Science at Castlefields Primary School

Statement of intent:

At Castlefields, we aim for our curriculum to be fully inclusive, meeting the learning needs of every child. Our objectives are to fully meet the requirements of the National Curriculum for science by offering a broad, balanced and engaging curriculum that promotes the progressive development of scientific concepts, knowledge, enquiry, and skills. We aim for our pupils to develop a natural curiosity about the world. Our science curriculum is designed to develop a deep scientific knowledge through scientific explorations and investigations. This happens through the development of key scientific concepts through hands-on, practical experiences both in the classroom and during educational visits and experiences. At Castlefields, science offers opportunities to make meaningful links to real-life contexts and other subjects including maths, English, geography, PE and Design and Technology. We emphasise scientific enquiry, encouraging children to ask questions, test ideas, and develop critical thinking. Additionally, our science curriculum also aligns with British Values and supports pupils' spiritual, moral, social, and cultural development. By highlighting diverse contributions to science, we inspire pupils to see themselves as future scientists, engineers, and innovators.

Curriculum:

In the Early Years and Key Stage 1, children at Castlefields develop their understanding of the world by exploring their own experiences and the natural environment. They learn about materials, plants, animals, seasonal changes, and begin to work scientifically through simple investigations and observations. As they progress into Key Stage 2, pupils build on this foundation by deepening their understanding of scientific principles. They develop skills in scientific enquiry, using fair testing, data collection, and analysis. Throughout all key stages, our science curriculum encourages children to think critically, ask thoughtful questions, and understand how science impacts their daily lives and the wider world. This approach not only supports our PSHE curriculum but also reflects our six core character values at Castlefields Primary School.

Science Long Term Plan

The Castlefields Primary School Long Term Plan for Science outlines a structured approach to teaching science from Year 1 to Year 6, with each year focusing on various key scientific topics.

Year 1	Working Scientifically	Autumn 1
		Autumn 2
		Spring 1
		Spring 2
		Summer 1
		Summer 2
Year 2	Working Scientifically	Autumn 1
		Autumn 2
		Spring 1
		Spring 2
		Summer 1
		Summer 2
Year 3	Working Scientifically	Autumn 1
		Autumn 2
		Spring 1
		Spring 2
		Summer 1
		Summer 2
Year 4	Working Scientifically	Autumn 1
		Autumn 2
		Spring 1
		Spring 2
		Summer 1
		Summer 2
Year 5	Working Scientifically	Autumn 1
		Autumn 2
		Spring 1
		Spring 2
		Summer 1
		Summer 2
Year 6	Working Scientifically	Autumn 1
		Autumn 2
		Spring 1
		Spring 2
		Summer 1
		Summer 2

Science Medium Term Plans:

Medium-term plans ensure that both the necessary knowledge and subject-specific skills are covered. Individual lessons are tailored to inspire, engage, and challenge pupils according to their needs. We provide a wide range of experiences, both in the classroom and beyond, and encourage school trips and visitors to offer first-hand learning opportunities. The science units we teach are designed to help children build on prior knowledge and consolidate new learning. These units also support their understanding of scientific investigations.

