Science

Scientific Knowledge and Conceptual Understanding: Year 3 Expectations

Please Note: There should be plenty of opportunities throughout the year for children to use the school/local environment to observe plant lifecycles with a particular focus on the different parts of a plant (e.g. comparing fruits and seeds and looking for examples of pollination). This could be done through an ongoing/monthly nature journal to observe, record and review over a period of time.

Plants – Functions of Parts of a Plant

- Identify, locate and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.
- Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant.
- Investigate the way in which water is transported within plants.
- Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.
  - Roots grow downwards and anchor the plant.
  - Water, taken in by the roots, goes up the stem to the leaves, flowers and fruit.
  - Nutrients (not food) are taken in through the roots.
  - Stems provide support and enable the plant to grow towards the light.
  - Plants make their own food in the leaves using energy from the sun.
  - Flowers attract insects to aid pollination.
  - Pollination is when pollen is transferred between plants by insects, birds, other animals and the wind.
  - Seeds are formed after the flowers are pollinated.
  - Many flowers produce fruits which protect the seed and/or aid seed dispersal.
  - Seed dispersal, by a variety of methods, helps ensure that new plants survive.
  - Plants need nutrients to grow healthily (either naturally from the soil or from fertiliser added to soil).

Animals - Health/Nutrition

- 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.
- An adequate and varied diet is beneficial to health (along with a good supply of air and clean water).
- Regular and varied exercise *from a variety of different activities* is beneficial to health (focus on *energy in versus energy out*. Include information on making informed choices).

Animals - Skeletons and Movement

- Identify that humans and some other animals have skeletons and muscles for support, protection and movement.
- Identify animals (vertebrates) which have a skeleton which supports their body, aids movement & protects vital organs (e.g. name and locate skull, backbone, ribs, bones for movement/limbs, pelvis and be able to name some of the vital organs protected).
- Identify animals without internal skeletons/backbones (invertebrates) and describe how they have adapted other ways to support themselves, move & protect their vital organs.
  - Know how the skeletons of birds, mammals, fish, amphibians or reptiles are similar (backbone, ribs, skull, bones used for movement) and the differences in their skeletons.
  - Know that muscles, which are attached to the skeleton, help animals move parts of their body.
  - Explore how humans grow bigger as they reach maturity by making comparisons linked to body proportions and skeleton growth – e.g. do people with longer legs have longer arm spans?
  - Recognise that animals are alive; they move, feed, grow, use their senses and reproduce.

Material Properties - Rocks

- Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties.
- Describe in simple terms how fossils are formed when things that have lived are trapped within rock.
- Recognise that soils are made from rocks and organic matter
  - Recognise that rocks and soils can feel and look different.
  - Recognise that rocks and soils can be different in different places/environments.

Light and Astronomy - Light, reflections and shadows

- Recognise that they need light in order to see things and that dark is the absence of light.
- Notice that light is reflected from surfaces.
- Recognise that light from the sun can be dangerous and that there are ways to protect their eyes.
- Recognise that shadows are formed when the light from a light source is blocked by a solid object.
- Find patterns in the way that the size of shadows can change.

Forces and Magnets

- Compare how some things move on different surfaces.
- Notice that some forces need contact between two objects but magnetic forces can act at a distance.
- Observe how magnets attract or repel each other and attract some materials and not others.
- Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials.
- Describe magnets as having two poles (like and unlike poles).
- Predict whether two magnets will attract or repel each other, depending on which poles are facing.