Year 6 – Animals Including Humans

Term: Autumn

National Curriculum	*Pupils should be taught to:* • ***describe the simple functions of the basic parts of the digestive system in humans*** • ***identify the different types of teeth in humans and their simple functions*** • ***construct and interpret a variety of food chains, identifying producers, predators and prey.***

	National Curriculum	Key Learning	Activities	Working Scientifically	Key Vocabulary	Exit Question
1	***Identify and name the main parts of the human circulatory system.*** ***Describe the functions of the heart, blood vessels and blood***	Children will know the three main parts of the circulatory system and describe the job of the heart	- Identify the way that blood flows around the body - Identify the parts of the heart	Identifying, Grouping and Classifying Identify what makes up the circulatory system in the human body.	***heart, blood vessels, blood, pump, nutrients, waste products, oxygen, chambers, circulatory system, oxygenated, deoxygenated, veins, arteries, capillaries.***	The left atrium receives blood with no oxygen from the lungs. True or False?
2	***Describe the functions of the heart, blood vessels and blood*** ***Describe the ways in which nutrients and water are transported within animals, including humans***	Children will be able to describe the important jobs of the blood vessels and blood	- Explore the role of blood in transporting everything needed to survive around the body (oxygen, nutrients, water) - Make choices about which equipment could be used to represent each component of blood	Identifying, Grouping and Classifying Identify what makes up the circulatory system in the human body. Researching Use the lesson content to learn about blood vessels and circulatory system. Then, label the parts of the blood vessels on a diagram.	***plasma, platelets, red blood cells, white blood cells, circulatory system.***	Where do the blood vessels deliver blood to?
3	***Recognise the impact of exercise on the way their bodies functions.***	Children will be able to investigate and describe the importance of exercise and how it affects the heart	- Explore how heart rate can be accelerated through exercise.	Observing over Time Observe the effects of exercise by measuring heart rate each minute after exercise.		Why is it good to accelerate our heart rate?

				Comparative and Fair Testing Compare different types of exercise and how they have a different effect on heart rate.		
4	***Recognise the impact of exercise on the way their bodies functions.***	Children will understand that regular exercise is important for a healthy body	- Children research heart size in different land and water mammals and then measure and mark out the different sized hearts in chalk on the playground.	Researching Complete a survey to find out the most popular form of exercise. Then, write a persuasive letter to start up a new exercise club, referencing the benefits of exercise.	***exercise, diet***	Do land mammals have different sized hearts to water mammals?
5	***Recognise the impact of diet and exercise on the way their bodies function.***	Children will be able to explain how diet and exercise affect the body	- Give advice to a range of people about their lifestyle choices so that they can maintain a healthy body	Researching Analyse calorie intake date and lifestyle information to give advice on what could be done to maintain a healthy body and lifestyle. Identifying, Grouping and Classifying Sort things into more healthy and less healthy lifestyle choices, justifying their reasons	***calorie, energy input, energy output, food, activity.***	Do you think you have a healthy lifestyle? Explain.
6	***Recognise the impact of drugs and lifestyle on the way their bodies function.***	Children will be able to recognise the impact of drugs and alcohol on the way bodies function	- Research the ways in which smoking and alcohol can affect our bodies - Produce informative booklets/leaflets/posters	Researching Use the lesson presentation to learn about the impact of drugs on the human body to then complete a sorting activity.	***alcohol, smoking, drugs, plaque.***	Which is the odd one out? Loss of control over speech. Increase in aggressive behaviour. Increase of plaque on teeth.

