level of which is usually considered to be important and desirable.

Biogas
A renewable fuel produced by the breakdown of organic matter in the absence of oxygen.

Biomethane
Renewable, near-pure form of methane produced from biogas.

Carbon emissions
Gas emissions stemming from the burning of fossil fuels.

Circular farming
A sustainable approach that mimics natural ecosystems by minimising waste and maximising resource utilisation. It focuses on creating a closed-loop system where by-products from one process become inputs to another, reducing the reliance on external inputs and promoting environmental sustainability.

Cold store
A refrigerated space designed to store goods, typically perishable items, at a temperature below the ambient outdoor temperature. These facilities are crucial for preserving the quality, safety, and longevity of products that are temperature-sensitive such as food.

Cover crop
A plant grown primarily to benefit the soil and the subsequent crop, rather than for harvest.

Crop rotation
Growing different types of crops in an area in a planned sequence over a period of time. Helping soil health, managing pests and improving yields.

Digestate
A nutrient rich fertiliser from the process of anaerobic digestion.

Diversity index
A numerical measure of how varied a collection of items is, which typically species in an ecological context. It combines species richness and species evenness to provide a single value representing diversity.

Ecosystem
A biological community of interacting organisms and their physical environment.

Energy crop
A plant grown specifically to be used as a source of energy rather than for food purposes.

Fertiliser
A substance, either natural or artificial, that is added to soil to provide plants with essential nutrients for growth and increased productivity. It acts as a plant food, supplementing the natural nutrients in the soil and helping plants reach their full potential.

Food chain
A linear sequence of organisms through which nutrients and energy pass as one organism eats another.

Food miles
The distance between where something is produced to where it is eaten.

Food security
When a large amount of the population at all times have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs, preferences and helps fuel an active healthy life.

Food web
A complex network of interconnected food chains within an ecosystem, illustrating the feeding relationships between various species.

Forager
A specialised agricultural machine designed for harvesting and processing forage crops like corn which is chopped into small pieces.

Grain
Typically dry, harvested seed of a cereal like wheat or barley primarily used for food or animal feed.

Grain store
Used for safely storing grain and other agricultural products, protecting them from spoilage, pests and environmental damage.

Global food security
When people, at all times, have physical and economic access to sufficient safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life.

Glasshouse
A glass building where plants are grown under controlled temperatures.

Harvest
The process or period of gathering in crops.

Hectare
Unit used to describe an area of land, larger than an acre.

Invertebrate
An animal without a backbone or bony skeleton.

Irrigation
The supply of water to land or crops to help growth, typically by the means of channels.

Organic matter
Substances derived from or produced by living organisms, including materials like plant and animal remains, their byproducts and products of their decomposition.

Pollinators
Anything that helps move pollen from one part flower or plant to another.

Preservatives
Added to food to extend consume date that would be typical of the product.

Primary consumer
Organisms that eat producers, also known as herbivores. Examples include rabbits, caterpillars and insects that feed on plants.

Processed
Any food or drink that has been changed in some way when is made or prepared. It can makes food safe, suitable to use, preserve food or change the

Producer
Organisms, primarliy plants, that create their own food through photosynthesis, using sunlight. They form the base of the food chain.

Secondary consumer
Organisims that eat primary consumers. They can be carnivores or omnivores.

Seed
Reproductive part of a plant, containing an embryo and nutrients for a new plant.

Silo
An extremely useful store to keep a variety of livestock feeds including silage.

Soil texture
A tool used in science to classify soil based on the proportions of sand, silt and clay particles. Representing the relationship between the three particle sizes and impacts on soil properties.

Soil type
The texture of the soil. This is based on the percentage of sand, silt and clay.

Ultra processed
Food which has gone through more processing. Often include ingredients you would not usually have at home, such as preservatives, sweeteners and emulsifiers. Including foods such as crisps, ice cream and cakes.

Unprocessed
Foods that don't have any sort of chemical industrial treatment in order to preserve it.

Tertiary consumer
Organisms that eat secondary consumers. They are often carnivores and may be at the top of the food chain.

Transect sampling
Oganisims that eat secondary consumers. They are often carnivores that may be at the top of the food chain.

Weighbridge
Set on the floor and designed to weigh large industrial vehicles and their contents for commercial purposes.

Dyson
farming

ENGAGEMENT
CENTRE