

Cheadle Primary – the school at the heart of the village, free to flourish, ready to learn and succeed. Progression of Skills and Knowledge: SCIENCE Year 5

	Autumn 1 Invaders & Settlers– The Vikings	Spring 1 Queen Victoria/Victorian Schools	Spring 2 Suffragettes/Crime/Tech/Philanthropists	Summer 1 Rivers / Water Cycle	Summer 2 European Study Spain
Topic	Properties and Changes of Materials	Earth and Space	Forces	Living \things and their Habitats	Sex Education. Animals including Humans
Scientific enquiry and questioning.	What makes a fair test? Which properties do these have in common? Explain the difference between a material which are/n't able to have a reversible change How can mixtures be separated? Are all things able to be dissolved in cold/hot water? Investigate/Explain.	Tell us, what you know about the movement of the Earth, Sun and Moon and their relationship with each other? Can you draw this and label it? Can you explain an eclipse? What is the order of the planets and how do you remember them? Are the Sun and Moon sources of light, use evidence to back up your answer What is a blue moon? What is a leap year & why do we have them?	Can you explain the difference between high and low friction giving examples? What's difference between air & water resistance? What happens if you were to drop a piece of screwed up paper and a flat piece of paper at the same time? Explain. Who was Isaac Newton and why was he famous? What is gravity? What is friction?	Can you describe & compare life cycles of a mammal, amphibian, insect and bird Can you draw the parts of a plant/flower and explain the reproduction process? What is the process of photosynthesis? Can you explain the work of David Attenborough or Jane Goodall? How does reproduction occur in....?	See SRE Planning Can you understand the changes in a girls /boys' body and they grow? Can you describe the changes in human development to old age?
Observing	Observe the changes in investigations	Observe the sky at day and night	Observe the changes in investigations	Observe the world around them	Predict, observe and explain what happens from birth to old age
Identifying, and classifying		Identify the characteristics of the planets and solar system.	Identify gravity and friction	Identify life cycles Identify parts of plants used in reproduction	Identify changes over time
Testing, reporting and Finding	Planning an investigation to answer questions, including recognising and controlling variables where necessary Recording data and results	Planning different types of scientific enquiries to answer questions Using scientific diagrams and labels,	Planning investigations to answer questions, including recognising and controlling variables where necessary Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate Recording data and results	Reporting and presenting findings, in oral and written forms	Taking measurements Recording using classification keys. Reporting and presenting findings, in oral and written forms
Key Questions	What makes a fair test? Which properties do these have in common? Are you able to sort these materials into different categories using a Venn diagram? Explain the difference between a material which are/n't able to have a reversible change	Tell us, what you know about the movement of the Earth, Sun and Moon and their relationship with each other? Can you draw this and label it? Can you explain an eclipse? What is the order of the planets and how do you remember them? What is a leap year & why do we have them?	Can you explain the difference between high and low friction giving examples? What happens if you were to drop a piece of screwed up paper and a flat piece of paper at the same time? Who was Isaac Newton and why was he famous? What is gravity? What is friction? How are levers/pulleys and gears useful? What are the effects of water resistance?	Can you describe & compare life cycles of a mammal, amphibian, insect and bird? Can you draw the parts of a plant/flower and explain the reproduction process? What is the process of photosynthesis? Can you explain the work of David Attenborough or Jane Goodall? How does reproduction occur in....?	Can you describe how humans change as they develop and grow old?
Key Learning Intentions.	To plan an investigation To know what the Autumn Equinox is. To identify some reversible and irreversible changes	I can describe the movement of the Earth,& other planets, relative to the Sun in the solar system. I can name/describe features of planets in Solar System I can order the planets in our solar system. I know who Galileo was. I can explain day and night	To identify forces acting on objects. To explore the effect gravity has on objects and how gravity was discovered. To identify the effects of air resistance by investigating best parachute to slow a person down. To investigate the effects of air resistance. To identify the effects of water resistance by creating and racing streamlined boats. To explore the effects of water resistance. To investigate the effects of friction.	Describe the different parts of a plant and how they grow(seed planting) and reproduce I can describe how some plants reproduce Describe the differences in the life cycles of a mammal, an amphibian, an insect i I can describe the life cycle and its' local environment of 1 mammal 2 amphibian 3 insect 4 bird I can explain metamorphosis	I can describe the stages of human development. I can explain how babies grow and develop. I can record and present data. I can describe and explain the main changes that occur during puberty.. I can identify the changes that take place in old age I can report findings from enquiries.
Key Knowledge National Curriculum.	Compare and group together everyday materials on the basis of their properties, including their solubility, transparency, Know that some materials will dissolve in liquid to form a solution, Can give reasons, based on evidence from tests, that dissolving, mixing & changes of state are reversible changes Can explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible.	Describe the movement of Earth and other planets relative to the sun in the solar system. Describe the movement of the moon relative to the Earth Know that the sun & moon are spherical bodies. Explain day and night, movement of the sun across the sky and the rotation of Earth.	Can explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object Can identify the effects of air resistance, water resistance and friction, that act between moving surfaces Can recognise that some mechanisms, incl levers, pulleys gears, allow a smaller force to have a greater effect.	Can describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird Can describe the life process of reproduction in some plants and animals.	See SRE Planning Can describe the changes as humans develop from baby to old age.
Key vocabulary.	Magnets, repel, attract, everyday materials, metals, wood, plastic dissolving, mixing, changes of state, reversible changes, formation of new materials, burning, rusting vinegar with bicarbonate of soda evaporating, filtering, sieving, melting	Sun, .Star, Moon, Planet, Sphere, Spherical bodies, Satellite, Orbit, Rotate, Axis, North/South Pole. Geocentric model, Heliocentric model, Astronomer, Galileo, Mars, Venus, Earth, Mars, Saturn, Jupiter, Neptune, Uranus,	Forces gravity Earth's gravitational pull, weight, mass friction,air resistance, water resistance, buoyancy, streamlined, mechanism	asexual, reproduction fertilise, gestation, life cycle metamorphosis pollination, reproduction, sexual, wind dispersal reproduction seeds, stem and root cuttings, tubers, bulbs	NB look at cautions on scheme before each lesson. Group in maturity rather than ability adolescence puberty menstruation adulthood fertilisation gestation reproduce asexual reproduction sexual reproduction life cycle
Key challenge.	To know how a rainbow is formed	To create simple models of the solar system/constructing simple shadow clocks and sundials, calibrated to show midday and the start and end of the school day.	To create paper helicopters. Show and explain why they fall at different speeds	To describe life process of reproduction by exploring Jane Goodall's work with chimpanzees. I can explain what Jane Goodall discovered about chimpanzees.	
Resources	Magnets, materials, vinegar, containers, bic of soda, food colouring washing up liquid	Globes, Black card, Split pins Scissors, Glue, Recording equipment, Timer, Blank A3 sheets of paper, Colour Pencils, Balls	Newton meters, Weighing scales, Objects to be measured,Clear bags with handles, paper, card string, sticky tape, objects to attach to the parachutes e.g. paper clips, toy figures, measuring sticks, stop watches	WWW seeds, compost, trowels containers, water, flowers to dissect	https://www.weforum.org/agenda/2019/02/the-worlds-watershed Computer/Tablet with appropriate graphing software (Excel, Google Sheets, Numbers, Graphs iOS app)