Year 6 – Evolution and Inheritance

Term: Autumn

National Curriculum	*Pupils should be taught to:* • ***recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents*** • ***identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution*** • ***recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago***

	National Curriculum	**Key Learning**	**Activities**	**Working Scientifically**	**Key Vocabulary**	**Exit Question**
1	***To recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.***	Children will be able to explain the scientific concept of inheritance	- Match the parents to the offspring - Sort characteristics of humans into groups of "inherited characteristics" and "acquired characteristics"	Identifying, classifying and grouping. Sort characteristics of humans into groups of "inherited characteristics" and "acquired characteristics"	Inheritance, animals, plants, humans, parent, biological parent, offspring, similarities, differences, characteristics, variation.	List three inherited characteristics and three acquired characteristics.
2	***To identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.***	Children will be able to demonstrate understanding of the scientific meaning of adaptation.	- Children identify pairs of adaptive traits - Identify habitats that humans are able to live in	Pattern Seeking Identify whether animals that live in the same habitat have similar adaptive traits. Identifying, classifying and grouping. Classify living things along with their habitats and adaptive traits.	*Adaptation, environment, habitat, DNA, genes, adaptive traits, mutation, replication, accidental.*	Give one adaptation or a chosen animal and one adaptation of a chosen plant.
3	***Identify how adaptation may lead to evolution***	Children will be able to identify the key ideas of the theory	- Sort evolutionary ideas into a range of categories. - Summarise how the ideas have changed over time- write a	Pattern Seeking In relation to Darwin's observations of the beaks on finches, use different models for beaks and food to look for		Explain how adaptation may lead to evolution in your own words.

		of evolution.	paragraph or present their summary	patterns around the suitability of beak types and the food sources available. Identifying, classifying and grouping. Sort a variety of evolutionary ideas into different categories. Researching Use resources to learn about different evolutionary ideas and how they have changed over time.		
4	***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.***	Children will be able to identify evidence for evolution from fossil records.	- Recall the fossilisation process - State advantages and disadvantages of observing fossil records - Examine pictures of fossils and identify the similarities and differences between the fossil and its living relative	Researching Use fossil records to describe similarities and differences compared to their living relatives in regard to evolution.	***Evolution, inheritance, theory of evolution, fossil, fossil records, evidence, complete, incomplete, ancestor, common ancestor, traits.***	In your own words, explain the process of fossilisation.
5	***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.***	Children will be able to understand how human beings have evolved.	- Sort pictures into 3 categories- order, family or genus - Compare the known hominins in terms of physical appearance and skeletons	Identifying, classifying and grouping. Make comparisons between a modern-day human and fossil skeletons of those believed to be ancestors in human evolution.	***Human, apes, mammals, homo sapiens, family, genus, species, taxonomy.***	Summarise the differences between Australopithecus afarensis and Home sapiens sapiens.
6	***Identify how adaptation may lead*** ***to evolution***	Children will be able to explain how adaptations can result in both advantages and disadvantages.	- Match the advantages and disadvantages to the specific adaptations - Examine and sort selective and cross breeding cards into parents and selectively bred offspring	Identifying, classifying and grouping. Sort advantages and disadvantages of adaptive traits.		In your own words, explain how adaptation may lead to evolution.

		Children will be able to explain how human intervention affects evolution				

Year 6 – Light **Term: Spring**

National Curriculum	*Pupils should be taught to:* • **Recognise that light appears to travel in straight lines.** • **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.** • **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.** • **Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that them.**

	National Curriculum	Key Learning	Activities	Working Scientifically	Key Vocabulary	Exit Question
1	**To recognise that light appears to travel in straight lines.** **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 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.**	Children will be able to explain that light travels in straight lines from light sources to our eyes, and from light sources to objects and then to our eyes.	- Create a human model to show how light enables us to see. Use yellow wool to symbolise a ray of light - Produce an educational programme for children all about how light enables us to see		***Light, source, travel, straight line, waves, ray, beam, wave, photon, energy, vacuum.***	Draw a diagram to show how light reflects to enable us to see.
2	**To recognise that light appears to travel in straight lines.** **To use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect**	Children will be able to understand how mirrors reflect light and how they can help us see objects.	- Explore angles of incidence and reflection - Make a periscope - Explain how their periscope works	Pattern Seeking Investigate whether there is a pattern between the angle that a light ray hits a plane mirror and the angle that it is reflected from the plane mirror. Researching	***Reflection, angle, incidence, normal, periscope.***	Use reflection to explain how a rear-view mirror in a car works.

