Cherry Tree Academy Medium Term History

Autumn 1		
UKS2	Forces	
	Year 5	**Year 6**
	L1: What is a force and how do they work? L2: What is Gravity and how can it be measured? L3: What is air resistance and how does it happen? L4: What is air resistance and how does it happen? L5: How do everyday Objects use forces? L6: Who is John McAdam and is he involved in the development of suitable road surfaces?	L1: What is a force and how do they work? L2: What is Gravity and how can it be measured? L3: What is air resistance and how does it happen? L4: What is air resistance and how does it happen? L5: How do everyday Objects use forces? L6: Who is John McAdam and is he involved in the development of suitable road surfaces?
Key Concepts to assess	L1: Children will know that for some forces to act, there must be contact, but some forces can also act at a distance. L2: Children will be able to demonstrate the effect of gravity acting on an unsupported object. L3: Children can give examples of air resistance and when it is beneficial to have high or low air resistance. L4: Children can give examples of water resistance and when it is beneficial to have high or low water resistance. L5: Children will demonstrate how pulleys, levers and gears work. L6: Children to know about the life and work of John McAdam and use this to create an investigation to investigate surface friction.	L1: Children will know that for some forces to act, there must be contact, but some forces can also act at a distance giving examples for each. L2: Children will be able to demonstrate the effect of gravity acting on an unsupported object and know this is measured in NM. L3: Children can give examples of air resistance and when it is beneficial to have high or low air resistance as well as explain that the quicker an object moves the more particles it will collide with. L4: Children can give examples of water resistance and when it is beneficial to have high or low water resistance and explain which shapes will have high or low resistance and why. L5: Children will demonstrate how pulleys, levers and gears work including how the placement of the fulcrum point effects this. L6: Children to know about the life and work of John McAdam and use this to create an investigation to investigate surface friction, explaining the type to forces involved (contact force).
Vocabulary	long arm, load pivots effort lever Pulley, axel gear, machines water resistance particles Air resistance Newton Meter Sir Isaac Newton Gravity mass, John McAdam surface friction	long arm, fulcrum, load pivots effort lever Pulley, fixed axel, free axle, gear, machines water resistance particles Air resistance Newton Meter Sir Isaac Newton Gravity mass, John McAdam, surface friction, exert, mass

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Experiences	**Scientific Enquiry –** create a timer that uses gravity to move a ball- research how the work of scientists such as Isaac Newton helped to develop the theory of gravitation. **Scientific Enquiry –** - investigate the effects of air resistance using parachutes … explain the results of my investigations in terms of the force, showing a good understanding that as the object tries to move through the air, the air resistance slows it down **Scientific Enquiry –** investigate the effects of water resistance in a range of contexts e.g. dropping shapes through water and pulling shapes, such as boats, along the surface of water …explain the results of our investigations in terms of the force, showing a good understanding that as the object tries to move through the water or across the surface the particles in the water or on the surface slow it down. **Scientific Enquiry –** explore how levers, pulleys and gears work and make a product that involves a lever, pulley or gear. … demonstrate clearly the effects of using levers, pulleys and gears.
SMSC	Cause and effect- To show an understanding of the consequences of their behaviour and actions. Social – working with other pupils when completing experiments Culture – understanding the importance of Isaac Newton's role in developing the principles of modern physics
British Values	Mutual respect and tolerance – through listening to others' opinions when working with materials
School Values	Resilience- discuss the force placed on us when things are difficult and the reaction to this force, we need to achieve what we want.

