



Medium Term Plan

Energy - living things



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P levels

Performance attainment targets (P scales) and performance descriptors are used for pupils aged 5 to 16 with special educational needs (SEN) who are working below the standard of the national curriculum tests and assessments. PSTT recognises that the national curriculum levels used in this document are no longer current. We have had so many requests to return these materials to the website that they remain in the documents as a guide for those who have used them in the past. The written statements may be useful to others as an indication of children's development. For further information about P levels see:

<https://www.gov.uk/government/publications/p-scales-attainment-targets-for-pupils-with-sen>

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Primary Science Teaching Trust recommends that a full risk assessment is carried out before undertaking in the classroom any of the practical investigations contained in the plans.

Safety Note

PSTT advises teachers to refer to either CLEAPSS website or SSERC website for up to date health and safety information when planning practical activities for children.

Big Questions

- What is an animal?
- What is a plant?
- Do plants breathe?
- Do plants get food from the soil?
- Do plants feed?
- Can we survive without plants?
- Where do dead things go?

Answers

- Animals are a major group of organisms which are multicellular, eukaryotic (cells contain nucleus and other structures), and heterotrophic (require food for energy).
- Plants are another group of organisms which are multicellular and eukaryotic. They contain photosynthetic pigment and gain their energy through it and are therefore autotrophic.
- Plants do not breathe - they do not have lungs or a blood stream but they do respire: they use oxygen and release carbon dioxide when they break down carbohydrates to release energy. This happens day and night but during the day plants produce approximately 10 x more oxygen than they consume (photosynthesis).
- Roots take in water which contain dissolved minerals from the soil but they make their own food.
- Plants manufacture their own food by a process of photosynthesis: carbon dioxide is combined with water, using energy from sunlight by chloroplasts in the leaves. Some plants dissolve insects and small mammals to acquire minerals, e.g. venus fly trap.
- No animals rely on the food-making activities of plants.
- Dead animals and plants are decomposed by bacteria in the soil.

Learning Objectives

Pupils will have opportunities:

- To explore food chains and interdependence between plants and animals
- To explore and explain the process by which plants make their own food.

Quick review activities

- Labelling parts of a plant
- Match foods to animal
- Matching food chains pictures/symbols
- Watch a video on food chains and webs e.g. <http://www.youtube.com/watch?v=SWvtRf4TAO4>
- Watch video clip on energy in the ecosystem e.g. <http://www.youtube.com/watch?v=KGal4qAQbRg>

Vocabulary relevant to this topic

- Photosynthesis – how plants make food using sunlight, water and carbon dioxide
- Starch – food plants store
- Oxygen – gas given out by plants during photosynthesis / gas used in plant respiration
- Carbon dioxide – gas in air plants need to make food during photosynthesis / given out by plants during respiration
- Predator – animal that hunts and kills other animals for food
- Prey – animal killed by predator
- Producer – first living thing in a food chain
- Consumer – all animals and some plants, e.g. Venus fly trap - they eat other living things
- Carnivore – animal that eats other animals
- Herbivore – animal that eats only plants
- Omnivore – animal that eats plants and animals
- Food chain – series of living things, each of which is the food for next in line
- Food web – several food chains linked together
- Names of local minibeasts e.g. worms, snails
- Names of local habitats e.g. park, wood, field, seashore
- plant, animal, leaf, sun, water,

