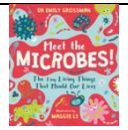
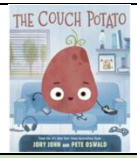
NEW SILKSWORTH ACADEMY
ALLIANCE · AMBITION · ACHIEVEMENT

Year 2 Science Overview
Animals Including Humans

Substantive Knowledge	Disciplinary Knowledge
• Notice that animals, including humans, have offspring which grow into adults. • Find out about and describe the basic needs of animals, including humans, for survival (water, food and air). • Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.	

Prior Learning	Next Steps
• Identify and name a variety of common animals that are carnivores, herbivores and omnivores. (Y1 - Animals, including humans) • Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. (Y1 - Animals, including humans)	• Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat. (Y3 - Animals, including humans) • Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. (Y5 - Living things and their habitats) • Describe the life process of reproduction in some plants and animals. (Y5 - Living things and their habitats) • Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. (Y6 - Animals, including humans)

Sequence of learning	Session 1 How do Animals change as they grow?	Session 2 What is a lifecycle?	Session 3 How do humans change as they grow?	Session 4 What do I need to survive?	Session 6 How clean are my hands?	Session 7 Why is exercise important?	Session 8 Which foods keep us healthy?	Session 9 How quickly can germs spread?	Session 10 Why is soap important?
Substantive Knowledge	Notice that animals, including humans, have offspring which grow into adults.	Notice that animals, including humans, have offspring which grow into adults.	Notice that humans, have offspring which grow into adults.	Find out about and describe the basic needs of animals, including humans, for survival (water, food and air).	Describe the importance for humans of hygiene.	Describe the importance for humans of exercise.	Describe the importance for humans of eating the right amounts of different types of food.	Describe the importance for humans of hygiene.	Describe the importance for humans of hygiene.
Disciplinary Knowledge									
Enrichment									

Common Misconceptions:	Vocabulary
Some children may think: an animal's habitat is like its 'home'. all animals that live in the sea are fish. respiration is breathing. breathing is respiration.	Offspring, reproduction, growth, child, young/old stages (examples - chick/hen, baby/child/adult, caterpillar/butterfly), exercise, heartbeat, breathing, hygiene, germs, disease, food types (examples – meat, fish, vegetables, bread, rice, pasta)

What pupils need to show to be secure:	
Show understanding of a concept using scientific vocabulary.	**Application of Knowledge**
Key Learning: Animals, including humans, have offspring which grow into adults. In humans and some animals, these offspring will be young, such as babies or kittens, that grow into adults. In other animals, such as chickens or insects, there may be eggs laid that hatch to young or other stages which then grow to adults. The young of some animals do not look like their parents e.g. tadpoles.	Ask people questions and use secondary sources to find out about the life cycles of some animals. Observe animals growing over a period of time e.g. chicks, caterpillars, a baby. Ask questions of a parent about how they look after their baby. Ask pet owners questions about how they look after their pet. Explore the effect of exercise on their bodies.

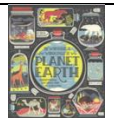
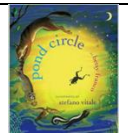
All animals, including humans, have the basic needs of feeding, drinking and breathing that must be satisfied in order to survive. To grow into healthy adults, they also need the right amounts and types of food and exercise. Good hygiene is also important in preventing infections and illnesses.	Classify food in a range of ways, including using the Eatwell Guide. Investigate washing hands, using glitter gel.
Possible Evidence:	
Can describe how animals, including humans, have offspring which grow into adults, using the appropriate names for the stages Can state the basic needs of animals, including humans, for survival Can state the importance for humans of exercise, eating the right amounts of different types of food, and hygiene Can name foods in each section of the Eatwell Guide	Can describe, including using diagrams, the life cycle of some animals, including humans, and their growth to adults e.g. by creating a life cycle book for a younger child Can measure/observe how animals, including humans, grow. Show what they know about looking after a baby/animal by creating a parenting/pet owners' guide Explain how development and health might be affected by differing conditions and needs being met/not met

NEW SILKSWORTH ACADEMY
ALLIANCE · AMBITION · ACHIEVEMENT

Year 2 Science Overview
Living Things and Their Habitats

Substantive Knowledge	Disciplinary Knowledge
• Explore and compare the differences between things that are living, dead, and things that have never been alive. • Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other. • Identify and name a variety of plants and animals in their habitats, including micro-habitats. • Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.	