Year 1 Science Medium Term Plan

Autumn 1- Humans			Autumn 2- Seasonal changes: Autumn and Winter			Spring 1- Everyday Materials			Spring 2- Animals			Summer 1 – Plants			Summer 2 – Seasonal changes		
Observe animals in the local environment throughout the year. Children generate questions for investigation Classify animals they have seen/have first-hand experience of, choosing their own criteria to do so. Classify animals based on physical structure. Classify animals they have had first-hand experience of based on what they eat (plants, other animals, both). Complete this after the research. Use secondary sources to name animals seen in the local environment that they may not currently be able to name (eg magpie blackbird) Research what animals they have first-hand experience of eat. **Famous Scientists:** Chris Packham-Animal Conservationist			Take weather measurements and make observations over time. Record/photograph what children are wearing Make observations of daylight hours e.g. send a diary and toy bear home children to record their activities. The bear must go to bed when it is dark and the children must record the time this happens (this gathers evidence, over time, that day length changes and so do the activities). At the end of the year, look for patterns in evidence e.g. Does it rain more in the spring? Do we have more sunny days in the summer? Which was the coldest month? **Famous Scientists** Dr Steve Lyons (Extreme Weather) Holly Green (Meteorologist)			Can we name the everyday materials? Label the objects in the classroom with their name and material. Can we solve the riddles by matching the properties to the materials? Test different materials to see how waterproof/absorbent they are. **Famous Scientists:** Charles Mackintosh (Waterproof coat)			Scientific Knowledge • Children can identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. • Children can describe and compare the observable features of animals from a range of groups. • Children can name and identify animals that are herbivore, carnivore or omnivore. • Children can identify a variety of common animals.			Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees Identify and describe the basic structure of a variety of common flowering plants, including trees observing closely, using simple equipment identifying and classifying			Continuous provision See previous		
Week 1	2	3	Week 1	2	3	Week 1	2	3	Week 1	2	3	Week 1	2	3	Week 1	2	3
My body – Identify, name and label various human body parts.	Senses – what are our 5 senses? Which parts of our body are used for each?	Touch – Understand that our whole body senses 'touch' but we use our hands to feel. Use 'feely bag' to feel a variety of objects. Use vocab to describe what they are.	Identify existing knowledge. Understand what a season is, what months each season is in, create season calendar/collage	To observe and describe weather associated with the seasons by observing and measuring the weather in Autumn. Continue with season collage.	To observe and describe how day length varies in the context of Autumn to Winter. To observe changes across the 4 seasons by looking at how trees and the clothes we wear change	Name and identify common materials.	Objects and materials. Look at objects and decide what materials they are made of. Group them.	Describing properties of everyday materials. Use appropriate vocabulary	Observing Animals Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. Identifying and classifying.	Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets). Identifying and classifying .	continued	Inspire and excite children about plants: plant quiz- amazing plants.	Wild plants. Pupils to learn the names and features of several local wild plants. Give pupils 'spotter guides' that they can take home to identify as many as possible.	Garden plants. Name and describe a series of garden plants and be able to explain why people have them (colour and scent etc.)	Revision of vocab from last time taught, what we had already covered etc.	Using last week's vocab, look at Autumn weather and how the land can change during the season.	Using previous vocab, look at Winter weather and how the land can change during the season.
4	5	6	4	5	6	4	5	6	4	5	6	4	5	6	4	5	6
Sight – looking at objects & pictures. Play spot the difference and description games.	Smell – smell a variety of different foods. Can pupils identify what they are?	Hear – listening to instruments. Which instrument is being played? Class close their eyes and one person speaks. Can pupils identify who has spoken?	Using previous vocab, look at Winter weather and how the land can change during the season.	To observe and describe weather associated with the seasons by observing and recording the weather in winter.	Animals in Autumn and Winter. Why do we stop seeing certain animals at certain times?	Identify properties an umbrella would need and test various materials.	Explain the results from last week's investigation.	FLook at Charles Mackintosh and his famous invention. What can we learn from him?	Animal Diets Identify and name a variety of common animals that are carnivores, herbivores and omnivores. Identifying and classifying.	Sorting Animals Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets).	Continued from last week Identifying and classifying.	Parts of plants and trees. Name petal, leaf, flower, stem and roots as well as trunk, branch and blossom. Collect samples, draw. Explain what each part is used for	Trees. Collect leaves from trees, use guide to identify what we have found. Sort them. Explain evergreen and deciduous. Use knowledge to label trees in school forest.	How do plants grow? Look back at our investigation, which plants grew best?	Humans through the seasons- what activities can humans in different seasons? Why?	Clothing- why is certain clothing better at certain times of year?	Look at results of ongoing investigations- which season is rainiest? Coldest? Hottest?
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Taste – tasting foods. Pupils to name individual foods that they eat, taste, then describe each.																	

