

# Hanslope Primary School

## Science Knowledge Organiser

### Year One – Animals including Humans

#### How does this link to my previous learning?

- Which body part is associated with each sense
- Names of some parts of the body

#### What key vocabulary will I learn:

Key Vocabulary	
<b>sight</b>	Your eyes let you see all the things around you.
<b>hearing</b>	Your ears let you listen to all the things around you. Your brain is able to tell what different sounds are.
<b>touch</b>	Your skin gives you the sense of touch. You can tell if something is warm, cold, smooth or rough without even looking at it!
<b>taste</b>	Your sense of taste comes from your tongue. You can tell if something tastes bitter or sweet. You might have some tastes you like and some you don't.
<b>smell</b>	You smell using your nose. Your nose can tell if things smell nice or not nice.

#### National Curriculum Links:

- Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.

#### How does this link to my future learning?

- Find out about and describe the basic needs of animals, including humans, for survival (water, food and air)

#### What will I know by the end of this unit:

- Sight - Eyes help humans and most animals to see
- Hearing - Ears help humans and most animals to hear
- Smell - Noses help humans and most animals to smell
- Taste - Tongues help humans and most animals to taste
- Touch – Skin helps humans and most animals to feel

Brains helps humans and animals to think.



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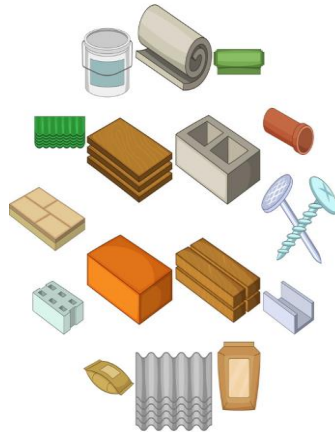
### Year Two – Everyday materials – properties and uses

#### How does this link to my previous learning?

- Distinguish between an object and the material from which it is made
- Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock
- Describe the simple physical properties of a variety of everyday materials

#### What key vocabulary will I learn:

Suitable/unsuitable, use, object, material, property, wood, plastic, glass, metal, water, rock, fabrics, hard, soft, stretchy, flexible, waterproof, absorbent, transparent, translucent, opaque, shape, change, twist, squash, bend, stretch, roll, squeeze



#### National Curriculum Links:

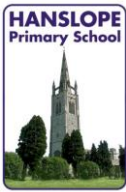
- Identify and compare the suitability of a variety of everyday materials, for particular uses
- Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.

#### How does this link to my future learning?

- Compare and group together everyday materials on the basis of their properties
- Use knowledge of solids, liquids and gases to decide how mixtures might be separated
- Demonstrate that dissolving, mixing and changes of state are reversible changes

#### What will I know by the end of this unit:

Properties of Materials			
Material	Image	Properties	What could it be used for?
<b>Metal</b>		-Metals are often strong, shiny, hard and long-lasting. -Metals can be hammered into different shapes.	-Metals can be made into things like pots and pans. -Metals can be stretched into wires and rods.
<b>Glass</b>		-Glass can be strong, but thin glass shatters. -Glass is transparent and waterproof. It can be made into different shapes.	-Glass is most often used to make windows and glasses. -It is also used in making mirrors, table-tops and windscreens.
<b>Wood</b>		-Wood is hard and strong. -Wood is long-lasting and is a natural product. -Wood is flammable.	-Wood is often used to build furniture, like benches and desks. -Wood can be used to build houses and cabins.
<b>Plastic</b>		-Plastics can be tough or flexible and can be made into any shape. Plastics can be dyed different colours and can be made transparent.	-Plastics can be used to make packaging, bottles and toys. -Plastics can be moulded into plates, knives and forks.
<b>Rubber</b>		-Rubber is extremely tough, but also very flexible. -Rubber is elastic and also waterproof. Rubber doesn't tear easily.	-Not including food and drinks, water is still used in many, many products. For example, it is used in making paints, toothpastes, shampoos and cement.
<b>Brick</b>		-Bricks are very hard and strong. They are difficult to break. Bricks are thick and store heat well.	-Bricks are normally attached together with mortar and are used to make buildings. -They are also used for paving.
<b>Paper</b>		-Paper is often thin and can be made into lots of different shapes. Paper can be torn. It goes soggy when wet.	-Paper is normally used for writing. Paper is used in diaries, notebooks and for printing on. Paper is used for posters/displays.
<b>Cardboard</b>		-Cardboard is often thin but is firmer and tougher than paper. Cardboard is more difficult to tear. It goes soggy when wet.	-Cardboard is often turned into boxes and is then used for packaging items. It can be used for protection, e.g. protecting floors when painting.



# Hanslope Primary School

## Science Knowledge Organiser

### Year Three – Animals including Humans

#### How does this link to my previous learning?

- 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.

#### What key vocabulary will I learn:

Unlike plants, animals cannot create their own food. They get **nutrition** from what they eat.

