RHJS – Y6 Science Curriculum Overview

	Animals (including humans)	Living Things & their Habitat	Light	Evolution and Inheritance	Electricity
Yr6	**What would a journey through your body be like?** **Topic Link- A child's War**	**Could Spiderman really exist?** **Topic Link- Where I live**	**Can you light up your life?** **Topic Link- Frozen kingdom**	**Have we always looked like this?** **Topic link- Water**	**Could you be the next PlayStation apprentice?** **Topic Link- Mexico**
	• **Circulatory system** • **Heart, blood vessels** • **Diet, exercise and drugs** • **Transport of nutrients through the body** **Key outcomes for this unit, children to be able to:** • identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. *Biology 6.5.1* • recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. *Biology 6.5.2* • describe the ways in which nutrients and water are transported within animals, including humans. *Biology 6.5.3* **WOW:** ***Everyone will start by running around the school field and then observe what happens to their bodies.*** **Key learning Points:** • What is pulse and why do we have one? • Why can the heart be described as the most important pump we have? • What happens to the oxygen we breathe? • Why could we describe blood as the body's river system? • What have we learnt from pioneers like William Harvey? • Can you create a picture of your face using collage? • Can you carry out a survey to show the impact of exercise on the body? • **Reflection:** Working as a team, in small groups, put together a presentation which shows the	• **Classification of living things** • **Vertebrates and invertebrates** • **Classifying reptiles, amphibians, mammals, insects etc.** **Key outcomes for this unit, children 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. *Biology 6.1.1* • give reasons for classifying plants and animals based on specific characteristics. *Biology 6.1.2* **WOW:** ***Consider the attributes that Spiderman has and give realistic thought to whether these could exist in any creature we know.*** **Key learning Points:** • Can you create your own classification system that will take account of all plants and animals within your school grounds? • Can you now classify a group of animals and plants you have selected from a chosen environment? • Can you discover the special attributes that some animals and plants have to help them survive? • Why might some animals and plants be endangered and can you focus on one that you would like to carry out further research on? • What are micro-organisms and how would you classify them? • By observing artists' work can you capture images of a chosen animal? • **Reflection:** Take a plant or animal that you know and one that you	• **How light travels** • **The eye** • **Shadows** **Key outcomes for this unit, children to be able to:** • recognise that light appears to travel in straight lines. *Physics 6.3.1* • 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. *Physics 6.3.2* • 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. *Physics 6.3.3* • use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. *Physics 6.3.4* **WOW:** ***Spend time in a blacked out room and consider how the eyes adapt and why it is difficult to see anything.*** **Key learning Points:** • How do we know that light travels faster than sound? • How can you set up an experiment to show that light travels in straight lines? • How do your eyes work? • How can you use mirrors to see around blind corners? • Spend a small period of time being blind folded and see how successful you are at doing everyday things you take for granted? • Can you use water colour painting to create a landscape or still life	• **Fossils tell us about the past** • **Offspring** • **Changes to the human skeleton over time** • **Charles Darwin** **Key outcomes for this unit, children to be able to:** • recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago *Biology 6.3.1* • recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. *Biology 6.3.2* • identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. *Biology 6.3.3* **WOW:** ***Watch an extract of Planet of the Apes and consider how realistic it could be.*** **Key learning Points:** • Could we possibly have evolved from apes, monkeys or other primates? • What do fossils tell us about 'how things have changed'? • Who was Charles Darwin and why is he still a controversial figure? • Why do you not usually look exactly like your mum or dad? • Can you find out how animals who: live in the cold; around the equator; under the ground: and, in trees: are specifically adapted to live and survive there? • How is the human skeleton suited to our life style? • Can you create a group dance that requires you to use different	• **Electrical circuits (series)** • **Designing traffic lights** **Key outcomes for this unit, children to be able to:** • associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. *Physics 6.4.1* • 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. *Physics 6.4.2* • use recognised symbols when representing a simple circuit in a diagram. *Physics 6.4.3* **WOW :** ***Look at a range of board games that require batteries and evaluate them.*** **Key learning Points:** • Can you create a circuit that has at least one of these features: switch; buzzer; motor? • How do traffic lights work and can you create an electrical product that needs to be sequenced? • What do you understand about: cells and volts and how it impacts on how electrical products work? • Can you set up your own company and give it an appropriate name, discuss allocation of jobs • Can you design a board game that makes use of an electric circuit and at least one of the features looked at in LC1? • How would you go about selling your product? • **Reflection:** Ensure your product is ready to be part of a science fair.