Year 2 Science Medium Term Plan

Autumn 1- Animals including Humans **Focus on animals**			Autumn 2- Animals including Humans **Focus on humans**			Spring 1- Use of Everyday Materials			Spring 2- Plants			Summer 1 – Living things and their habitats			Summer 2 – Living things and their habitats/ Seasonal Changes		
To recognise that animals including humans have offspring that grow into adults. To recognise how a range of animals change as they grow. To recognise how adults and their offspring are similar and different. To recognise that most baby animals need to be cared for by their parents. To recognise the basic needs of animals including humans (air, water, food). To recognise what might happen if the basic needs are not met. To think about how we can care for an animal i.e. a pet and create a care file. To collect data based on the classes favourite animal (pet) and present it to the class.			To focus on the human timeline and pick out the six stages. To carry out an experiment based on how humans change as they get older/bigger i.e. are older children faster, can tallest people jump further etc. To understand the importance of eating healthily. To plan a healthy meal. To sort food based on whether they are healthy or not. To understand the importance of exercise for humans. To recognise the effect that exercise has on our bodies. To recognise how they can keep themselves clean and also why being hygienic is important.			To identify and name everyday materials. To identify the properties of everyday materials To identify different uses of everyday materials. To compare the suitability of different everyday materials for a variety of reasons. Make predictions based on how some materials may react to certain situations. Use observations, ideas and experiences to ask and answer simple questions about a range of everyday materials. Demonstrate and explain how the shapes of objects made from certain everyday materials can be changed.			To observe plants and trees and record what they see. Label the main parts of plants and trees. Recognise that plants are living things. Draw and describe the stages in the life cycle of a plant. Explain that plants need water, light and a suitable temperature to grow well. Plant a seed/bulb. Measure the growth of plants and make observational drawings. Recognise that different plants have different needs. Name and give examples of food crops. Compare the growth of different plants.			To explain some of the life processes (MRS GREN). To ask questions to decide if a thing is living, dead or has never been alive. To identify some plants and animals in global habitats. To draw a local habitat and the living things you would find in it. To identify and name minibeasts in a microhabitat. To suggest ways in which an animal is able to survive in their habitat. To understand why each thing found in a habitat is important and the role it plays. To draw a simple food chain.			To introduce the processes of reproduction and growth in animals. To work scientifically by observing through first-hand observation and measurement, how caterpillars become butterflies. Ask questions about what things caterpillars/butterflies need for survival and suggesting ways to find answers to the questions. Write a diary of the different stages of development. Revisit prior learning about the four seasons. Investigate the changes from autumn to winter and then spring to summer. Find out how the day length changes depending on the season.		
Week 1	**2**	**3**	**Week 1**	**2**	**3**	**Week 1**	**2**	**3**	**Week 1**	**2**	**3**	**Week 1**	**2**	**3**	**Week 1**	**2**	**3**
How many animals can we name? Categorise different types of animals.	Find out about the offspring of a variety of different animals.	Find out about the different ways animals reproduce. Look at how animals change as they grow. What are the different stages?	What do humans need to survive? Identify needs and wants.	Identify the six stages of the human life timeline and draw/ compare how humans change.	Experiments based on how humans change as they get older/ bigger.	How many animals can we name? Categorise different types of animals.	Find out about the offspring of a variety of different animals.	Find out about the different ways animals reproduce. Look at how animals change as they grow. What are the different stages?	What do humans need to survive? Identify needs and wants.	Identify the six stages of the human life timeline and draw/ compare how humans change.	Experiments based on how humans change as they get older/ bigger.	How many animals can we name? Categorise different types of animals.	Find out about the offspring of a variety of different animals.	Find out about the different ways animals reproduce. Look at how animals change as they grow. What are the different stages?	What do humans need to survive? Identify needs and wants.	Identify the six stages of the human life timeline and draw/ compare how humans change.	Experiments based on how humans change as they get older/ bigger.
4	**5**	**6**	**4**	**5**	**6**	**4**	**5**	**6**	**4**	**5**	**6**	**4**	**5**	**6**	**4**	**5**	**6**
Identify and understand the basic needs of animals.	Explore the environment as a factor of survival for animals.	What happens if basic needs not met? How can we help? Care files.	Recognise the importance of eating healthy and sort food based on if they are healthy or not. To plan a healthy meal.	Understand the importance of exercise and the effect it has on our body.	Recognise the importance of good hygiene.		Identify and understand the basic needs of animals.	Explore the environment as a factor of survival for animals.	What happens if basic needs not met? How can we help? Care files.	Recognise the importance of eating healthy and sort food based on if they are healthy or not. To plan a healthy meal.	Understand the importance of exercise and the effect it has on our body.	Recognise the importance of good hygiene.		Identify and understand the basic needs of animals.	Explore the environment as a factor of survival for animals.	What happens if basic needs not met? How can we help? Care files.	Recognise the importance of eating healthy and sort food based on if they are healthy or not. To plan a healthy meal.
7	**8**	**9**	**7**	**8**	**9**	**7**	**8**	**9**	**7**	**8**	**9**	**7**	**8**	**9**	**7**	**8**	**9**
Year 2s favourite pets collect and present data to the rest of the class.			How can we feel better when we are ill?			Research inventors that created new materials:						Year 2s favourite pets collect and present data to the rest of the class.			How can we feel better when we are ill?		