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Autumn 2		
UKS2	Properties and Changes of Materials	
	Year 5	**Year 6**
	L1: What different states of matter are there, and can they change? L2: Can solids and liquids interact? L3: Are all changes permanent? L4: Are all materials the same? L5: Can crystals be made? L6: Can we influence the process of change?	L1: What different states of matter are there, and can they change? L2: Can solids and liquids interact? L3: Are all changes permanent? L4: Are all materials the same? L5: Can crystals be made? L6: Can we influence the process of change?
Key Concepts to assess	L1: Children will know the three states of matter and that in the case of water they can change through temperature change. L2: Children will know that in some solid materials the bonds between particles break when surrounded by a liquid allowing the liquid to 'absorb' the solid; when this happens, the solid is called a solute, the liquid is called a solvent and the result is a solution and that when a solid does dissolve in a liquid it is described as being soluble in that solvent. L3: Children will know that a reversible change is one where the object can be reversed back to their original state as no chemical reaction has taken place while an irreversible change is one that cannot be reversed and that examples of this often involves a chemical change where a new material is made L4: Children will know that materials' different properties can be tested through acting upon them, including testing to find whether materials are magnetic, thermally or electrically conductive L5: Children will know that filtering allows solids and liquids to be separated and that sieving allows solids of different sizes to be separated L6: Children investigate to know how the temperature of water affects how well sugar dissolves in it.	L1: Children will know the three states of matter and that in the case of water they can change through temperature change and the effect this has on their molecules L2: Children will know that in some solid materials the bonds between particles break when surrounded by a liquid allowing the liquid to 'absorb' the solid; when this happens, the solid is called a solute, the liquid is called a solvent and the result is a solution and that when a solid does dissolve in a liquid it is described as being soluble in that solvent. They will also know the amount a solvent can is finite before it becomes saturated. L3: Children will know that a reversible change is one where the object can be reversed back to their original state as no chemical reaction has taken place while an irreversible change is one that cannot be reversed and that examples of this often involves a chemical change where a new material is made giving examples (e.g. burning, boiling an egg, the reaction of bicarbonate of soda and acid) L4: Children will know that materials' different properties can be tested through acting upon them, including testing to find whether materials are magnetic, thermally or electrically conductive and suggest how these properties make them suitable for certain purposes. L5: Children will know that filtering allows solids and liquids to be separated and that sieving allows solids of different sizes to be separated and give examples of when to use which type of separation. L6: Children investigate to know how the temperature of water affects how well sugar dissolves in it and understand the effect the temperature had on the molecules in the water.

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Vocabulary	Evaporation, melting, materials, conductor insulator solution particles solute soluble solvent dissolve insoluble saturated crystals reversible filtering irreversible sieving electricity thermally magnetic	Evaporation, melting, materials, conductor insulator solution Particles solute soluble solvent dissolve insoluble Saturated crystals reversible filtering Irreversible sieving electricity thermally Magnetic Molecules bicarbonate of soda Acid Alkaline separation
Experiences	Scientific Enquiry – Observing Over Time - investigate making crystals Scientific Enquiry – Comparative & Fair Testing – investigate materials that will keep hot porridge hot and frozen yoghurt cold. Scientific Enquiry – Comparative & Fair Test – investigate which materials can best be used to filter solids out of water. Scientific Enquiry – Comparative & Fair Testing – investigate how the temperature of water affects how well sugar dissolves in it	
SMSC	Moral- homeless people need the most thermally insulated materials to keep warm- should these be free to them?	
British Values	Mutal respect- listen to and evaluate other predictions respectfully.	
School Values	Inclusive- ensure all members of a team are included in the enquiry sessions.	

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Spring		
UKS2	Earth and Space	
	Year 5	**Year 6**
	L1: How long does it take for the Earth and other planets to orbit the Sun? L2: What are the names of the planets in the Solar System and where are they? L3: Why is the moon always there? L4: Why does the moon change L5: Why is it dark at night? L6: Were we right when we first learned about our solar system?	L1: How long does it take for the Earth and other planets to orbit the Sun? L2: What are the names of the planets in the Solar System and where are they? L3: Why is the moon always there? L4: Why does the moon change L5: Why is it dark at night? L6: Were we right when we first learned about our solar system?
Key Concepts to assess	L1: Children will know that the Earth and other planets move in circular paths called orbits due to the suns gravitational pull and that one year is the amount of time it takes for a planet to orbit the Sun once. (for the Earth it is 365¼ days.) L2: Children will know that there are eight planets in the Solar System: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune and the order of the planets, according to their distance from the Sun. L3: Children will know that a moon is a satellite that does not produce its own light and a planet's gravitational pull keeps the moon travelling in a circular shape around the planet. L4: Children will know that as the Moon travels around the Earth, we can only see the part of the Moon facing the Sun at that time and therefore its appearance will change depending on where we are viewing the moon from. L5: Children will know that Earth is constantly spinning on its axis, and it takes 24-hours for the Earth to completely spin creating night and day. L6: Children will know that Ptolemy was an Ancient Egyptian astronomer who was one of the first people to describe the model of the Solar System	L1: Children will know that the Earth and other planets move in circular paths called orbits due to the suns gravitational pull, that one year is the amount of time it takes for a planet to orbit the Sun once. (for the Earth it is 365¼ days.) and that planets in our Solar System are far away from each other, so their orbits never cross over. L2: Children will know that there are eight planets in the Solar System: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune and the order of the planets, according to their distance from the Sun and that the four planets furthest away from the Sun are known as the gas giants. L3: Children will know that a moon is a satellite that does not produce its own light, a planet's gravitational pull keeps the moon travelling in a circular shape around the planet and takes just over 27 days for the Moon to orbit the Earth. L4: Children will know that as the Moon travels around the Earth, we can only see the part of the Moon facing the Sun at that time and therefore its appearance will change depending on where we are viewing the moon from as well as the names for these phases of the moon. L5: Children will know that Earth is constantly spinning on its axis, it takes 24-hours for the Earth to completely spin creating night and day, and this means that all the countries cannot have the same time. L6: Children will know that Ptolemy was an Ancient Egyptian astronomer who was one of the first people to describe the model of the Solar System and he believed the Earth was at the centre of the Solar System and that the Sun and other planets orbited around the Earth. This is called the geocentric model of the Solar System

