

## Science in Year 5

### Animals Including Humans:

- Name and describe features of the human body, including **key organs, skeleton & muscles**.
- Talk in simple terms about how animals grow & reproduce (**describing each stage**).
- Describe the simple functions of the human digestive system (**esophagus, stomach, liver, pancreas, kidneys and intestines**).
- Identify and name the different types of teeth in humans, **describing their functions**.

### Forces & Magnets:

- Describe situations where friction is helpful and where it is not (**in everyday life**).
- Identify how friction acts between moving surfaces.
- Describe where there's more than one force acting on an object **and the resulting effect**.
- Identify factors that increase resistance.

### Living Things and their Habitats

- Explore and use classification keys to help to group, identify and name a variety of living things **in the wider environment**.
- Construct and interpret a variety of food chains, with increasing complexity **including producers, predators and prey**.
- Recognise that environments can change and that this can pose dangers to living things (**deforestation and pollution**).
- Identify features of a plant or animal that makes it suitable for given environments.
- Describe ways in which animals have adapted due to changes in their environment.
- Use a simple key to represent and identify animals and plants in local habitats.

### Earth and Space:

- Identify the changes that occur in the shape of the moon we see over time (**using diagrams**).
- Describe the movement of the Earth, in the other planets, relative to the Sun in the solar system
- Describe the movement of the Moon relative to the Earth.
- Describe the Sun, Earth and Moon as approximately spherical bodies.
- Describe the Sun, Earth's rotation to explain day and night and the apparent movement of the Sun across the sky.

### Changing Materials:

- Observe that some materials change state when heated or cooled and that some can be reversed, e.g. **freezing water and that some are irreversible, e.g. baking clay**.
- Measure the temperature at which materials change state when heated or cooled.

### Light and Sound:

- Recognise and explain how light travels in straight lines.
- Use the idea that light travels in straight lines to explain why shadows have the same shape as the object that casts them.
- Use knowledge of how light travels to explain the formation of shadows, **using diagrams**.
- Explain the idea that light travels in straight lines to explain that objects can be seen because they **give out or reflect light into the eye**.
- Explain that things are seen because light travels from light sources to the eye or from a light source to objects and then to the eye (**the Moon (reflection from the Sun), a lamp or the Sun**).

## Science in Year 6

As above and...

### Animals, including Humans:

- Identify and name the main parts of the human circulatory system, explaining the functions of the **heart, lungs, blood vessels and blood**.
- Recognise that normally the offspring of a living thing will not be identical to its parents and **describe the reason for this**.
- Recognise the impact of diet, exercise, drugs and lifestyle on the functions of the body.
- Describe the ways in which nutrients and water are transported within animals, **including water and waste**.

### Living Things and their Habitats:

- Describe how living things are classified into broad groups according to common observable characteristics and similarities and differences including **micro-organisms, plants and animals**.
- Give reasons for classification of plants and animals based on specific characteristics.
- Describe the feeding relationships between plants and animals (**in a range of habitats**).
- Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.
- Recognise that living things have changed over time and that fossils provide information about living things that inhabited the earth millions of years ago (**give examples of these**).

### Electricity:

- associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit
- compare and give reasons for variations in how components function, **including the brightness of bulbs, the loudness of buzzers and the on/off position of switches**
- use recognised symbols when representing a simple circuit **in a diagram**.

### Light:

- recognise that light appears to travel in straight lines
- use the idea that light travels in straight lines **to explain that objects are seen because they give out or reflect light into the eye**
- explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes
- use the idea that light travels in straight lines **to explain why shadows have the same shape as the objects that cast them**.

### Evolution and inheritance

- recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago ·
- recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. **Show examples of this**.
- identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. **Demonstrate this through examples and explanations**.

# Key studies within Science in Upper Key Stage 2

## Earth and space

- I know the Solar System is made up of the Sun and everything that orbits around it. There are eight planets in our Solar System: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune. Earth orbits around the Sun and a year (365 days) is the length of time it takes for Earth to complete a full orbit.

## Human Reproduction and Ageing

- A life cycle is the series of changes in the life of a living thing and includes these basic stages: birth, growth, reproduction and death. Mammals' life cycles include the stages: embryo, juvenile, adolescent and adult. Amphibians' life cycles include the stages: egg, larva (tadpole), adolescent and adult. Some insects' (butterflies, beetles and bees) life cycles include the stages: egg, larva, pupa and adult. Birds' life cycles include the stages: egg, baby, adolescent and adult.

## Properties of changing materials

- I know very hot and very cold materials can burn skin. Heating materials should be done safely.

## The circulatory system

- I know the role of the circulatory system is to transport oxygen, water and nutrients around the body. They are transported in blood and delivered to where they are needed.

## Working scientifically

- I know a method is a set of clear instructions for how to carry out a scientific investigation, including what equipment to use and observations to make. A variable is something that can be changed during a fair test. A prediction is a statement about what might happen in an investigation based on some prior knowledge or understanding.
- Develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics.