Year 3 Science Medium Term Plan

Autumn 1- Light	Autumn 2- Forces and magnets	Spring 1- Rocks	Spring 2- Animals inc humans	Summer 1 – Plants	**Summer 2 – Scientists and Inventors**
- I can recognise that they need light in order to see things and that dark is the absence of light. - I can notice that light is reflected from surfaces. - I can recognise that light from the sun can be dangerous and that there are ways to protect their eyes. - I can recognise that shadows are formed when the light from a light source is blocked by an opaque object. - I can find patterns in the way that the size of shadows change. **Famous scientists:** Justus Von Liebig Mirrors James Clerk Maxwell (Visible and Invisible Waves of Light)	- I can compare how things move on different surfaces. - I can notice that some forces need contact between 2 objects, but magnetic forces can act at a distance. - I can observe how magnets attract or repel each other and attract some materials and not others. - I can compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials. - I can describe magnets as having 2 poles. - I can predict whether 2 magnets will attract or repel each other, depending on which poles are facing. **Famous scientists:** Andre Marie Ampere- Electro-magnetism The Wright Brothers Airplanes Henry Ford- Cars	- I can compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. - I can describe in simple terms how fossils are formed when things that have lived are trapped within rock. - I can recognise that soils are made from rocks and organic matter. **Famous scientists:** Mary Anning- Fossil hunter Dr Anjana Khatwa Geologist William Smith Fossils strata Inge Lehrmasn -Earth's Mantle Katia Krafft - Geologist and Volcanologist	- I can identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat. - I can identify that humans and some other animals have skeletons and muscles for support, protection and movement. **Famous scientists:** Adelle Davis –Nutritionist, Marie Maynard Daly - biochemist	I can identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. - I can explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant. - I can investigate the way in which water is transported within plants. - I can explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. **Famous scientists:** Joseph Banks- Botanist Ahmed Mumin Warfa – Botanist	Marie Curie George Washington Carver Sally Ride David Attenborough Eugine Clark Stephen Hawking

Week 1	**2**	**3**	**Week 1**	**2**	**3**	**Week 1**	**2**	**3**	**Week 1**	**2**	**3**	**Week 1**	**2**	**3**			
Light and Dark To understand we need light to see things.	Light Safety Understand how light can damage our eyes and how to keep safe.	Shadows Investigate which materials block light and create shadows	Explore all the different ways forces can act on a variety of everyday objects. Classify as push, pull or both.	Faster and Slower Investigate friction on different materials	Magnets Which objects are magnetic?	Types of rocks Comparing rocks	Grouping Rocks Investigate properties	Fossils How are they formed?	Nutrition Food groups	Food labels	Animal skeletons	Parts of a plant	Discover the role played by insects in pollination.	Plant life cycle			
4	**5**	**6**	**4**	**5**	**6**	**4**	**5**	**6**	**4**	**5**	**6**	**4**	**5**	**6**			
Actively investigate how different objects cast shadows.	Reflection Investigate reflective materials.		Magnet Strength Investigate different magnets	Magnetic poles		Soil formation Creating edible soil formation	Soil Permeability		Investigate how muscles work in pairs (biceps and triceps)	Human skeletons		How is water transported?	Investigation plant growth	Investigation seed dispersal Consolidate knowledge of pollination.			