This is because animals do not have **chlorophyll**, or **chloroplasts** in their cells, like plants do.

Therefore, plants are called producers and animals are called **consumers**.

The different nutrients that animals get depends on their diet. For example, a cheetah gets lots of **protein** in its diet because it is a **carnivore** (eats meat).

A **vertebrate** has a backbone inside their body, an **invertebrate** does not.

#### National Curriculum Links:

- 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
- Identify that humans and some other animals have skeletons and muscles for support, protection and movement.

#### How does this link to my future learning?

- Describe the simple functions of the basic parts of the digestive system in humans
- Identify the different types of teeth in humans and their simple functions
- Construct and interpret a variety of food chains, identifying producers, predators and prey.

#### What will I know by the end of this unit:

##### **Skeleton**

Humans (and many other animals) have a system of bones called a *skeleton*. Skeletons help to *support* your body – they give it its shape.

Skeletons are also important for *movement*. Muscles are attached to bones.

Finally, skeletons help to *protect* important parts of the body. E.g. the ribs protect the heart and lungs.

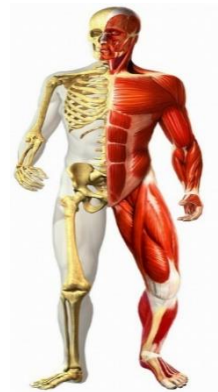
##### **Muscular System**

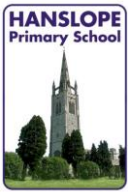
Humans (and many other animals) also have a *system of muscles in their bodies*.

The main purpose of muscles is for *movement*. As they contract, muscles move parts of the body around.

Muscles are also important for maintaining *posture*, helping humans/ animals to sit, stand, and walk.

Some muscles (e.g. the heart) move by themselves – they are *involuntary*.





# **Hanslope Primary School**

## **Science Knowledge Organiser**

### **Year Four**

**Year 4 will be focussing on the skills of working scientifically this term rather than a set topic in science.**

**The skills they are focussing on can be found in the *Working Scientifically* document.**

# Hanslope Primary School

## Science Knowledge Organiser

### Year Five – Living Things and their Habitats

#### How does this link to my previous learning?

- Recognise that living things can be grouped in a variety of ways
- Explore and use classification keys to help group, identify and name a variety of living things.
- Recognise that environments can change and that this can sometimes pose dangers to living things.

#### What will I know about plants by the end of this unit:

**Plants are able to reproduce in two ways – sexual reproduction and asexual reproduction**

Sexual reproduction in plants is cyclical, following this process:

1. Germination – The plant begins to grow from a seed. Roots form under the soil and stem, leaves and flower shoots above the surface.
2. Pollination – Pollen produced by the flower is carried by insects or blown by the wind to another flower.
3. Fertilisation – The pollen reaches another flower and makes its way to the ovary, where it is fertilised.
4. Dispersal – The seeds are scattered by animals or the wind.

Asexual reproduction involves plants producing an identical copy of themselves.

This can happen in a number of different ways. Some plants are able to produce bulbs (e.g. daffodils and snowdrops). Others, like potatoes produce tubers. Tubers lie below the soil, and grow into plants the next year.



#### National Curriculum Links:



- Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird
- Describe the life process of reproduction in some plants and animals.

#### How does this link to my future learning?

- Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences.
- Give reasons for classifying plants and animals based on specific characteristics.

#### What will I know about animals by the end of this unit:

**A life cycle is the series of changes that an animal goes through in its life, including reproduction.**

<u>Mammals</u>	<u>Amphibians</u>	<u>Insects</u>	<u>Birds</u>
<p>Mammals have a 3-stage life cycle:</p> <p>Stage 1: The gestation period - the embryo grows inside the mother &amp; is dependent on her.</p> <p>Stage 2: The young mammal grows and develops independence.</p> <p>Stage 3: Adult mates in order to reproduce.</p> 	<p>Many amphibians have a 5-stage life cycle:</p> <p>Stage 1: Female lays eggs, fertilized by the male.</p> <p>Stage 2: Tadpole breathes in water through gills.</p> <p>Stage 3: Grows fins and develops lungs.</p> <p>Stage 4: Tadpole grows front legs. Jumps from water onto land.</p> <p>Stage 5: Starts to eat insects/plants. Takes 2-4 years to become adult.</p>	<p>Most insects undergo metamorphosis and have a life cycle of 4 stages:</p> <p>Stage 1: Eggs laid by female insect.</p> <p>Stage 2: Eggs hatch into larva, e.g. caterpillars, maggots, grubs.</p> <p>Stage 4: The pupa (hard coating) is formed. Inside this, the larva transforms.</p> <p>Stage 5: The adult breaks out of the pupa and matures.</p>	<p>Birds have a 3-stage life cycle:</p> <p>Stage 1: Eggs laid by the mother. Parents care for the egg until hatching.</p> <p>Stage 2: Mother and father feed the bird until it is independent.</p> <p>Stage 3: Adult mates in order to reproduce.</p> 

# Hanslope Primary School

## Science Knowledge Organiser

### Year Six – Living Things and their Habitats

#### How does this link to my previous learning?

- Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird
- Describe the life process of reproduction in some plants and animals.


