Y5 - Science	**Autumn 1**
Learning Intention	To classify a variety of materials according to their properties
Targets for Success	Make comparisons between different materials Use technical vocabulary to describe properties Identify specific criteria to help compare and group materials
Activity	Children will be given a range of objects from around the school and asked to describe the properties of the materials. To sort a range of objects according to the properties of the materials.
Learning Intention	To compare and contrast different solids and liquids according to their properties
Targets for Success	I can classify solids and liquids based on properties I can compare I can use scientific language to explain
Activity	Give children a range of solids. Discuss how they could be compared, e.g. how are the solids similar and different? Draw the particles for a coin in comparison to something like butter. For the second part of the lesson repeat the process but with liquids, comparing thickness and viscosity.
Learning Intention	To explore if objects of the same materials have the same properties
Targets for Success	Identify the properties of metals and plastics Link properties to how they are used
Activity	Part 1: Give children sorting cards to find out what they already know about metals. Identify any misconceptions. Task: Give 'I wonder why?' table. Children complete to explain the benefits of the properties of metal. Part 2: Show children a wood, plastic and metal spoon and place in some hot water. Ask the children to predict what they think will happen to each of the spoons. Introduce the children to the terms, 'thermal insulator' and 'thermal conductor'. Discuss the properties of the different spoons and how they might be affected by how they are used. Task: Children to discuss advantages and disadvantages of the properties of plastic objects.
Learning Intention	To recognise that materials are used in many different ways and for particular purposes within buildings

Targets for Success	Identify the variety of different materials used in building work Link the properties of the material to its use Understand and use the term 'insulation'
Activity	Discuss if children have any experience of building projects and the requirements and materials needed to build a house. https://www.youtube.com/watch?v=C3iI6S7TuCA watch video and see if the children can identify materials used. Task: Walk around the school identifying different materials used within the school building. Identify and discuss where it was seen, how it is being used and why. Talk about insulation and what it is used for.
Learning Intention	To plan a fair test to investigate different carrier bags and collect evidence to make recommendations regarding their use
Targets for Success	Plan and perform a fair test Use evidence to support my findings
Activity	Ask the question, 'which is the best carrier bag to use to carry shopping?' Look at a range of plastic carrier bags in detail and identify any different features. Identify these as variables that can be changed. Task: Children to carry out an investigation to solve each scenario and to explain their findings.
Learning Intention	To plan and carry out comparative tests to find out which material is best for picnic plates
Targets for Success	Plan and carry out a comparative test Collect evidence to suggest suitability
Activity	Show the children an image of a picnic and ask them questions about the properties that plates need to be for a picnic. Explain to the children that we will be carrying out an investigation to explore the properties of the materials used to make plates. Task – Children to plan and investigate which plate is most suitable to three of these criteria: weight, stain resistant, whether they can be washed and reused, can they be dropped, scratched or knocked against something else.
Learning Intention	To use evidence from investigations to explain how a cool bag works as an insulator
Targets for Success	Observe change in temperature over time Explain how insulation in a cool bag can keep things both hot and cool Record results on a graph
Activity	Explain to the children that we are going to be investigating whether the same type of cool bag can be used for both ice cream and hot jacket potatoes. Recap what insulation means and where it may be used and why.

	Task – Give children both hot and cold products to investigate the effects of the cool bag. Use a control measure by placing the same thing out on a plate in the classroom.