Year 4 Science Medium Term Plan

Autumn 1 – Eating and the Digestive System			Autumn 2 – States of Matter			Spring 1- Sound			Spring 2- Electricity			Summer 1 - Famous Scientists linked to our science topics			Summer 1- Living in Environments		
- I can describe the simple functions of the basic parts of the digestive system in humans. - I can identify the different types of teeth in humans and their simple functions. - I can construct and interpret a variety of food chains, identifying producers, predators and prey. **Famous Scientists:** Joseph Lister-Antiseptic Ivan Pavlov- Digestive System Mechanisms Washington & Lucius Sheffield-Toothpaste in a tube			- I can compare and group materials together, according to whether they are solids, liquids or gases - I can observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C) - I can identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature **Famous Scientists:** Joseph Priestly – Discovered oxygen Lord Kelvin -Absolute zero (temperature) Anders Celsius -Temperature Scale Daniel Fahrenheit- Temperature Scale George Washington Carver- chemist			- I can identify how sounds are made, associating some of them with something vibrating. -I can recognise that vibrations from sounds travel through a medium to the ear. - I can find patterns between the pitch of a sound and features of the object that produced it. - I can find patterns between the volume of a sound and the strength of the vibrations that produced it. - I can recognise that sounds get fainter as the distance from the sound source increases. **Famous Scientists:** Alexander Graham Bell -Invented the telephone Aristotle - Sound Waves Gailileo Galilei - Frequency and Pitch of Sound Waves			- I can identify common appliances that run on electricity. - I can construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. - I can identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery. - I can recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. - I can recognise some common conductors and insulators, and associate metals with being good conductors. **Famous Scientists:** Michael Faraday- Discovered relationship between magnets and electricity Thomas Edison- Lightbulb Joseph Swan- Incandescent Light Bulb			-I can understand the importance of hygiene in preventing infection and the role of bacteria in health. -I can understand the role of gases in the air and investigate the properties of oxygen. -I can investigate how sound travels through different materials and how we hear. -I can investigate and compare how things move on different surfaces and explore magnetic forces. -I can investigate how electrical circuits work, including the use of conductors and insulators. -I can learn about different marine ecosystems and the creatures that live in them. Understand how humans can protect the ocean environment.			- I can recognise that living things can be grouped in a variety of ways. I can explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. I can recognise that environments can change and that this can sometimes pose dangers to living things. **Famous Scientists:** Jacques Cousteau -Marine Biology Cindy Looy-Environmental Change and Extinction Joean Beauchamp Procter Zoologist Famous		
Week 1	**2**	**3**	**Week 1**	**2**	**3**	**Week 1**	**2**	**3**	**Week 1**	**2**	**3**	**Week 1**	**2**	**3**	**Week 1**	**2**	**3**
Identify and classify carnivore	Interpret food chains.	Identify the different types of teeth in humans and identify their functions.	Compare and group materials together - solids or liquids.	Identify and explore the properties of gases.	Observe materials change state when they are heated or cooled.	Find out that sounds are made when objects and materials vibrate.	Investigate whether sounds can travel through different materials.	Explore the relationship between distance and volume.	Identify common appliances that run on electricity.	Understand how to keep safe around electrical appliances.	Construct simple circuits.	Famous Scientists: Joseph Lister	Famous Scientists: Joseph Priestly	Famous Scientists: Alexander Graham Bell -	Identify a variety of habitats and explore why organisms live in different habitats.	Group organisms according to their characteristics	Classify animals into specific groups according to their characteristics
4	**5**	**6**	**4**	**5**	**6**	**4**	**5**	**6**	**4**	**5**	**7**	**4**	**5**	**6**			
Explore ways of keeping teeth healthy. our teeth	How the digestive system works. .	Describe the functions of the basic parts of the digestive system.	Temperature in degrees Celsius (°C) at which materials change state. different chocolate.	Understand the process of evaporation.	End of unit assessment	Which materials are effective in preventing vibrations from sound sources reaching the ear.	Investigate how sounds can be different pitches and volumes.	How the length, thickness and tightness of a string affects its pitch.	Recognise common conductors and insulators.	Make a simple device which includes a circuit.	End of unit assessment	Famous Scientists: Michael Faraday-	Famous Scientists: Jacques Cousteau marine life and discuss ways to protect the oceans.		Use a classification key to identify animals.	Identify and classify a variety of British plants.	Explore the human impact on habitats and environments.