	light into the eye. **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**			Use a source to learn about periscopes to then make one and explain how they work.		
3	**To recognise that light appears to travel in straight lines.**	Children will be able to investigate how refraction changes the direction in which light travels.	- Carry out refraction investigations- Amazing Arrow and Incredible Images- photos in books with an explanation and a diagram		***Refraction, bend, lens, focus, focal point, transparent.***	In your own words, describe refraction.
4	**To recognise that light appears to travel in straight lines.**	Children will be able to investigate how a prism changes a ray of light.	- Predict what colour light is - Explain how a prism works - Create 'Newton's colour wheel'- make a prediction and explain their observations - Conclusion- what colour is light?		***Refract, spectrum, wavelength, colour, prism, visible, transparent, rainbow.***	List as many colours of the electromagnetic spectrum as you can.
5	**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 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**	Children will be able to investigate how light enables us to see colours.	- Answer questions on Newton's discovery - Explore filters and come to a conclusion - Use knowledge of how we see colour to create secret messages	Researching Read the Isaac Newton fact sheet and then answer questions.	***Filter, colour, light, see, reflect, absorb.***	In your own words, summarise Newton's contribution to our understanding of light.
6	**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.**	Children will be able to explain why shadows have the same shape as the object that casts them.	- Play interactive bingo - Create a shadow theatre- what happens when the puppets are tilted/they change the distance from the light source? - Use the shadow theatre to perform the dispute between Isaac Newton and Robert Hooke		***Shadow, light, source, opaque, size, distance, change, tilt, cast.***	Explain how to make something look bigger during a shadow theatre show.

	Assessment		-			

Year 6 – Living Things and Their Habitats

Term: Spring

National Curriculum	*Pupils should be taught 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.** • **Give reasons for classifying plants and animals based on specific characteristics.**

	National Curriculum	Key Learning	Activities	Working Scientifically	Key Vocabulary	Exit Questions
1	**To give reasons for classifying plants and animals based on specific characteristics.**	Children will be able to give reasons for classifying animals based on their similarities and differences.	- Sort and group a selection of animals based on similarities and differences	Identify, Grouping and Classifying Children classify a variety of animals using their own criteria.	*Classify, sort, group, similarities, differences, compare.*	Is there only one way to sort and group animals?
2	**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**	Children will be able to describe how living things are classified into groups.	- Choose a living thing and use books or the internet to research the living thing and use the standard system to classify the living thing. - Give the scientific name of their chosen living thing using the genus and the species	Identifying, Grouping and Classifying Classify animals and plants based on Carl Linnaeus' system Researching Use the lesson presentation to learn about Carl Linnaeus and then use books or the internet to research how to classify species of animals and plants.	***Carl Linnaeus, Linnaean, classification, standard, domain, kingdom, phylum, class, order family, genus.***	List the classification names for Cal Linnaeus' system.
3	**To describe how living things are classified into broad groups according to common**	Children will be able to identify the characteristics of different types of animals.	- Design a new creature and a fact file for the creature. - Classify their partner's creature using the standard system	Identifying, Grouping and Classifying	***Carl Linnaeus, Linnaean, classification,***	What are some similarities and differences between

	observable characteristics and based on similarities and differences, including micro-organisms, plants and animals	Children will be able to classify a creature based on its characteristics.		Identify the characteristics of each animal group and name examples of animals that fit into each group.	***standard, domain, kingdom, phylum,*** ***class, order, family, genus, species.***	amphibians and reptiles?
4	**To describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals**	Children will be able to describe and investigate helpful and harmful microorganisms.	- Investigate what makes mould grow. - Children decide on the variable, their question and their prediction	Observing over Time Observe mould growth over time whilst carrying out a test. Comparative and Fair Testing Carry out a test investigating mould growth on bread under different conditions.	***Microorganism, fungus, bacteria, virus, microscopic, mould.***	Summarise your findings from the investigation.
5	**To describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals**	Children will be able to identify the characteristics of different types of microorganisms.	- Identify which is a fungus cell and which is a bacterium cell - Use modelling dough to sculpt their own single celled microorganism. - Complete a fact file with the name of their microorganism, classification and its uses or effects	Observing over Time Observe mould growth over time whilst carrying out a test. Comparative and Fair Testing Carry out a test investigating mould growth on bread under different conditions. Researching Use the lesson presentation content to research and understand the differences between bacteria, fungi and viruses	***Cell, eukaryote, nucleus, DNA, fungus, virus, bacteria.***	Give 3 things you have learnt about microorganisms.