Background information about this topic

- Sunlight supplies energy constantly to the Earth and new supplies of other materials are not. This means that the energy living things need is passed along a chain in one direction and raw materials have to be recycled round the ecosystem. Plants trap energy in the form of food through photosynthesis and this energy is passed on to animals when they eat plants. All animals are consumers because they eat other plants and animals. This energy is used to keep animals warm, live and move.
- A food chain shows how energy is passed along from producers to consumers. Only about 10% of the energy 'eaten' becomes part of the animal and is passed onto the next animal in the food chain - most is lost as heat from the body. This is why the next animal in the chain has to eat more than one of the species below it and why food chains have a limited length- not usually more than 5 links. Animals tend to eat a varied diet so they are present in more than one food chain – hence food chains are linked together in a web. If one source of food dies out the animal has other options!
- A pyramid of numbers shows the number of organisms which can be supported at each level of a food chain. These layers are called trophic levels and they give the pyramid its shape because the number of organisms decreases at each level because the amount of energy available also decreases. Sometimes the 'pyramid' can be an odd shape because the producer can be a single organism like a tree.
- Many chemicals sprayed onto soil, ponds, rivers etc. to control pests can get into the food chain when the animal eats the plant. It may kill that particular animal, or if not, the next animal in the food chain collects more and more chemical which may be sufficient to kill it, e.g. DDT made the eggshells of some birds of prey very thin so that they were crushed when in the nest.
- Many organisms live by consuming the waste produced by other organisms and are called decomposers, e.g. bacteria, fungi. They, in turn, produce waste chemicals which are the chemicals plants need to grow and keep healthy. Like all living things, decomposers need the right conditions to live, e.g. moisture, warmth.

- Photosynthesis is the process that allows plants to make their food. A series of chemical reactions use sunlight to combine water and carbon dioxide to make glucose. The glucose is changed to starch because this is a better storage product as it is insoluble. Most of this takes place in the leaves inside chloroplasts.
- A large surface area helps the leaf trap as much sunlight as possible. Small holes in the leaf (stomata) allow gases to pass in and out. Leaves can be tested for starch using iodine which turns blue/black when starch is present. During the day oxygen is given out from the leaves and this can be shown using illuminated pond weed in water.
Plants also respire during the day as well as during the night - they use oxygen and release carbon dioxide when they break down carbohydrates to release energy. This happens day and night but during the day plants produce approximately 10 x more oxygen than they consume (photosynthesis).

Photosynthesis (uses energy):

carbon dioxide + water + sunlight --> glucose + oxygen

Respiration (releases energy):

glucose + oxygen --> carbon dioxide + water

Energy - living things P1-3

Objective 1: To explore food chains and interdependence between plants and animals

Descriptions of intended outcomes at different levels of attainment

- Encounters a selection of plants.
- Shows an emerging awareness of the activities
- Responds with increasing consistency to sensory based activities
- Gathers further sensory evidence by observing for a short but sustained period
- Explores materials in increasingly complex ways
- Initiates interactions and activities

Energy - living things P1-3

Objective 1: To explore food chains and interdependence between plants and animals

<p>Possible Activities:</p>	<p>Resources:</p>
<p>Read The Very Busy Spider Book or watch the clip at watch the clip at: https://www.youtube.com/watch?v=TfL0g-XRxnA</p>	<p>The Very Busy Spider book and resources e.g., hay , grass, thread, fan, sound effects</p>
<p>Optional activities you might like to try include:</p>	<p>Resources:</p>
<p>Using the Big Book: Where the Forest Meets the Sea by Jeannie Baker Read as a sensory story using props.</p>	<p>Where the Forest Meets the Sea and resources e.g. water to splash about, sound of motor running, screeching birds sounds,</p>
<p>Take Pupils to a sensory garden, garden centre or park to explore different types of plants</p>	

Points to Note:

Be aware of allergies e.g. hay fever

Ideas for plants for a sensory <https://schoolgardening.rhs.org.uk/resources/info-sheet/plants-for-a-sensory-garden>

Energy - living things

Objective 1: To explore food chains and interdependence between plants and animals

<p>Possible Activities:</p>	<p>Resources:</p>
<p>Experience a visit a farm or invite a mobile farm into school. Feel the different foods that the animals eat</p>	<p>Model farm animals, textures associated with the animals, farm animal food samples e.g. hay, straw, sugar beet, swedes, pelleted food, chicken food,</p>
<p>Optional activities you might like to try include:</p>	<p>Resources:</p>
<p>Experience a visit to a local pet shop and feel different food the animals eat</p>	<p>Pet foods to feel e.g. cuttle fish, millet, bird seed and fat balls, dog biscuits, dried dog food, carrots, hamster food etc</p>
<p>Experience a visit to a local zoo at feeding time or feed the ducks in the park or putting out bird feeders in the school grounds</p>	