Y5 – Science	Autumn 2
Learning Intention	To separate mixtures of materials using different processes
Targets:	Identify processes for separation Explain when to use each process Use processes effectively
Activity	Children to investigate how to separate a range of mixtures using, sieving, filtration, magnetic attraction and evaporation.
Learning Intention	To investigate the process of dissolving
Targets :	Explain the difference between melting and dissolving Use the terms soluble and insoluble Identify materials that dissolve in water
Activity	Discuss the terms, melting, dissolving, soluble and insoluble. Design and carry out an investigation that explores which materials dissolve and which don't.
Learning Intention	To investigate the process of dissolving
Targets:	Explain the difference between melting and dissolving Use the terms soluble and insoluble Identify materials that dissolve in water
Activity	Continue from previous lesson with a scientific explanation and evaluation of the investigation carried out.
Learning Intention	To identify and explain reversible and irreversible changes
Targets:	Define a reversible change Define an irreversible change Sort changes in to reversible and irreversible
Activity	Discuss the difference between reversible and irreversible changes, giving some example and watching a video of an irreversible changed caused by a chemical reaction. Complete sorting activity, identifying which changes are reversible and which are not.
Learning Intention	To investigate irreversible changes

Targets for Success	Make observations Discuss findings
Activity	Carry out a range of investigations to explore the effects of irreversible changes, e.g. mixing milk and vinegar.

Y5 – Science	Spring 1
Learning Intention	To explain why we know the Sun, Earth and Moon are spherical
Targets:	Compare theories Identify scientific evidence Use evidence to write a conclusion
Activity	Children will be presented with different ideas and theories about the shape of the earth, they will compare these differing views and come to a conclusion. ***hand out moon diaries***
Learning Intention	To name and describe features of the planets
Targets :	Sequence the planets in the correct order from the sun Identify key information
Activity	Children will need to arrange the planets in the correct order from the sun and write key information about each, creating a fact file of information.
Learning Intention	To explain how planets move in our solar system
Targets:	Distinguish between heliocentric and geocentric theories Identify scientific evidence Explain the theories
Activity	We will compare two theories known as geocentric and heliocentric, being able to explain what they mean and how they are different.
Learning Intention	To explain day and night
Targets:	Explain day and night is due to the rotation of the earth Use evidence to explain how day and night occur
Activity	Children will write an explanation text about how the earth moves to create the image of the sun moving across the sky to create day and night.

Learning Intention	To explore how time differs in different parts of the world
Targets	Identify capital cities on a world map Use location to identify time difference Identify patterns
Activity	Children are given a list of capital cities and they are to place them on a world map. They will then use the time difference map to work out the times compared to London at 12pm. They should then be able to identify some patterns of time differences.
Learning Intention	To identify the phases of the moon and explain why these occur
Targets	Name the phases of the moon Explain why the moon appears to change shape
Activity	Children will identify the different phases of the moon and explain how and why they shape of the moon changes. They will then create their own moon phase diagram, naming and explaining each phase.

Y5 – Science	Spring 2
Learning Intention	To describe how some plants reproduce
Targets:	Explain the difference between sexual and asexual reproduction. Identify the function of the parts of a flower. Describe ways that plants are pollinated in order to reproduce.
Activity	The children will work with their learning partner to complete an activity on pollination. They will also differentiate between sexual and asexual reproduction
Learning Intention	To describe how some plants reproduce
Targets :	Describe asexual reproduction in plants. Identify advantages and disadvantages to sexual and asexual reproduction in plants. Explain different ways to make new plants.
Activity	The children will show the advantages and disadvantages of all types of reproduction. They will take cuttings to try and make new plants
Learning Intention	To describe the life cycles of different mammals
Targets:	Describe the process of reproduction in mammals. Describe different types of mammals. Describe and compare the life cycles of different mammals
Activity	The children will complete a reproduction activity. They will also make a Life Cycle Wheel to describe the stages of a mammal's life cycle
Learning Intention	To explain what Jane Goodall discovered about chimpanzees

Targets:	Describe Jane Goodall's work with chimpanzees Explain why chimpanzees are endangered
Activity	The children will differentiate between fact and fiction. In groups they will create an advert to show why chimpanzees are endangered
Learning Intention	To compare the life cycles of amphibians and insects
Targets	Explain metamorphosis and give examples Describe the life cycles of amphibians and insects Describe the similarities and differences between the life cycles of amphibians and insects
Activity	Children will complete the life cycles of Amphibians and Insects Activity Sheet. They will work with their learning partner, taking turns to describe and guess the life cycle of their chosen amphibian/insect
Learning Intention	To compare the life cycles of plants, mammals, amphibians, insects and birds
Targets	Identify the stages of a bird's life cycle. Describe the similarities and differences between different plants' and animals' life cycles.
Activity	The children will take on the role of wildlife documentary presenters. They will write and perform from their own scripts