Prior Learning -EYFS	Next Steps -Year 2
• Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. (Y1 - Plants) • Identify and describe the basic structure of a variety of common flowering plants, including trees. (Y1 - Plants) • Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. (Y1 - Animals including humans) • Identify and name a variety of common animals that are carnivores, herbivores and omnivores. (Y1 - Animals including humans) • Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). (Y1 – Animals, including humans) • Observe changes across the four seasons. (Y1 - Seasonal changes)	• Recognise that living things can be grouped in a variety of ways. (Y4 - Living things and their habitats) • Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. (Y4 - Living things and their habitats) • Recognise that environments can change and that this can sometimes pose dangers to living things. (Y4 - Living things and their habitats) • Construct and interpret a variety of food chains, identifying producers, predators and prey. (Y4 - Animals, including humans)

Sequence of learning	Session 1 Is it living, dead or never been alive?	Session 2 What is a biome?	Session 3 What lives in our local habitat?	Session 4 What are world habitats like?	Session 5 What is a micro habitat?	Session 6 What is a food chain?	Session 7 Polar Scientists	Session 8 What is happening to our polar habitats?
Substantive Knowledge								
Disciplinary Knowledge								
Enrichment							Careers Week	BSW

Common Misconceptions:	Vocabulary
Some children may think: • an animal's habitat is like its 'home' • plants and seeds are not alive as they cannot be seen to move • fire is living • arrows in a food chain mean 'eats'.	• Living, dead, never been alive, suited, suitable, basic needs, food, food chain, shelter, move, feed • Names of local habitats e.g. pond, woodland etc. • Names of micro-habitats e.g. under logs, in bushes etc. •

What pupils need to show to be secure:	
Show understanding of a concept using scientific vocabulary.	**Application of Knowledge**
Key Learning: All objects are either living, dead or have never been alive. Living things are plants (including seeds) and animals. Dead things include dead animals and plants and parts of plants and animals that are no longer attached e.g. leaves and twigs, shells, fur, hair and feathers (This is a simplification, but appropriate for Year 2 children.) An object made of wood is classed as dead. Objects made of rock, metal and plastic have never been alive (again ignoring that plastics are made of fossil fuels). Animals and plants live in a habitat to which they are suited, which means that animals have suitable features that help them move and find food and plants have suitable features that help them to grow well. The habitat provides the basic needs of the animals and plants – shelter, food and water. Within a habitat there are different micro-habitats e.g. in a woodland – in the leaf litter, on the bark of trees, on the leaves. These micro-habitats have different conditions e.g. light or dark, damp or dry. These conditions affect which plants and animals live there. The plants and animals in a habitat depend on each other for food and shelter etc. The way that animals obtain their food from plants and other animals can be shown in a food chain.	Explore the outside environment regularly to find objects that are living, dead and have never lived. Classify objects found in the local environment. Observe animals and plants carefully, drawing and labelling diagrams. Create simple food chains for a familiar local habitat from first-hand observation and research. Create simple food chains from information given e.g. in picture books (Gruffalo etc).
Possible Evidence:	
Can find a range of items outside that are living, dead and never lived Can name a range of animals and plants that live in a habitat and micro-habitats that they have studied. Can talk about how the features of these animals and plants make them suitable to the habitat Can talk about what the animals eat in a habitat and how the plants provide shelter for them. Can construct a food chain that starts with a plant and has the arrows pointing in the correct direction.	Can sort into living, dead and never lived Can give key features that mean the animal or plant is suited to its micro-habitat Using a food chain can explain what animals eat Can explain in simple terms why an animal or plant is suited to a habitat e.g. the caterpillar cannot live under the soil like a worm as it needs fresh leaves to eat; the seaweed we found on the beach cannot live in our pond because it is not salty

Year 2 Science Overview

Plants

Substantive Knowledge	Disciplinary Knowledge
Observe and describe how seeds and bulbs grow into mature plants. Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.	

Prior Learning -EYFS	Next Steps
• Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. (Y1 - Plants) • Identify and describe the basic structure of a variety of common flowering plants, including trees. (Y1 - Plants)	• Observe and describe how seeds and bulbs grow into mature plants. (Y2 - Plants) • Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. (Y2 - Plants) • Identify and name a variety of plants and animals in their habitats, including microhabitats. (Y2 - Living things and their habitats) • Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. (Y3 - Plants) • Investigate the way in which water is transported within plants. (Y3 Plants)

Sequence of learning	Session 1 Can I grow a plant anywhere?	Session 2 What is the life cycle of a plant?	Session 3 Can I grow new plants from seeds?	Session 4 What do plants need to stay healthy?
Substantive Knowledge				
Disciplinary Knowledge				
Enrichment				

Common Misconceptions:	Vocabulary
Some children may think: plants are not alive as they cannot be seen to move seeds are not alive all plants start out as seeds seeds and bulbs need sunlight to germinate.	As for Year 1 plus light, shade, sun, warm, cool, water, grow, healthy