Points to Note:

Be aware of allergies to animals

Be careful pupils do not try to eat animal food samples

Energy - living things P1-3

Objective 1: To explore food chains and interdependence between plants and animals

<p>Possible Activities:</p>	<p>Resources:</p>
<p>Grow plants such as lettuces, cress to feed to animals, e.g. rabbits, African snails, wormery. Which ones do they eat? Then create food chain display to link the sun-plant-animal e.g. sun- lettuce-rabbit; sun- lettuce- African snail etc</p>	<p>Seeds, plants, pots, soil etc Access to African snails and wormery String, pictures of plants and animals</p> <p>RV1: Internet access, IWB, speakers, photos of fly, spider, bird, cat, dog, goat, horse, washing line, pegs</p> <p>RV2: various bird feeders and foods</p>
<p>Optional activities you might like to try include:</p>	<p>Resources:</p>
<p>Read the Big Book; 'There was an Old Lady Who Swallowed a Fly' or listen to recording http://www.youtube.com/watch?v=8a13-JbxC98 and have photos of the different animals. Pupils create a food chain using photos e.g. pin on washing line. Talk about what is missing ? e.g. plants</p>	<p>Seeds, plants, pots, soil etc Access to African snails and wormery String, pictures of plants and animals</p> <p>RV1: Internet access, IWB, speakers, photos of fly, spider, bird, cat, dog, goat, horse, washing line, pegs</p> <p>RV2: various bird feeders and foods</p>
<p>Put out bird feeders in the school grounds or near classroom window and watch which birds come to feed and/ measure how quickly the food disappears.</p>	

Energy - living things P1-3

Objective 2: To explore and explain the process by which plants make their own food.

Descriptions of intended outcomes at different levels of attainment

- Allows themselves to be fully involved in the activities
- Gives intermittent reactions to the experiences
- Changes body language in a more sustained way during the activities
- Communicates consistent preferences e.g. to touching/ tasting vegetables
- Positively or negatively anticipates the experiences
- Actively explores and events for more extended periods

Energy - living things P1-3

Objective 2: To explore and explain the process by which plants make their own food.

<p>Possible Activities:</p>	<p>Resources:</p>
<p>Experience touching plants and then some that have been kept without water or light or warmth</p>	<p>Plants that have been kept in the dark, cold or without light for several days, healthy versions of the same plants</p>
<p>Optional activities you might like to try include:</p>	<p>Resources:</p>
<p>Experience watering plants in classroom or outside using different methods and not over watering e.g. sprayer, watering can.</p>	<p>Outside plants or inside plants, sprayers, hose pipe with different attachments, watering cans – large and small, jugs, seep hose</p>
<p>Experience touching ‘plants’ that other animals might eat e.g. hay, straw, grass, wheat plants, leaves maybe with holes in (caterpillar or slug damage), pine cones, nuts,</p>	

Energy - living things P1-3

Objective 2: To explore and explain the process by which plants make their own food.

<p>Possible Activities:</p>	<p>Resources:</p>
<p>Experience tasting/ touching some different parts of the plant e.g. carrot (roots), lettuce (leaves), celery (stem) and cauliflower (flower).</p>	<p>Selection of plants we eat e.g. carrot, potato, swede, celery, cauliflower, cabbage, lettuce</p>
<p>Optional activities you might like to try include:</p>	<p>Resources:</p>
<p>Experience tasting/ touching some of the parts of plants that have been cooked.</p>	<p>Cooked plant parts e.g. carrot, celery, cauliflower, potato, swede</p>
<p>Plan ahead to dig up some potatoes or other vegetables. These could be put in the ground just before the lesson or hidden in compost</p>	

Points to Note:

Be aware of food allergies

Energy - living things P1-3

Objective 2: To explore and explain the process by which plants make their own food.