Y5 - Science	**Summer 1**
Learning Intention	To identify forces acting on objects.
Targets	Identify forces as pushes and pulls. Explain the different forces acting on objects
Activity	Children will identify the pictures as pushes or pulls and discuss their ideas. They will read through a piece of text and establish which different forces are in action. They will decide which direction the forces are acting in.
Learning Intention	To explore the effect that gravity has on objects and how the first theory of gravity was developed
Targets	Explain the effect of gravity on unsupported objects. Explain Isaac Newton's role in developing a theory of gravity. Accurately measure the force of gravity pulling on objects
Activity	Children will watch a ball bounce and describe why the bouncy ball falls down rather than falling up, sideways or staying still. They will read and write about Isaac Newton. They will then measure the **weight** and **mass** of different objects
Learning Intention	To investigate the effects of air resistance
Targets	Explain how air resistance affects moving objects. Plan and conduct an investigation into the effects of air resistance
Activity	Children will learn about and discuss Galileo's theory. They will then design and make their own aerodynamic parachute.
Learning Intention	To explore the effects of water resistance
Targets	Explain the effects of water resistance. Identify streamlined shapes.

	Minimise the effects of water resistance on an object
Activity	Children will discuss their experiences of, and explain the force of, water resistance, Children work in groups to conduct a mini-investigation into streamlined shapes and explain why the shapes fell at different speeds as a result of some shapes being more streamlined than others.
Learning Intention	To investigate the effects of friction
Targets	Explain the effects of friction on a moving vehicle. Investigate the effects of friction created by different materials. Recognise and control variables in an investigation
Activity	Children will discuss what friction is and how it affects a moving vehicle. They will make predications and carry out an experiment on how brakes on a bicycle make use of the force of friction. They will demonstrate which material they think makes the best brake pad and explain their choice.
Learning Intention	To explore and design mechanism
Targets	Explain how different mechanisms work. Investigate a simple mechanisms Design my own mechanism for a given purpose
Activity	Children will discuss that machines use many different mechanisms to achieve a simple purpose. They will identify objects that use lever, pulleys and gears. They will design their own mechanisms for a given purpose, detailing each different mechanism they use.

Y5 - Science	**Summer 2**
Learning Intention	To know how plants and animals reproduce
Targets	Know the difference between sexual and asexual reproduction Describe how a flower reproduces
Activity	The children will recap on the meaning of sexual and asexual reproduction. They will investigate the gestation periods of different animals. They will also investigate how a flower reproduces
Learning Intention	To describe different stages of development
Targets	Name the 6 stages of human development Order the stages of human development Explain the changes that occur during each stage of human development
Activity	The children will research the stages of human development. We will discuss as a class each stage and the children will then place the stages in the correct order
Learning Intention	To describe changes that take place during puberty
Targets	Understand how puberty effects our bodies and our mental health
Activity	This unit is linked to the PHSE lessons on puberty and provides an extra time for the children to discuss puberty further and ask any questions that they may have
Learning Intention	To identify the changes that take place during old age

Targets	Explain the changes that take place in old age Distinguish between facts and myths about old age
Activity	The children will investigate the changes, both physically and mentally, that take place during old age. They will then look at information about old age and discuss each point in turn to decide whether it is fact or fiction
Learning Intention	To report findings from enquiries
Targets	Research gestation periods Report findings in oral form Choose how best to report findings
Activity	They children to research the gestation periods of given animals. They will convert each period into the same measurement in order to make a comparison. They will then decide the form in which they can present this information