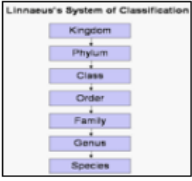
#### What key vocabulary will I learn:

Classification of Animals			
M-R-S G-R-E-N			
You can remember the seven features of living things by using the acronym MRS GREN (Movement, Respiration, Sensitivity, Growth, Reproduction, Excretion and Nutrition).			
<b>Mammals</b> -Mammals are warm-blooded. -They often have hair/fur on their bodies. -Mammals give birth to live young. -Mammals often drink milk from their mothers.	Bears, Lions, Dogs, Cats, Rabbits, Squirrels, Whales, Monkeys, Horses, Cows, Pigs, Sheep, Tigers, Humans.	<b>Snails</b> -Snails have shells. -They have a large muscular foot, which secretes mucus. -Their stomach is directly above their muscular foot. -Most snails live underwater.	Garden Snail, Scutalus, Giant African Land Snail.
<b>Reptiles</b> -Reptiles are cold-blooded. -They normally lay eggs (but some don't). -Reptiles have scales or <b>scutes</b> .	Crocodiles, Lizards, Turtles, Chameleons, Snakes, Geckos, Iguanas, Dinosaurs.	<b>Slugs</b> -Slugs do not have shells. -They have a large muscular foot, which secretes mucus. -Their stomach is directly above their muscular foot.	Leopard Slug, Black Slug, Yellow Slug.
<b>Amphibians</b> -Amphibians are cold-blooded animals. -They have moist, <b>scaleless</b> skin. It is often permeable. -Amphibians lay eggs.	Frogs, Salamanders, Toads, Newts, Tadpole.	<b>Worms</b> -Worms have long, narrow bodies. -Worms do not have limbs (arms and legs). -They are bilaterally symmetrical (both sides the same).	Flatworms, Round Worms, Segmented Worms.
<b>Fish</b> -Fish are cold-blooded animals. -Fish can breathe underwater, using gills. -Fish lay eggs. -Fins help to propel fish through the water.	Sharks, Goldfish, Carp, Swordfish, Stingray, Clownfish, Pike, Salmon, Bass, Haddock, Tuna, Cod, Eel, Turbot.	<b>Spiders</b> -Spiders have eight legs. -Spiders bodies are made of two main parts. -Spiders create silk from their spinneret glands. -Spiders lay eggs.	Tarantula, Wolf Spider, Huntsman Spider, Widow Spider.
<b>Birds</b> -Birds are warm-blooded. -Birds have feathers, wings and a beak. -Birds lay eggs.	Parrot, Owl, Eel, Flamingo, Penguin, Puffin, Chicken, Toucan, Blackbird, Sparrow, Pigeon.	<b>Insects</b> -Insects have exoskeletons: hard shell-like coverings of their body. They also have three main body parts. -They have antennae on the top of their heads.	Beetle, Ant, Fly, Flea, Butterfly, Mosquito, Bee, Cricket.

#### National Curriculum Links:

- Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals
- Give reasons for classifying plants and animals based on specific characteristics.

#### What will I know by the end of this unit:

Linnaeus Classification	
<b>Carl Linnaeus</b>  Carl Linnaeus was a Swedish scientist, botanist and zoologist who is known as the 'father of taxonomy.'  He created something called the binomial nomenclature, which was a way of classifying plants and animals (taxonomy).  He classified man among the primates, which brought him criticism at the time!  He was made a noble by the Swedish King. He lived from 1707-1778. Parts of his system are still used today.	
<b>Classification System</b>  Linnaeus gave each organism a <u>two part</u> Latin scientific name, based on their genus and species. A genus is a group made up of several species.  For example, the genus 'Pan' is made up of the chimpanzee (pan troglodytes) and the bonobo (pan paniscus).  His scientific process involved observing, recording the information and making conclusions.	

#### Examples of classification in local habitats

##### Garden

Vertebrates: Mammals = cats, dogs, rabbits, foxes. Birds = sparrow, robin, crow.

Amphibians = frogs, toads.

Invertebrates: Insects = bee, wasp, fly, Spiders, Worms = earthworm, Snails = garden snail, Crustaceans = woodlouse.

##### Seaside

Vertebrates: Mammals = Beach mice, Birds = seagulls, pigeons, Reptiles = sea turtles, Fish = cod, haddock.

Invertebrates: Crustaceans = crabs, lobsters, prawns, Echinoderms = starfish, sea cucumbers, sea urchins.