Year 5 Science Medium Term Plan

Autumn 1- Changes in Materials	Autumn 2- Living Things	Spring 1 – Forces and Magnets	Spring 2- Earth and Space	**Summer 1 Scientists and Inventors**	Summer 2 – Animals including humans
I can compare and group together everyday materials on the basis of their properties - I can know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution. - I can use knowledge of solids, liquids and gases to decide how mixtures might be separated - I can give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials - I can demonstrate that dissolving, mixing and changes of state are reversible changes. - I can explain that some changes result in the formation of new materials **Famous Scientists:** Sir Humphrey Davy- Separating gases Jamie Garcia (BP website)- Invention of a new plastic Becky Schroeder - fluorescence material Spencer Silver, Arthur Fry and Alan Amron - Post-It Notes Ruth Benerito - Wrinkle-Free Cotton	- I can describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. - I can describe the life process of reproduction in some plants and animals. **Famous Scientists:** Jane Goodall- naturalist Sylvia Earle - Marine biologist Dr. Paula Kahumbu-wildlife conservationist Mangala Mani – Antarctic scientist Sir David Attenborough- Animal Behaviourist	- I can explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. - I can identify the effects of air resistance, water resistance and friction that act between moving surfaces. - I can recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect. **Famous Scientists:** Isaac Newton- Gravity Albert Einstein- The Theory Of relativity Galileo Galilei - Gravity and Acceleration Archimedes of Syracuse- Levers	- I can describe the movement of the Earth and other planets relative to the sun in the solar system. - I can describe the movement of the moon relative to the Earth. - I can describe the sun, Earth and moon as approximately spherical bodies. - I can use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky. **Famous Scientists:** Margaret Hamilton- Computer scientist (Moon Landings) Stephen Hawking- Black Holes Mae Jemison – Astronaut Claudius Ptolemy and Nicolaus Copernicus - Heliocentric vs Geocentric Universe Neil Armstrong- First man on the Moon Helen Sharman- GB astronaut Caroline Herschel- First to find a comet Valentina Tereshkova-Cosmonaut	- I can describe the changes as humans develop to old age. **Famous Scientists:** Alexander Fleming- Penicillin Louis Pasteur- Vaccination Eva Crane -Reproduction in Bees Virginia Apgar- obstetrical anaesthesiologist

Week 1	**2**	**3**	**Week 1**	**2**	**3**	**Week 1**	**2**	**3**	**Week 1**	**2**	**3**	**Week 1**	**2**	**3**	**Week 1**	**2**	**3**
Properties of materials	Differences between solid, liquid and gas.	Investigate thermal insulators and conductors.	Explain difference between sexual and asexual reproduction. Identify function of parts of flower. Describe ways plants pollinated to reproduce.	Describe asexual reproduction in plants. Identify advantages/ disadvantages to sexual and asexual reproduction in plants. Explain ways to make new plants.	Life cycles of mammals. Describe process of reproduction in mammals. Describe different types of mammals. Describe and compare the life cycles of different mammals.	Forces and magnets prior knowledge recap.	To identify forces acting on objects.	To explore the effect gravity has on objects and how gravity was discovered.	Spherical Bodies To explain why we know the Sun, Earth and Moon are spherical and identify scientific evidence which does or does not provide evidence for an idea or argument.	The planets To name and describe features of the planets in our solar system. To order the planets in our solar system.	Geocentric Vs Heliocentric To explain how planets move in our solar system. To identify scientific evidence which does or does not provide evidence for an idea or argument.	What evidence can help people solve a crime? How is it collected etc.	Fingerprint focus. Collect fingerprints and look at their fingerprint pattern.	Footprint focus. Gait and footprint analysis.	Human timeline. Stages of human development overview.	Growth of babies. What happens during the growth and development of a baby?	Puberty. What are the main changes that occur in males and females during puberty?
4	**5**	**6**	**4**	**5**	**6**	**4**	**5**	**6**	**4**	**5**	**6**	**4**	**5**	**6**	**4**	**5**	**7**
Investigate the best electrical conductors.	Investigate materials that will dissolve.	To separate mixtures of materials.	Discuss what we know about chimpanzees in terms of life processes/ reproduction	Compare the life cycles of amphibians and insects.	Compare the life cycles of plants, mammals, amphibians, insects and birds.	To investigate the effects of air resistance.	To explore the effects of water resistance. To investigate the effects of friction	To explore and design mechanisms.	Night and Day/ Night and Day Investigate night and day in different parts of the Earth.	Movement of the Moon To explain the movement of the Moon.	Space presentation	DNA focus. Create their own DNA strings.	Invisible ink experiment	Spy gadget	Changes in old age. What changes occur in humans during old age?	Gestation. What is the gestation period of different animals? What changes occur during gestation?	Life expectancy. Do all animals have the same life expectancy?
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Recognise/ identify irreversible chemical changes.																	

