YEAR 6	Science	
Topic 1: Talking 'bout a Revolution (7)		
KNOW	DO	UNDERSTAND
ART WEEK: WW2/sculpture		
KNOW	DO	UNDERSTAND
Topic 2: Rise of the Robots (5)		
KNOW	DO	UNDERSTAND
Electricity S: associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit S: 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 S: use recognised symbols when representing a simple circuit in a diagram *Vocabulary: voltage, circuit, electrons, precaution, buzzer, cell, battery, bulb, motor, components, symbols, circuit diagrams.* Children know that the amount of volts impact the brightness and the volume of the buzzer. Children know how to build simple circuits to test their theories. Children know the symbols for the different components. Children know what precautions are necessary when working with electricity – do not touch uncovered wires, aware of conductors etc. *Questions:* *What happens when you increase the volts within a circuit with a bulb?* *What is the symbol for a motor?*	WS: planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary WS: recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs WS: using test results to make predictions to set up further comparative and fair tests WS: reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations Children can come up with questions about how increasing the voltage might affect the components. They can design an experiment to test this. Children must use their skills from Year 3, 4 and 5 to create a fair test, with only one variable. Children can identify their variables and how they are going to control them. Children can record their findings in tables and graphs. Children can draw scientific diagrams, using the symbols for the electrical components. 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 *Questions:*	*PRIOR KNOWLEDGE: In year 4, children have looked at series circuits and the different equipment associated. They have tested insulators and conductors.* Children will understand how the symbols match to the different components. Children will also understand how the voltage affects the brightness or volume of the buzzer. They will link this to Christmas lights and voltages in other countries, e.g. in American the plug voltage is much lower, so what would happen to a hair dryer etc. Children will use these skills for DT week, when they build a circuit for their fair ground ride. *Questions:* *If I went to America, where the voltages in plugs are lower, what would happen to my hair dryer?*

	If I wanted whether the motor got faster if I added more batteries, which variables should stay the same and which should change? *How could you design a burglar alarm?*	
DT WEEK		
KNOW	DO	UNDERSTAND
Topic 3: Heroes and Villains (6)		
KNOW	DO	UNDERSTAND
Topic 4: Tomb Raiders (4)		
KNOW	DO	UNDERSTAND
Topic 5: Fabulous Physics and Fitness Freaks (2)		
KNOW	DO	UNDERSTAND
Light S: recognise that light appears to travel in straight lines S: 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 S: 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 S: use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them *Vocabulary: reflect, travels, beam, eyes, shadow, cast, opaque, transparent, translucent, sources.* Children know that light travels in straight lines. To travel round corners or to change direction, it must be reflected. Children know which objects give out light or reflects light. Children can give examples of this. Children know that we see, because light travels from the object to the eye. Children know that shadows change throughout the day, depending on where the light source is. They know shadows occur because the light cannot go	WS: planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary WS: taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate WS: recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs Children will draw scientific diagrams of the eye. They will also draw scientific diagrams of how light travels. This will be labelled. Children will ask questions about how light can travel round a corner. They will then experiment with mirrors to see if they can get the light to travel. Children might decide 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.	*PRIOR KNOWLEDGE: In Year 3, children explored the way that light behaves, including light sources, reflection and shadows. They have also named and classified opaque, translucent and transparent objects.* Children will build on this knowledge by including the eye and how light travels. Children will apply this to real life situations, such as cars (mirrors), cameras etc. *PRIOR KNOWLEDGE: Pupils should build on their learning from years 3 and 4 about the main body parts and internal organs (skeletal, muscular and digestive system).* Children will be visited by the police, who will speak to them about drugs. This will link with PSHE and will prepare them for their move to secondary school *Questions:* *How can we look after our bodies?* *How can drugs affect our bodies?*

