

Coverage of non-statutory guidance and working scientifically

Year 6

	<u>Tick as appropriate</u>		<u>Activities we currently do</u>
<p><u>Living things and their habitats</u> Pupils should build on their learning about grouping living things in year 4 by looking at the classification system in more detail. They should be introduced to the idea that broad groupings, such as micro-organisms, plants and animals can be subdivided. Through direct observations where possible, they should classify animals into commonly found invertebrates (such as insects, spiders, snails, worms) and vertebrates (fish, amphibians, reptiles, birds and mammals). They should discuss reasons why living things are placed in one group and not another. Pupils might find out about the significance of the work of scientists such as Carl Linnaeus, a pioneer of classification. Pupils might work scientifically by: using classification systems and keys to identify some animals and plants in the immediate environment. They could research unfamiliar animals and plants from a broad range of other habitats and decide where they belong in the classification system.</p>	Observing over time		<ul style="list-style-type: none"> • Classifying animals – sort into groups (YR 4 recap) • Describe how scientists classified living things into broad groups. (Carl Linnaeus) • Categorise micro-organisms – research and create a fact file to explain how micro-organisms are categorised • Construct and interpret a variety of food chains
	Identifying and classifying	√	
	Pattern seeking		
	Comparative and fair testing		
	Research using secondary resources	√	
<p><u>Animals, including humans</u> Pupils should build on their learning from years 3 and 4 about the main body parts and internal organs (skeletal,</p>	Observing over time		<ul style="list-style-type: none"> • Explain the function of organs • Explain the function of the heart • Draw a picture of each blood cell, label and write a

<p>muscular and digestive system) to explore and answer questions that help them to understand how the circulatory system enables the body to function. Pupils should learn how to keep their bodies healthy and how their bodies might be damaged – including how some drugs and other substances can be harmful to the human body. Pupils might work scientifically by: exploring the work of scientists and scientific research about the relationship between diet, exercise, drugs, lifestyle and health.</p>	Identifying and classifying		<p>paragraph exploring the function of the aforementioned cells</p> <ul style="list-style-type: none"> • Explain how inheritance affects blood type • Plan own investigation about exercise. E.g. How does exercising in different positions affect the pulse rate? • Explain why animals and humans need certain nutrients in their diet • Explain the process of digestion in humans (Building on YR 4 knowledge) • Explain the effects of alcohol, smoking, drugs on the body
	Pattern seeking	✓	
	Comparative and fair testing	✓	
	Research using secondary resources	✓	
<p>Evolution and inheritance Building on what they learned about fossils in the topic on rocks in year 3, pupils should find out more about how living things on earth have changed over time. They should be introduced to the idea that characteristics are passed from parents to their offspring, for instance by considering different breeds of dogs, and what happens when, for example, labradors are crossed with poodles. They should also appreciate that variation in offspring over time can make animals more or less able to survive in particular environments, for example, by exploring how giraffes' necks got longer, or the development of insulating fur on the arctic fox. Pupils might find out about the work of palaeontologists such as Mary Anning and about how Charles Darwin and Alfred Wallace developed their ideas</p>	Observing over time	✓	<ul style="list-style-type: none"> • Write a paragraph to explain what a fossil is and that it provides information about living things. (Looking at actual fossils – what can be determined from a shark tooth?) • Correctly use the word inherited – look at dog breeds and how characteristics are inherited. Chn to create their own cross-breed from characteristics inherited from each parent • Write a biography explaining the life of Mary Anning and her discovery (LA – comic strip) • Create a fact file about Charles Darwin • Identify features that help plants survive in certain environments – chn adapt a sunflower so it can survive in the rainforest • Identify features/adaptations that help animals survive
	Identifying and classifying		

<p>on evolution. Note: At this stage, pupils are not expected to understand how genes and chromosomes work. Pupils might work scientifically by: observing and raising questions about local animals and how they are adapted to their environment; comparing how some living things are adapted to survive in extreme conditions, for example, cactuses, penguins and camels. They might analyse the advantages and disadvantages of specific adaptations, such as being on two feet rather than four, having a long or a short beak, having gills or lungs, tendrils on climbing plants, brightly coloured and scented flowers.</p>	Pattern seeking	✓	<p>– chn to compare how different species of snake, camel and lions have adapted to different surroundings</p> <ul style="list-style-type: none"> • Predict future human adaptations thinking about the effects of global warming • Predict physical adaptation on a timeline to illustrate evolution (possibly removing this year as it doesn't hit any objective. However, it does help to illustrate the concept of evolution)
	Comparative and fair testing		
	Research using secondary resources	✓	
<p>Light Pupils should build on the work on light in year 3, exploring the way that light behaves, including light sources, reflection and shadows. They should talk about what happens and make predictions. Pupils might work scientifically by: deciding where to place rear-view mirrors on cars; designing and making a periscope and using the idea that light appears to travel in straight lines to explain how it works. They might investigate the relationship between light sources, objects and shadows by using shadow puppets. They could extend their experience of light by looking a range of phenomena including rainbows, colours on soap bubbles, objects</p>	Observing over time		<ul style="list-style-type: none"> • Investigate how the position of a light source affects the size of the shadow. • Explain how we see things and how the eye works • Investigate and explain how mirrors change the direction of light
	Identifying and classifying		
	Pattern seeking		

looking bent in water and coloured filters (they do not need to explain why these phenomena occur).	Comparative and fair testing	✓	
	Research using secondary resources	✓	
<p>Electricity</p> <p>Building on their work in year 4, pupils should construct simple series circuits, to help them to answer questions about what happens when they try different components, for example, switches, bulbs, buzzers and motors. They should learn how to represent a simple circuit in a diagram using recognised symbols. Note: Pupils are expected to learn only about series circuits, not parallel circuits. Pupils should be taught to take the necessary precautions for working safely with electricity. Pupils might work scientifically by: systematically identifying the effect of changing one component at a time in a circuit; designing and making a set of traffic lights, a burglar alarm or some other useful circuit.</p>	Observing over time		<ul style="list-style-type: none"> • Identify circuit symbols (recap on prior learning) • Investigation – how does the number of batteries affect the brightness of the bulb? • How does the number of bulbs affect the brightness of the original bulb? • How does the length of wire affect the brightness of the bulb? • Identify faults in circuits • Understand the difference between series and parallel circuits
	Identifying and classifying		
	Pattern seeking	✓	
	Comparative and fair testing	✓	
	Research using secondary resources		

Pattern seeking – at the start of every Science lesson data is analysed ; read, interpret and draw graphs.