<p>Possible Activities:</p>	<p>Resources:</p>
<p>Big question: What do plants need to grow? Place a plant e.g. a geranium or bean sprouts cutting on a sunny windowsill and one in dark cupboard and observe the growth of a plant after a week. Which plant grew the most? Why?</p> <p>Explore growing seeds e.g. using http://www.sparklebox.co.uk/thumbs751-755/sb752prev.html#.UpIHJ9K-2So . Let pupils explore what happens if the seeds are not watered or are kept in the cold.</p>	<p>Plants or bean sprouts, pots, light and dark places to put plants e.g. dark room or cupboard, camera, seeds to grow, compost, watering can, access to cold place</p>
<p>Optional activities you might like to try include:</p>	<p>Resources:</p>
<p>Take photos of grass before covering with different materials and then take photos every couple of days.</p> <p>Create a 2D or 3D model of photosynthesis using e.g. a plant, watering can, sugar cubes, balloons (inflated balloon for carbon dioxide and different colour for oxygen, sun,</p>	<p>Access to area of grass, black plastic bag, white plastic bags, newspaper, old towel, bricks, plant, watering can, sugar cubes, balloons of different colours, labels, large arrows made from card</p>
<p>Use plants with large leaves (inside or out) and cover part of some of the leaves with 2.5 cm square pieces of thick black paper stuck to leaves. Look at the colour of leaf after a few days.</p> <p>Read a sensory story about photosynthesis e.g. http://www.shortstories.net/fleur-and-the-photosynthesis/ and have appropriate props</p>	

Points to Note:

Bean sprout plants grow quickly and are inexpensive to use

Energy - living things P1-3

Objective 2: To explore and explain the process by which plants make their own food.

<p>Possible Activities:</p>	<p>Resources:</p>
<p>Observe the bubbles given off from pond weed (Elodea) placed in a clear container of water under a lamp. Compare with a similar container with no pondweed. Collect bubbles of gas and test for oxygen using a 'glowing splint'</p>	<p>Pondweed, beakers ,funnels boiling tubes, lamp Long matches/wooden splint</p>
<p>Optional activities you might like to try include:</p>	<p>Resources:</p>
<p>Explore watering plants with different amounts of water over a week or so. Some plants are given no water and some need to be very over-watered.</p>	<p>Lots of pots of the same plant e.g. beans or bean sprouts, water, containers to measure non standard amounts of water</p>
<p>Watch clip of photosynthesis set to music https://www.youtube.com/watch?v=LgYPeeABoUs https://www.youtube.com/watch?v=13zQJy0C-EI Role play the process of photosynthesis</p>	

Points to Note:

Pupils often get confused by oxygen given off during photosynthesis and oxygen taken in for respiration.

Energy - living things P4-6

Objective 1: To explore food chains and interdependence between plants and animals

Descriptions of intended outcomes at different levels of attainment

- Explores using any sensory mode and vocalisation
- Imitates actions
- Anticipates activities and takes turns
- Responds to simple scientific questions e.g. can you show me a food a dog eats?
- Begins to make connections e.g.in food chains
- Responds to simple scientific questions that require a more detailed response than P5 e.g. can you tell me which animals eat these foods?

Possible Activities:	Resources:
Grow plants such as lettuces, cress to feed to animals, e.g. rabbits, African snails, wormery. Then create food chain display to link the sun-plant-animal e.g. sun- lettuce-rabbit; sun- lettuce- African snail etc	Seeds, plants, pots, soil etc Access to African snails and wormery String, pictures of plants and animals

Energy - living things P4-6

Objective 1: To explore food chains and interdependence between plants and animals

Optional activities you might like to try include:	Resources:
<p>Read the Big Book; 'There was an Old Lady Who Swallowed a Fly' or listen to recording http://www.youtube.com/watch?v=8a13-JbxC98 and have photos of the different animals. Can pupils begin to pin the photos in order on a washing line Put out bird feeders in the school grounds or near classroom window and watch which birds come to feed and/ or how quickly the food disappears. Possibly set up a video link ?</p>	<p>Internet access, IWB, speakers, photos of fly, spider, bird, cat, dog, goat, horse, washing line, pegs, various bird feeders and food</p>
<p>Bring a picture of a family pet into school and match foods/pictures of food to the correct animals</p> <p>Create a tactile picture of an environment that can be used to show a simple food chain e.g. a farm with fields, sun, sheep, chickens . Mimic the stages in a simple food chain.</p>	

Points to Note:

Pupils may not be aware that animals eat different foods

Be aware of allergies to animals

Be careful pupils do not try to eat animal food samples

This is an opportunity to talk about treating living things with care

Energy - living things P4-6

Objective 2: To explore and explain the process by which plants make their own food.

