

Biology Unit: Living things

What does progression of knowledge look like?

Year	Progression of knowledge.
EYFS	<ul style="list-style-type: none">• Explore the natural world around them, make observations and draw pictures of animals and plants.• Plant seeds and care for growing plants.• Understand the key features of the life cycle of a plant and an animal.• Begin to understand the need to respect and care for the natural environment and all living things.
2	<ul style="list-style-type: none">• Identify the differences between things that are living, dead, and things that have never been alive, using some of the 7 life processes (movement, respiration, sensitivity, growth, reproduction, excretion, nutrition).• Identify that most living things live in habitats to which they are suited.• Explain in simple terms how an animal or plant is suited to its habitat.• Name a variety of plants and animals in their habitats, including micro-habitats.• Explain that different conditions in a habitat and micro habitat can affect the number and type of plants/animals that live there.• Describe how plants and animals depend on each other for food and shelter.• 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.• Construct a simple food chain that includes humans (e.g. grass, cow, human) with arrows pointing in the correct direction.
4	<ul style="list-style-type: none">• Know the 7 life processes of living organisms.• Use the 7 life processes to determine if an organism is living.• Describe similarities and differences between examples of plants and animals.• Know the features of mammals, amphibians, fish, birds, reptiles (vertebrates) and invertebrates.• Group living things in a variety of ways using key characteristics.• Know and explore the work of Carl Linnaeus.• Use classification keys to help group and identify a variety of living things in their local and wider environment.• Use classification keys to name a variety of living things.• Recognise that environments can change, and this can sometimes pose dangers to living things.• Understand that human actions can impact on the environment and suggest some solutions to the issues.
5	<ul style="list-style-type: none">• Know that reproduction is when an animal or plant produces one or more individuals similar to itself.• Explain that sexual reproduction requires both male and female DNA (sex cells) and will produce offspring that are similar, but not identical to the parents.• Explain that asexual reproduction will produce offspring that is identical to the parent and only requires one parent e.g., bulbs, tubers and runners.• Explain the life cycle of a mammal, amphibian, insect and a bird.• Explain the process of metamorphosis using frogs and butterflies as examples.• Describe the differences in the life cycles of a mammal, amphibian, insect and a bird.• Use prior knowledge of parts of a flower to explain the stages involved in the reproduction process (pollination, fertilisation and germination).
6	<ul style="list-style-type: none">• Know that living things can be grouped according to different criteria.• Know that a cell is made up of nucleus, cytoplasm and membrane.• Know that living things can be multicellular or unicellular (bacteria).

	<ul style="list-style-type: none"> • Explain in simple terms how the Linnaeus system is used to classify living things. • Explain why we need to group living things. • Explain possible difficulties with classification (penguins and whales). • Know that classification keys are used to group living things based on recognisable characteristics. • Construct a classification key. • Explain what microorganisms are and can name some. • Give examples of some situations where microorganisms can be helpful. • Give examples of some situations where microorganisms can be harmful.
7	<p style="text-align: center;">Cells</p> <ul style="list-style-type: none"> • Explain why cells are important. • Draw and label a plant and animal cell. • Identify the nucleus, cell membrane, cytoplasm and mitochondria in both cell types. • Identify the cell wall, chloroplasts and vacuoles in plants (inc. functions) • Explain how to use a microscope. • Describe how to prepare and view onion skin and cheek cell slides. • Describe the role of specialised cells namely- red blood cells, white blood cells, root hair cell, sperm, ciliated cell, muscle cell, nerve cell, HeLa cells and melanocytes. • Define and identify unicellular and multicellular organisms. • Explain what diffusion is, and why it is required in plants and animals. • Explain why multicellular organisms need organ systems to stay alive. • Explain how unicellular organisms are adapted to carry out functions that in multicellular organisms are done by different types of cells. • State the difference between cells, tissues, and organs.
8	<p style="text-align: center;">Interdependence</p> <ul style="list-style-type: none"> • Identify biotic and abiotic factors in an ecosystem. • Define the following keywords- food web, food chain, environment, population, producer, consumer, and decomposer. • Describe the adaptations that plants and animals have in hot and cold climates. • Create food webs and food chains. • Describe how a species' population changes due to predator prey interactions. • Explain how environmental change and toxic materials can affect a population. • Explain issues with human food supplies (insect pollinators) • Create a pyramid of number and a pyramid of biomass. • Suggest the effect of toxic substances accumulating in human food.
9	<p style="text-align: center;">Respiration</p> <ul style="list-style-type: none"> • Know that respiration is a series of chemical reactions in cells, that breaks down glucose to provide energy and make new molecules. • Investigate the amount of energy contained in different foods. • Identify the 5 food groups and describe why each food group is needed to stay healthy. • Explain the issues with an unbalanced diet. • Explain why the blood is important. • Explain why diffusion is crucial for respiration to occur. • Investigate pulse rate whilst completing a range of exercises. • Define the following terms: aerobic and anaerobic respiration. • Use word equations to describe aerobic and anaerobic respiration. • Identify the mitochondria and explain its role in respiration. • Explain how certain activities involve aerobic or anaerobic respiration.