Year 6 Science Medium Term Plan

Autumn 1- Electricity	Autumn 2 – Scientific Investigations	Autumn 2- Light	Spring 2- Animals inc. humans	Summer 1- Living things and habitats	Summer 2 – Evolution and inheritance
- I can associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. - I can 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. - I can use recognised symbols when representing a simple circuit in a diagram. **Famous Scientists:** Nikola Telsa -AC electric system Alessandro Volta- Electrical Battery Nicola Tesla- Alternating Currents Edith Clarke -Electrical engineer		I can recognise that light appears to travel in straight lines. - I can 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. - I can 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. - I can use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. **Famous Scientists:** Thomas Edison -Invented electric light bulb Patricia Bath (BP website)- saving sight Thomas Young (Wave Theory of Light) Ibn al-Haytham -Light and our Eyes Percy Shaw - The Cats Eye	- I can identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. - I can recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. - I can describe the ways in which nutrients and water are transported within animals, including humans. **Scientist Link:** Leonardo Da Vinci- anatomy Santorio Santorio-Anatomist Dr. Katherine Dibb – Expert in Cardiovascular Sciences Justus von Liebig- Theories of Nutrition and Metabolism Sir Richard Doll- Linking Smoking and Health Problems	I can 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. - I can give reasons for classifying plants and animals based on specific characteristics. **Scientist Link:** Carl Linneus Classification Libby Hyman Classification Invertebrates	I can recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. - I can recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. - I can identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. **Famous scientists** Charles Darwin- Evolution Alfred Russell Wallace – naturalist Rosalind Franklin – DNA Nettie Stevens – Geneticist Professor Alice Roberts - Evolutionary biologist Hippocrates -The Father of Medicine
Week 1	**Week 1**	**Week 1**	**Week 1**	**Week 1**	**Week 1**
Making circuits, remembering how to check for faults Series and parallel circuit	Design an electrical circuit for a purpose.	Understand that light travels in straight lines.	Identify and name the main parts of the human circulatory system	Grouping organisms according to their characteristics.	Recognise that characteristics are passed from parents to children.
2	**2**	**2**	**2**	**2**	**2**
Bulb brightness/ motor speed.	Design function, aesthetics and siting of lighthouse project.	How do we see things? The anatomy of a human eye.	Describe the functions of the heart, blood vessels Heart Rate investigation.	Explore ways of distinguishing between organisms that have similar characteristics.	Learn about the evidence that we have for evolution, including fossils and skulls.
3	**3**	**3**	**3**	**3**	**3**
Recognise and use conventional symbols for circuits..	Build functioning electrical circuit and lighthouse.	Understand that white light is made up of every colour of the spectrum.	Nutrients and water are transported within animals, including humans. To know	Ways in which plants are classified by botanists.	Understand that sometimes, change can be negative (maladaptation), but often can increase chances of survival.
4	**4**	**4**	**4**	**4**	**4**
Experiment to see how changing the wire in a circuit affects the brightness of a bulb. Length	Review circuits and add functions (timers, motors)	How we are able to see colour.	Describe the ways in which nutrients and water are transported within animals, including humans.	Understand development of Linnaeus' classification system.	Explain how certain animals and plants have adapted to their surroundings.
5	**5**	**5**	**5**	**5**	**5**
Experiment to see how changing the wire in a circuit affects the brightness of a bulb. Thickness	Research electrical circuit uses in wider life.	Understand the difference between reflecting and refracting light.	Recognise the impact of diet on the way their bodies function. Recognise the impact of exercise on the way their bodies function.	Discover some ways in which microorganisms are classified, and what they need to survive.	Learn about Darwin, Anning and Wallace and create a biography of one of those scientists.
6	**6**	**6**	**6**	**6**	**6**
Research and write a biography about one of the famous scientists.	Plan and draw electrical circuits for new project.	Investigate how to change shadows with a series of different experiments.	Recognise the impact of drugs and lifestyle on the way their bodies function.	Investigation: Identify and classify organisms in the local area, using learning from this half term's work.	