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Vocabulary	Astronomer, Ptolemy, astronomer, Ptolemy, geocentric elliptical path, orbits, gravity, gravitational pull, Satellites Axis, reflects	Astronomer, Ptolemy, astronomer, Ptolemy, Geocentric Orbits, elliptical path, gravity, gravitational pull, Satellites Axis, time zone, reflects geocentric, -Day 1: New Moon -Day 4: Waxing Crescent, -Day 7: First Quarter, -Day 10: Waxing Gibbous -Day 14: Full Moon, -Day 18: Waning Gibbous -Day 21: Last Quarter -Day 24: Waning Crescent -Day 28: New Moon
Experiences	**Scientific Enquiry – Observing Over Time –** create a shadow investigation to see what happens to the shadow at different times of the day. **Scientific Enquiry – Identifying & Classifying / Research –** create a model to show the movement of the Sun, Moon and Earth within the Solar System Immersive Planetarium - Wonder dome	
SMSC	Spiritual- respectfully discuss the different theories on how the world began.	
British Values	Mutual respect and tolerance – discuss the differing views on the moon landings.	
School Values	Resilient- how astronomers must be resilient when facing challenges and setbacks- link to Armstrong and the broken button.	

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Summer 1		
UKS2	Living things and their Habitats- Classification	
	Year 5	**Year 6**
	L1: Why is the classification of plants and animals useful? L2: Why is Carl Linnaeus's work famous? L3: Do all animals that fit into the same group have the same characteristics? L4: What are microorganisms, and can they help or harm us? L5: Can micro-organisms be classified in the same way as plants and animals? L6: How do conditions affect the growth of micro-organisms?	L1: Why is the classification of plants and animals useful? L2: Why is Carl Linnaeus's work famous? L3: Do all animals that fit into the same group have the same characteristics? L4: What are microorganisms, and can they help or harm us? L5: Can micro-organisms be classified in the same way as plants and animals? L6: How do conditions affect the growth of micro-organisms?
Key Concepts to assess	L1: Know that scientists collected a huge number of plants and animals to arrange and classify them and why. L2: Know that in the Linnaean system, living things are classified and levels: domain, kingdom, phylum, class, order, family, genus, species L3: Know that there are 6 kingdoms which include animals, plants, fungi and bacteria. L4: Know that a microorganism is a very small living thing that can only be seen with a microscope. Give examples of those that can help- penicillin and those that can harm- viruses. L5: Know that microorganisms can be classified in various ways- number of cells, helpful or harmful. L6: Know that microorganisms reproduce more rapidly in the correct conditions.	L1: Know that scientists collected a huge number of plants and animals to arrange and classify them and how this has helped modern scientific discoveries. L2: Know that in the Linnaean system, living things are classified and levels: domain, kingdom, phylum, class, order, family, genus, species and how this has helped scientists understand new species that are discovered. L3: Know that there are 6 kingdoms which include animals, plants, fungi and bacteria and the characteristics that define these. L4: Know that a microorganism is a very small living thing that can only be seen with a microscope. Give examples of those that can help- penicillin and those that can harm- viruses as well as those that can be both- fungi. L5: Know that microorganisms can be classified in various ways- number of cells, helpful or harmful. Know that bacteria are a single-celled organism which can multiply and either help humans (such as in the stomach) or harm them (such as causing infection) L6: Know that microorganisms reproduce more rapidly in the correct conditions and which conditions prevent their growth.
Vocabulary	Observation, group, classify, classification, Vertebrates, fish, amphibians, reptiles, birds, mammals, invertebrates, insects, spiders, snails, worms, micro-organism, bacteria, fungus, virus, cell, nucleus Linnaean system,: domain, kingdom, phylum, class, order, family, genus, species microorganism, yeast	Observation, group, classify, classification, Vertebrates, fish, amphibians, reptiles, birds, mammals, invertebrates, insects, spiders, snails, worms, micro-organism, bacteria, fungus, virus, cell, nucleus, microorganisms Linnaean system: domain, kingdom, phylum, class, order, family, genus, species, mould, yeast, archaea, eukarya bacteria
Experiences	**Scientific Enquiry** In which conditions do microorganisms grow most rapidly? [*note: experiment includes growing microorganisms through cultivating mould on bread. Please ensure that relevant precautions are taken to keep all safe* **Scientific Enquiry** Does temperature affect the growth rate of microorganisms? (Yeast experiment**)**	