				and how some can be helpful and some harmful.		
6	**To describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals**	Children will be able to classify organisms found in my local habitat. Children will be able to explain the classification of organisms found in my local habitat.	- Classify the organisms they find in the school outdoor environment. - Describe each phylum and class of living things.	Identifying, Grouping and Classifying Classify organisms found in the local area to make a field guide.	***Classify, organism, species, vertebrate, invertebrates, mammals, birds, amphibians, reptiles, fish, insects, arachnids, molluscs, crustaceans, annelids, plants, flowering, non-flowering.***	Choose one species which you found at school and explain fully how it would be classified.
	Assessment		-			

Year 6 – Electricity

Term: Summer

National Curriculum	*Pupils should be taught to:* • ***Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit.*** • ***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.*** • ***Use recognised symbols when representing a simple circuit in a diagram.***

	National Curriculum	Key Learning	Activities	Working Scientifically	Key Vocabulary	Exit Question
1	***Identifying scientific evidence that has been used to support or refute ideas or arguments***	Children will be able to explain the importance of the major discoveries in electricity.	- Read and answer comprehension questions relating to the history of electricity	Researching Read about the history of electricity and appliances. Then, answer questions and consider how appliances and lives have changed over time with the invention and growth of electricity.	*Electricity, Thomas Edison, Nikola Tesla, Alessandro Volta, Michael Faraday, home, alternating current, direct current, battery, cell.*	List three major events leading to the discovery of electricity.
2	***Use recognised symbols when representing a simple circuit in a diagram***	Children will be able to recognise and draw scientific circuit symbols.	- Children label parts of a circuit and then convert circuit diagrams using informal pictures into a circuit diagram using scientific circuit symbols		***Bulb, wires, switch, motor, buzzer, scientific, informal, circuit diagram.***	Draw a circuit which doesn't work. Include a bulb, a cell and a switch.
3	***Associate the brightness of a bulb or the volume of a buzzer with the number and voltage of cells used in the circuit***	Children will be able to observe and explain the effects of differing volts in a circuit.	- Make predictions about what will happen to a bulb, motor or buzzer depending on the voltage of the cell or battery. - Children to test their predictions	Pattern Seeking Identify and label circuit symbols. Comparative and Fair Testing Carry out a test investogatin how the voltage of a cell or battery affects a bulb, motor or buzzer in a circuit.	***Voltage, circuit, switch, brightness, loudness, increase, decrease.***	What happens to the brightness of a bulb when an additional cell is added to a circuit?

4	***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***	Children will be able to plan an investigation Children will be able to understand variations in how components function.	- Children select their type of enquiry - Plan their enquiry	Comparative and Fair Testing Plan and carry out a test of their choice, investigating how one component in a circuit may affect another.	***Investigation, plan, fair test, comparative test, practical enquiry, length.***	What would happen to a working circuit if a closed switch was changed to an open switch?
5	***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***	Children will be able to conduct an investigation. Children will be able to record my data and report my findings.	- Children conduct their investigation - Report their findings, evaluating how well they established degrees of trust in their results	Comparative and Fair Testing Plan and carry out a test of their choice, investigating how one component in a circuit may affect another.		What would happen to the volume of a buzzer if a cell was removed from a circuit?
6	***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.***	Children will be able to investigate their results further.	- Decide how they could conduct a different investigation to further investigate their results - Plan - Make predictions - Degree of trust - Conduct the investigation - Report findings	Comparative and Fair Testing Plan and carry out a test of their choice, investigating how one component in a circuit may affect another.		How would the function of the bulb change in the following circuits? *Insert two different circuit diagrams*.
7	***Assessment***		-			