Descriptions of intended outcomes at different levels of attainment

- Communicates awareness of some obvious changes
- Follows a simple procedure with step by step support
- Completes a simple task with guidance
- Indicates the before and after of changes in plants
- Engages in experimentation using familiar equipment
- Makes sensory based comparisons with support

Energy - living things P4-6

Objective 2: To explore and explain the process by which plants make their own food.

<p>Possible Activities:</p>	<p>Resources:</p>
<p>Pupils to be given a selection of very different leaves from the local environment and go and find/match them to ones on a living tree or plant. Point out how thin, flat and generally green leaves are</p> <p>Show clip http://www.bbc.co.uk/learningzone/clips/photosynthesis-in-plants/67.html. Explore sitting under trees and notice how some light is stopped.</p>	<p>Selection of locally found leaves with obvious differences,</p>
<p>Optional activities you might like to try include:</p>	<p>Resources:</p>
<p>Explore watering plants with different amounts of water over a week or so. Some plants are given no water and some need to be very over-watered. Take photos at the start and end or each day.</p>	<p>Lots of pots of the same plant e.g. beans or bean sprouts, water,</p>
<p>Place white carnations, other white flowers and celery into a vase with different coloured water and observe the change of colour to the petals over a week. Take photos regularly</p>	

Objective 1: To explore food chains and interdependence between plants and animals

Descriptions of intended outcomes at different levels of attainment

- Makes a simple recording of their findings
- Communicates related ideas and observations using simple phrases or signs
- Begins to ask some of their own questions e.g. about food chains
- Begins to construct simple food chains

Possible Activities:	Resources:
<p>Pupils carry out a card sort activity with pictures of familiar animals and plants. Pupils to match 'What eats What?' e.g. fox/ chicken, birds/worms, frogs/flyies. Introduce vocabulary as appropriate e.g. carnivore and herbivore or hunter and hunted or consumer and producer</p> <p>Show simple videos of food chains e.g. http://www.turtlediary.com/kids-videos/food-chain.html</p> <p>And then make a simple food chain using physical resources to show Sun –plant- rabbit- fox (or other example with very familiar organisms). Help pupils place large paper arrows to show energy flowing along and also being lost.</p>	<p>Pictures of plants and animals Picture of a sun and a large torch, plant, toy rabbit, picture of fox, large arrows to represent energy</p>

Energy - living things P7-8

Objective 1: To explore food chains and interdependence between plants and animals

Optional activities you might like to try include:	Resources:
<p>Tell pupils what animal they are i.e. predators. Cut out pictures/symbols of the different associated types of prey and hide them around the class/ outside space. Pupils to find their prey in a given time. Those Pupils who do not find their allocated prey to sit in a 'Hungry Corner'. Talk about what happens if they can't find any prey</p>	<p>Sticky labels with name/symbol and picture of different types of predator e.g. Fox, Human, Wolf, Frog, Seal and different examples of prey e.g. chickens, sheep, cow, fish, goat, insects,</p>
<p>Play the predator – prey game http://www.forestry.gov.uk/pdf/WyreFOD_life-in-the-woods-acc.pdf/\$file/WyreFOD_life-in-the-woods-acc.pdf</p>	

Objective 2: To explore and explain the process by which plants make their own food.