through an opaque object, so it has to go around. *Questions:* *How does light travel?* *How do we see objects, that are not sources of light?* *Why do shadows occur?* **Animals, including humans** S: identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood S: recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function S: describe the ways in which nutrients and water are transported within animals, including humans *Vocabulary: circulatory system, heart, blood, blood vessels, diet, exercise, drugs, lifestyle, nutrients, transported, organs, lungs, ventricles, atriums, plasm, platelets, oxygen, carbon dioxide, red and white blood cells, pulse.* Children know that the the circulatory system is a network consisting of blood, blood vessels, and the heart. This network supplies tissues in the body with oxygen and other nutrients, transports hormones, and removes unnecessary waste products. Children know that the human **heart** is an organ that pumps blood throughout the body via the circulatory system, supplying oxygen and nutrients to the tissues and removing carbon dioxide and other wastes. They learn that red blood cells carry oxygen, white blood cells fight infection, platelets help to prevent bleeding, and that plasma is the medium in which these components are suspended. Children describe the functions of red blood cells, white blood cells, platelets and plasma, and create a pie chart showing the percentage	*Questions:* *Prove that light only travels in straight lines.* Children will carry out an experiment looking at exercise and heart rate. They will ensure it is a fair test and they will be able to name the variables. Children will also create a pie chart showing the results from the class, they will also do one on the computer. Children will look at whether drugs effect your heart. They will gather evidence to support or refute their ideas. *Questions:* *How could you test your heart rate before and after you've done exercise? Which variables do you need to control?*	

of each component by volume in a typical sample of blood. Children learn that excerise increases your pulse. Children know that drugs will have an effect on your heart and body. *Questions:* *What are the main parts of the circulator system?* *How does the heart function?* *How does caffeine affect your body?* *How are nutrients transported within humans?*		
POETRY WEEK		
KNOW	DO	UNDERSTAND
Topic 6: Palaeontologists (5)		
KNOW	DO	UNDERSTAND
Living things and their habitats S: 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 S: give reasons for classifying plants and animals based on specific characteristics *Vocabulary: classified, characteristics, micro-organisms., vertebrates, fish, reptiles, amphibians, mammals, birds.* Children know that living things can be classified based on common observable characteristics. Living things can also be compared – similarities and differences, e.g. invertebrates (such as insects, spiders, snails, worms) and vertebrates (fish, amphibians, reptiles, birds and mammals). *Questions:* *Is a bird a vertebrate or invertebrate?* *How else could you classify animals?*	WS: identifying scientific evidence that has been used to support or refute ideas or arguments WS: reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations. Children observe and classify items, which will then help them draw their own conclusions about similarities and differences. They will research unfamiliar animals and then classify them. They can discuss reasons why living things are placed in one group and not another. *Questions:* *Why is a fern a coniferous plant and not a deciduous plant?* Children will come up with their own questions about why an animal is the colour it is or the shape etc. They will then use their knowledge to deduce why that is. For example, the Artic Fox is white, so it is camouflaged against the snow.	*PRIOR KNOWLEDGE: Pupils should build on their learning about grouping living things in year 4 by looking at the classification system in more detail – children already know about mammals, insects, amphibians etc.* *PRIOR KNOWLEDGE: 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.* This topic is done alongside writing about dinosaurs, looking at how they were adapted to their environment.

How could you classify trees? Evolution and inheritance S: recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago S: recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents S: identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution *Vocabulary: fossils, inhabited, offspring, identical, adapt, adaptation, environment, evolve, evolution, reproduction.* Children know that living things change over time. They know that fossils are a really helpful tool to understand the world millions of years ago. The know how fossils are made. Children know that living things produce offspring, which are normally of the same kind but vary slightly. Children know that animals and plants adapt to their environment. They can give examples of this – the moth. Children know that adaption may lead to evolution – this does not necessary mean from monkeys to humans. Children know that adaptation is special features that plants and animals develop to suit the place where they live. Evolution is the process of change to animal and plant species over long periods of time, or how plant species and animals have developed from generation to generation. They know that characteristics are passed from parents to their offspring,	Children will present findings about adaption, giving examples of when this has happened. *Questions:* *Why have you decided to present your work like this? Where did you get this information from?*	

Children will research the palaeontologist such as Mary Anning. *Questions:* *How can we know what life was like on earth millions of years ago?* *Can you name an animal which has adapted to its environment over time?* *How are you similar to your mum and dad?*		
LANGUAGE WEEK: Spanish		
KNOW	DO	UNDERSTAND