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	relationship between the heart, blood and breathing. **Key skills:** • Plan and carry out an investigation by controlling variables fairly and accurately. • Make a prediction with reasons. • Use test results to make further predictions. • Present a report of their findings through writing, display and presentation. • Take measurements using a range of scientific equipment with increasing accuracy and precision. • Record more complex data and results using scientific diagrams, labels, classification keys, tables, scatter graphs, bar and line graphs. • Report findings from investigations through written explanations and conclusions. • Use a graph to answer scientific questions. • Identify and explain the function of the organs of the human circulatory system. • Name the major organs in the human body. • Locate the major human organs. **Challenge:** • Make a diagram of the human body and explain how different parts work and depend on one another.	don't know and create an IT presentation to show which group/s they belong to, etc. **Key skills:** • Describe and compare the life cycles of a range of animals, including humans, amphibians, insects and birds. • Talk with knowledge about birth, reproduction and death of familiar animals or plants. • Take measurements using a range of scientific equipment with increasing accuracy and precision. • Record more complex data and results using scientific diagrams, classification keys, labels, scatter graphs, tables, bar and line graphs. **Challenge:** • Classify plants and animals in their local environment with those around the world, e.g. rainforests.	painting which shows light and shadow? • Can you use water colour painting to create a landscape or still life painting which shows light and shadow? • **Reflection:** Can you prepare a documentary entitled 'Let's Light it up' which shows what you have learnt in this LC. **Key Skills** • Explore different ways to test an idea and choose the best way and give reasons. • Vary one factor whilst keeping the others the same in an experiment. Explain why they do this. • Plan and carry out an investigation by controlling variables fairly and accurately. • Make a prediction with reasons. • Use information to help make a prediction. • Use test results to make further predictions and set up further comparative tests. • Explain a scientific idea and what evidence supports it. • Present a report of their findings. • Explain how light travels. • Explain how the human eye sees objects. • Explain how different colours of light can be created. • Explain how simple optical instruments work. (periscope, telescope, binoculars, mirror, magnifying glass, Newton's first reflecting telescope) • Explain changes linked to light (and sound) **Challenge:** • Use the ray model to explain the size of shadows?	balances, giving consideration to your skeletal position? • **Reflection:** Carry out individual research about the way humans have adapted over years that requires you to start with a range of questions. **Key Skills:** • Give reasons for why living things produce offspring of the same kind. • Give reasons for why offspring are not identical with each other or with their parents. • Explain the process of evolution and describe the evidence for this. • Begin to appreciate that variation in offspring over time can make animals more or less able to survive in particular environments. • Talk about the life of Charles Darwin and his historical book book "The Origin of Species". **Challenge:** • Begin to understand what is meant by DNA**.**	**Key Skills** • Identify and name the basic parts of a simple electric series circuit. (cells, wires, bulbs, switches, buzzers, motors) • Compare and give reasons for variation in how components function, including bulb brightness, buzzer volume and on/off position of switches. • Explain how to make changes in a circuit. • Explain the impact of changes in a circuit. • Explain the effect of changing the voltage of a battery. **Challenge:** • Make their own traffic light system or something similar.
	Trips and Experiences	**Trips and Experiences**	**Trips and Experiences**	**Trips and Experiences**	**Trips and Experiences**
	Villa Vitality Visit to sports centre- university	Bug hunt at the Lickey Hills Ant farm Wormery	Art workshop- northern lights	Museum trip Science DNA workshop	REP- Car Project BMW / Jaguar Land Rover trip

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	Other ideas for trips and experiences	Other ideas for trips and experiences	Other ideas for trips and experiences	Other ideas for trips and experiences	Other ideas for trips and experiences