Descriptions of intended outcomes at different levels of attainment

- Makes a connection between the start and end of a test
- Makes a simple record of their findings.
- Records results simply with adult support
- Begins to use non standard measures with help to record results

Possible Activities:	Resources:
<p>Draw pictures/ take photos of plants before and after being placed in a dark room. Match words e.g. yellow leaves, green leaves, long stems, short stems to pictures of plants before and after being grown in the dark</p> <p>Explore what happens when white carnations, other white flowers and celery into a vase with different coloured water and observe the change of colour to the petals over a week. Take photos regularly</p>	<p>Dark room or cupboard</p> <p>Any small seedlings, e.g. rapid-cycling Brassica rapa (fast plants), Sinapis alba (white mustard), Raphanus sativus (radish), labels or symbols to attach to the plants, white carnations , white flowers, celery, water, red ink, blue ink, green ink</p>

Energy - living things P7-8

Objective 2: To explore and explain the process by which plants make their own food.

Optional activities you might like to try include:	Resources:
<p>Grow runner beans in plastic beaker son the windowsill and in a cupboard, to show healthy growth in sunlight.</p> <p>Explore the effect of stopping light reaching parts of the leaf e.g. use plants with large leaves (inside or out) and cover part of some of the leaves with 2.5 cm square pieces of thick black paper stuck to leaves. Look at the colour of leaf after a few days.</p>	<p>Runner beans seeds, compost, plastic beakers, water, Access to plants with large leaves or pot plants with large leaves, sellotape, thick black paper, scissors,</p>
<p>Pupils to be given a selection of different leaves from the local environment and try to match them to ones on a living tree or plant. Shine light on to branches of leaves to show how they overlap to 'catch' as much light as possible.</p> <p>Show clip http://www.bbc.co.uk/learningzone/clips/photosynthesis-in-plants/67.html. Explore sitting under trees and notice how some light is stopped.</p>	

Points to Note:

Pupils may think that plants do not grow in the dark.

Stems of plants grown in the dark will be long and yellow.

Energy - living things L1-3

Objective 1: To explore food chains and interdependence between plants and animals

Descriptions of intended outcomes at different levels of attainment

- Asks simple questions stimulated by their exploration of food chains
- Records a simple food chain with help
- Uses everyday words to describe food chains, webs and the effect of chemicals on them
- Draws on their observations and ideas to offer answers to questions about food chains and webs
- Presents evidence in an ordered way e.g. making food chains and webs
- Uses simple scientific vocabulary to describe food chains and webs
- Records a simple food chain independently
- Describes how a simple food chain is constructed
- Identifies and names animals that eat other animals in a food web.

Energy - living things L1-3

Objective 1: To explore food chains and interdependence between plants and animals

Possible Activities:	Resources:
<p>Ask pupils to match foods to animals and then to see if they can link any together. E.g. might link rabbit to grass and fox to rabbit so they can join to make grass-rabbit- fox. Label for age of pupils e.g. organisms as appropriate herbivores, carnivores, omnivores, consumer, producer</p> <p>Show simple videos of food chains e.g. http://www.turtlediary.com/kids-videos/food-chain.html</p> <p>Pupils could be labelled with tabards and role play different organisms in a simple, familiar food chains e.g. sun-grass-cow-humans. Emphasise the sun as source of all energy.</p> <p>Show pupils some food chains where the same animals have different food sources. Then construct a simple food web using pictures or symbols of organisms and lengths of string to connect organisms in the food chain. Talk about why it is good to have more than one source of food.</p> <p>If appropriate introduce pupils to pyramids of numbers. Can they explain why a food chain generally has about 3-5 links?</p>	<p>Plant and animal pictures that will link together e.g. grass, rabbit, fox, chicken food, chicken, human, hay, sheep, cows, bird seed, bird, cat, tabards with labels of different plants and animals on, pictures of the sun, plants and animals String, IWB, speakers, internet access,</p>

Objective 1: To explore food chains and interdependence between plants and animals