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SMSC	Social – working with other pupils when completing experiments
British Values	Mutual respect- listening to and understanding the opinions of others when planning and predicting an investigation.
School Values	Healthy- we keep ourselves healthy by using good hygiene routines to kill bacteria.

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Summer 2		
UKS2	Famous Inventors	
	Year 5	**Year 6**
	L1: Who was Stephen Hawking and what was his impact? L2: What is a Black hole and how are they made? L3: Can bacteria be good for us? L4: What is the impact of penicillin today? L5: Who was Steve Jobs and how have his inventions changed the world? L6: What power is in the finger?	L1: Who was Stephen Hawking and what was his impact? L2: What is a Black hole and how are they made? L3: Can bacteria be good for us? L4: What is the impact of penicillin today? L5: Who was Steve Jobs and how have his inventions changed the world? L6: What power is in the finger?
Key Concepts to assess	L1: Children will be able to share facts about Stephen Hawking's life. L2: Children will plan and set up an inquiry to demonstrate the causes of black holes. L3: Children will be able to describe Fleming's discovery of penicillin. L4: Children will be able to construct a scatter graph from a table of results L5: Children will understand how Steve Jobs used electronics to design computers. L6: Children will know how Steve Jobs was obsessed with the power of manipulating devices with one finger and use recognised symbols to represent some components used to make computers.	L1: Children will be able to share facts about Stephen Hawking's life and the impact his disability may have had positively or negatively. L2: Children will plan and set up an inquiry to demonstrate the causes of black holes and interpret and share their findings. L3: Children will be able to describe Fleming's discovery of penicillin and how wile beneficial it is still a dangerous drug. L4: Children will be able to construct a scatter graph from a table of results and answer questions about the effects of penicillin using my scatter graph. L5: Children will understand how Steve Jobs used electronics to design computers and explain the impact of his inventions. L6: Children will know how Steve Jobs was obsessed with the power of manipulating devices with one finger and use recognised symbols to represent some components used to make computer and build a simple circuit.
Vocabulary	Stephen Hawking, astrophysicist, black hole, gravity, density, light, event horizon, matter, Alexander Fleming, penicillin, antibiotic, microorganism, bacteria, , colony/ colonies, Steve Jobs, technology, computer, Apple, component, circuit	Stephen Hawking, astrophysicist, black hole, gravity, density, light, event horizon, matter, amyotrophic lateral sclerosis (ALS), also known as motor neurone disease (MND). Alexander Fleming, penicillin, antibiotic, microorganism, bacteria, correlations, colony/ colonies, diameter, exposed Steve Jobs, technology, computer, Apple, component, circuit
Experiences	**Scientific enquiry:** What makes a black hole and how are they formed?	
SMSC	Social- explore the positive and negative impact of the invention of modern technologies.	
British Values	Individual liberty- despite his deteriorating health Stephen Hawking was able to change the world as he wanted due to and our equalities act enabling him to attend university- this is not the case in all countries.	
School Values	Inclusion- disabilities don't prevent brilliance.	

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