What pupils need to show to be secure:	
Show understanding of a concept using scientific vocabulary.	**Application of Knowledge**
Key Learning: Plants may grow from either seeds or bulbs. These then germinate and grow into seedlings which then continue to grow into mature plants. These mature plants may have flowers which then develop into seeds, berries, fruits etc. Seeds and bulbs need to be planted outside at particular times of year and they will germinate and grow at different rates. Some plants are better suited to growing in full sun and some grow better in partial or full shade. Plants also need different amounts of water and space to grow well and stay healthy.	Make close observations of seeds and bulbs. Classify seeds and bulbs. Research and plan when and how to plant a range of seeds and bulbs. Look after the plants as they grow – weeding, thinning, watering etc. Make close observations and measurements of their plants growing from seeds and bulbs. Make comparisons between plants as they grow.
Possible Evidence:	
Can describe how plants that they have grown from seeds and bulbs have developed over time Can identify plants that grew well in different conditions.	Can spot similarities and difference between bulbs and seeds. Can nurture seeds and bulbs into mature plants identifying the different requirements of different plants.

Year 2 Science Overview
Materials

Substantive Knowledge	Disciplinary Knowledge
• Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. • Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.	

Prior Learning	Next Steps
• Distinguish between an object and the material from which it is made. (Y1 - Everyday materials) • Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. (Y1 - Everyday materials) • Describe the simple physical properties of a variety of everyday materials. (Y1 - Everyday materials) • Compare and group together a variety of everyday materials on the basis of their simple physical properties. (Y1 - Everyday materials)	• Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. (Y3 - Rocks) • Notice that some forces need contact between two objects, but magnetic forces can act at a distance. (Y3 - Forces and magnets) • Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets. (Y5 - Properties and changes of materials) • Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. (Y5 - Properties and changes of materials)

Sequence of learning	Session 1 What are materials used for?	Session 2 How are materials used in and around school?	Session 3 How can materials change shape?	Session 4 How suitable is a material?	Session 5 Why recycle?	Session 6 - BSW Who is John McAdam?
Substantive Knowledge		.				
Disciplinary Knowledge						
Enrichment						

Common Misconceptions:	Vocabulary
Some children may think: only four-legged mammals, such as pets, are animals. humans are not animals. insects are not animals. all 'bugs' or 'creepy crawlies', such as spiders, are part of the insect group. amphibians and reptiles are the same.	Names of materials – wood, metal, plastic, glass, brick, rock, paper, cardboard Properties of materials – as for Year 1 plus opaque, transparent and translucent, reflective, non-reflective, flexible, rigid Shape, push/pushing, pull/pulling, twist/twisting, squash/squashing, bend/bending, stretch/stretching

What pupils need to show to be secure:	
Show understanding of a concept using scientific vocabulary.	**Application of Knowledge**
Key Learning: All objects are made of one or more materials that are chosen specifically because they have suitable properties for the task. For example, a water bottle is made of plastic because it is transparent allowing you to see the drink inside and waterproof so that it holds the water. When	Make first-hand, close observations of animals from each of the groups. Compare two animals from the same or different groups. Classify animals using a range of features. Identify animals by matching them to named images.

choosing what to make an object from, the properties needed are compared with the properties of the possible materials, identified through simple tests and classifying activities. A material can be suitable for different purposes and an object can be made of different materials. Objects made of some materials can be changed in shape by bending, stretching, squashing and twisting. For example, clay can be shaped by squashing, stretching, rolling, pressing etc. This can be a property of the material or depend on how the material has been processed e.g. thickness.	Classify animals according to what they eat. Make first-hand close observations of parts of the body e.g. hands, eyes. Compare two people. Take measurements of parts of their body. Compare parts of their own body. Look for patterns between people e.g. Do people with big hands have big feet? Classify people according to their features. Investigate human senses e.g. Which part of my body is good for feeling, which is not? Which food/flavours can I identify by taste? Which smells can I match?
Possible Evidence:	
Can name an object, say what material it is made from, identify its properties and make a link between the properties and a particular use Can label a picture or diagram of an object made from different materials For a given object can identify what properties a suitable material needs to have Whilst changing the shape of an object can describe the action used Can use the words flexible and/or stretchy to describe materials that can be changed in shape and stiff and/or rigid for those that cannot Can recognise that a material may come in different forms which have different properties	Can sort materials using a range of properties Can explain using the key properties why a material is suitable or not suitable for a purpose Can begin to choose an appropriate method for testing a material for a particular property Can use their test evidence to select appropriate material for a purpose e.g. Which material is the best for a rain hat?