Optional activities you might like to try include:	Resources:
<p>Discuss what would happen if something in a food chain died out for some reason. Use pupils to form a chain and then remove one 'organism'. Construct a simple food web and again remove an animal. Is the effect the same? How might this explain why some animals have become extinct?</p> <p>Show a different video about food chains http://www.youtube.com/watch?v=Cd1M9xD482s or http://www.brainpop.com/science/ecologyandbehavior/foodchains/</p> <p>Give pupils information about some lesser known organisms to create a marine or jungle food chain.</p>	<p>Cards to make food chains and webs, string, secondary sources detailing what less familiar animals eat, cards to write plant and animal names on</p>
<p>Roleplay of predator and prey in a food web and create a video of their play.</p> <p>Present pupils with some examples of food webs and ask them to find as many different food chains as possible</p> <p>Research about some of the problems when pesticides or other chemicals get into the food chain. Roleplay this using blocksto represent an amount of pesticides so that pupils can see how this gets concentrate in a food chain.</p> <p>Extinct animals e.g. dodo, dinosaurs</p>	

Energy - living things L1-3

Objective 1: To explore food chains and interdependence between plants and animals

Points to Note:

Pupils may think:

- a) that organisms respond to changes in the environment by finding a different environment
- b) that energy is created and destroyed by living things
- c) arrows in food chains shows 'what eats what'
- d) the top animal in a food chain gets all the energy from the organisms below
- e) an animal high up in the food web preys on all the organisms below them.

Some animals became extinct through over hunting e.g. Dodo, others became extinct because of changes in the environment (which may or may not be due to humans)

Energy - living things L1-3

Objective 2: To explore and explain the process by which plants make their own food.

Descriptions of intended outcomes at different levels of attainment

- Presents evidence in simple templates provided for them
- Shows an understanding of comparative language e.g. more, less, greener
- Makes comparisons between the basic features of living things
- Says what happened in their experiments
- Presents their ideas and evidence in appropriate ways
- Identifies what their results show and any patterns in the result
- Says what they are changing or keeping the same to make a fair test
- Suggests how to improve their investigation

Possible Activities:	Resources:
<p>Tell an adapted story of ‘A Tree is Like a Hungry Kid’ by Mikki Sadil: https://www.superteacherworksheets.com/reading-comp/4th-photosynthesis_WMTFZ.pdf</p> <p>Plan and carry out a range of investigations to find out for example: what happens to plants grown in the dark and in the light, with and without water, with lots of air and limited amount of air (e.g. plant placed in a plastic bag). Pupils make records of their results.</p>	<p>Book: ‘A tree is like a Hungry Kid’, pots of seedlings, plastic bags, rubber bands, watering can, access to dark cupboard, Cards with key words Literacy software</p>

Energy - living things L1-3

Objective 2: To explore and explain the process by which plants make their own food.

Optional activities you might like to try include:	Resources:
<p>Compare the bubbles given off from pond weed (Elodea) placed in a clear container of water under a lamp. Compare with a similar container with no pondweed. Collect bubbles of gas and test for oxygen using a 'glowing splint'. Try different colours of light.</p> <p>Watch a suitable video clip on photosynthesis e.g. http://www.youtube.com/watch?v=eo5XndJaz-Y or http://www.youtube.com/watch?v=hHaw22XxM4s</p> <p>Play Photosynthesis bingo: http://edubakery.com/Bingo-Cards/photosynthesis-v1-Bingo-Cards or adapt so that pupils have to collect all the basic ingredients to make starch in a leaf.</p>	<p>IWB, speakers, internet access, bingo cards, pond weed, lamps, coloured filters, beakers, funnels, boiling tubes, splints, matches,</p>
<p>Carry out a starch test on a leaf from a plant that has been placed in sunlight. Repeat with a leaf from a plant that has been placed in the dark. Pupils draw pictures of leaves showing the difference.</p> <p>Create a collage/poster of photosynthesis</p> <p>Investigate phototropism e.g. http://herbarium.desu.edu/pfk/page11/page12/page13/page13.html or http://www.ehow.com/info_8724501_phototropism-experiments.html</p>	



Energy - living things L1-3



Objective 2: To explore and explain the process by which plants make their own food.

Points to Note:

Pupils may think that plants get their food from the soil

http://www.ehow.com/list_7251848_biology-projects-photosynthesis.html gives details on the pondweed experiments