		TERM 1		TERM 2		TERM 3A		TERM 3B	
		Working scientifically **Trip: Natural History Museum**	**Living things and their habitats** **Trip: Natural History Museum**		**Evolution and inheritance**		**Light**		**Reversible and irreversible changes**	
Y6 Science		**Key skills** To be able to plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. To be able to take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. To be able to record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. To be able to use test results to make predictions to set up further comparative and fair tests. To be able to report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations. To be able to identify scientific evidence that has been used to support or refute ideas or arguments. **Trips/Workshops** Natural History Museum	**Key knowledge** To know all living things exhibit 7 common characteristics (MRS GREN). To know scientists who classify living things are called taxonomists. To know animals can be sorted or classified in a number of different ways. One example of this is through answering a series of closed questions using a branched key diagram. To know a food chain shows a feeding relationship between organisms in a particular habitat. As you progress along the food chain, each successive organism eats the previous one. Most animals are part of more than one food chain and eat more than one kind of food in order to meet their food and energy requirements. These interdependent food chains form a food web. To know a micro-organism is an organism that is microscopic, for example a bacterium, fungus and virus. All micro-organisms can be classified using the Linnaean taxonomic system. To know some micro-organisms are helpful and some are harmful. They are vital for life on Earth. Vaccines protect us from infection. By injecting a weakened form of the disease into our body, our body produces antibodies. These antibodies destroy the infection if it returns.	**Key skills** To be able to describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals. To be able to give reasons for classifying plants and animals based on specific characteristics. To be able to ask questions. To be able to observe characteristics of organisms. To be able to record classification of organisms in a branched key diagram. To be able to research key aspects of taxonomy. To be able to research Carl Linnaeus's contribution to taxonomy. To be able to report and present findings. To be able to observe micro-organisms through microscopes. To be able to record observations using scientific diagrams.	**Key knowledge** To know adaptation is about how well suited an organism is to survive in the habitat in which it lives. To know the habitat determines the features that are needed in order for an organism to survive. To know characteristics of an organism can change over time (evolution) – there is evidence in the form of fossils to show this. To know there are many factors that contribute to the extinction of an organism. To know the work of Mary Anning and Charles Darwin have contributed greatly to the field of science. To know natural selection is the mechanism through which evolution occurs.	**Key skills** To be able to describe how living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. To be able to explain how living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. To be able to identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. To be able to report and present findings from enquiries into the work of Mary Anning. To be able to identify scientific evidence that has been used to support or refute the theory of evolution.	**Key knowledge** To know light travels in a straight line. To know when light hits an object with a smooth surface, it reflects at the same angle as it hits the object (angle of reflection). To know when light travels from one material into another material, it bends. This is called refraction. To know objects can be seen when light from a light source reflects off them and travels into our eye. To know shadows are formed because light travels in a straight line. To know when an object blocks the light travelling from a light source, it causes a shadow behind it. To know white light that comes from the Sun and other sources, such as a torch, is made up of a number of colours (red, orange, yellow, green, blue, indigo, violet) but we cannot see these because they are mixed together. The light can be split into the separate colours with a prism (dispersion).	**Key skills** To be able to 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. To be able to 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. To be able to use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. To be able to use scientific language and diagrams to communicate their understanding of how light travels. To be able to plan, conduct and evaluate a fair test to answer their own question about causal relationship between light source and shadow. To be able to identify and control variables. To be able to take measurements of shadow size with accuracy and precision. To be able to record data about shadow size using tables and present it using line graphs. To be able to use test results to consider further tests.	**Key knowledge** To know reversible and irreversible reactions are different. To know a reversible change is a change that can be undone or reversed. It might change how a material looks or feels, but it doesn't create new materials (e.g. dissolving, evaporation, melting and freezing). To know an irreversible change is a change that cannot be reversed. New materials are always formed. Sometimes these new materials are useful to us. To know heating (e.g. raw egg) and mixing (bicarbonate of soda and vinegar) can both cause an irreversible change. To know burning is an example of an irreversible change. To know chemical reactions produce a new substance. Example: baking a cake. The heat from the oven causes the baking powder to react with the other ingredients and change into sodium carbonate, water, and most importantly, the gas carbon dioxide. To know physical changes do not produce a new substance. Example: melting ice. The melted ice can be frozen back to a solid.	**Key skills** To be able to explain that light appears to travel in straight lines. To be able to explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda. To be able to use scientific language and diagrams to communicate their understanding of difference between physical changes and chemical reactions, and reversible and irreversible changes.
		Key vocabulary (tier 2) animal classify (common) characteristic plant sorted	**Key vocabulary (tier 3)** bacteria branched keys classification consumer (primary, secondary, tertiary, quaternary) food chain food pyramid food web fungi interdependence micro-organism natural selection predator (apex) prey producer taxonomy vaccine vertebrate virus	**Key vocabulary (tier 2)** characteristic environment habitat inhabit species survive	**Key vocabulary (tier 3)** adaptation evolution extinction fossil inheritance natural selection offspring variation	**Key vocabulary (tier 2)** accuracy (causal) relationship factor light source precision ray reflection (angle of) shadow	**Key vocabulary (tier 3)** (angle of) refraction concave convex dispersion incidence (angle of) infra-red opaque prism spectrum translucent transparent ultra-violet variable	**Key vocabulary (tier 2)** chemical reaction condense dissolve evaporate gas irreversible liquid melt mixture physical change reversible solid substance	**Key vocabulary (tier 3)** carbon dioxide (in)soluble product reactant saturated sodium carbonate solute solution solvent

Year 6 Curriculum Map - SCIENCE