



Year Group	3	Term	Autumn	Subject	Science	Topic	Scientific Enquiry
						Key Question	How can we conduct a scientific investigation?
Prior Learning and other Curriculum Links	<p>Year 1</p> <ul style="list-style-type: none"> I can do tests. I can use my observation and ideas to suggest answers to questions. I can collect and record data to help answer questions. <p>Year 2</p> <ul style="list-style-type: none"> I can look closely, using equipment. I can do tests. I can use my observation and ideas to suggest answers to questions. I can collect and record data to help answer questions. 					Target Tracker statements (Skills)	<ul style="list-style-type: none"> I can ask questions and use different types of scientific enquiries to answer them. I can set up simple practical enquiries, comparative and fair tests. I can make observations and take measurements using standard units, using a range of equipment, including thermometers. I can gather, record, classify and present data in a variety of ways to help in answering questions. I can record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. I can report on findings from enquiries, including spoken and written explanations, displays or presentations of results and conclusions. I can use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. I can explain differences, similarities or changes related to simple scientific ideas and processes. I can use straightforward scientific evidence to answer questions or to support my findings.

Fundamentals	<ul style="list-style-type: none"> • I can ask questions and use different types of scientific enquiries to answer them. • I can set up simple practical enquiries, comparative and fair tests. • I can make observations and take measurements using standard units, using a range of equipment, including thermometers. • I can gather, record, classify and present data in a variety of ways to help in answering questions. • I can record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. • I can report on findings from enquiries, including spoken and written explanations, displays or presentations of results and conclusions. • I can use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. • I can explain differences, similarities or changes related to simple scientific ideas and processes. <p>I can use straightforward scientific evidence to answer questions or to support my findings.</p>	Key Facts/Sticky Knowledge	<ul style="list-style-type: none"> • ' A hypothesis is the same as a prediction • Data can be collected and presented in a graph • Following a scientific method produces accurate results • A scientific conclusion explains what you found out in your experiment • A variable is something that can be changed in an experiment • Questioning can help us improve our experiments
Our Curriculum Journey	<p>Throughout the unit, children will be learning to conduct investigations and will pose their own scientific questions and carry out practical experiments to find answers</p> <p>They will start by discussing what scientific enquiry means. Our first experiment about solar ovens will focus on making predictions which are otherwise known as hypotheses. The next lesson will focus on recording and</p>		

	<p>presenting the results as data in a graph. The next lesson will look at a 'dirty coin' experiment looking at the reason for following a method. The next lesson will look at drawing a conclusion from the experiment. Our final two lessons will be looking at a 'cake baking' experiment. We will discuss what a variable is and how changing variables can affect the results. Finally we will look at the role of questioning in scientific experiments.</p>		
Key Vocabulary (revisited)	Investigation Prediction Record Results Graph Data Prediction Method Compare Fair test Measurement	Key Vocabulary (new)	Solar Renewable energy Acid Alkali PH scale Hypothesis Enquiry Evidence Conclusion Variable Control experiment Diagram

Lesson	Content	Sticky Knowledge
Lesson 1	<ul style="list-style-type: none"> Rocket words 	A hypothesis is a scientific prediction.

<p>KQ1: What is a hypothesis?</p>	<ul style="list-style-type: none"> • Explain what solar means and relate to renewable energy • They will be investigating how you can make a solar oven to try and cook using renewable energy • Talk through rocket words • Pose a question about our experiment thinking about 'scientific questioning'. Questions need to be plausible • Children start to write out a their scientific report <p>Activity: Children build their solar ovens</p> <p>Resources: Cardboard box with lid, black card, foil, thermometer, sticky tape, straws (cling film, fabrics, paper, black bin bag, chocolate/marshmallows) Handout for investigation write up.</p>	
<p>Lesson 2</p> <p>KQ2: How can we present results?</p>	<ul style="list-style-type: none"> • Assessment quiz from last lesson • Rocket words • We will discuss how to record our results • We will discuss 'fair tests' and why we need to record results at the same time for our different ovens so we can compare results • We will then (across the afternoon) collect results to form data • We will present this in a graph or table <p>Activity: Write a prediction, conduct experiment, write out results</p> <p>Resources: Ovens ready from last lesson. Investigation sheet ready for the results</p>	<p>Data can be collected and presented in a graph</p>
<p>Lesson 3</p> <p>KQ3: How do we plan an experiment?</p>	<ul style="list-style-type: none"> • Assessment quiz from last lesson • Rocket words • Discuss which substance would be best to clean a dirty coin 	<p>Following a scientific method produces accurate results</p>

	<ul style="list-style-type: none"> • Talk about what acidity means and how you can test this using a PH test. • Recap scientific method (observations- question- hypothesis- experiment- analysis-conclusion) • Talk about how writing a method is very important • Explain why we would need the same amount of each substance to be a fair test. We also need to submerge the coin for the same amount of time. <p>Activity: write a prediction and a method including equipment.</p> <p>Resources: Gloves, PH testing kit (litmus paper and test indicator), small trays, measuring cylinders, dirty coins and a range of substances to test (vinegar, oil, ketchup, citric fruit juice, fizzy drinks, toothpaste, soap and water) . Sheet from D Experts</p>	
<p>Lesson 4</p> <p>KQ4: How do we explain our results from an experiment?</p>	<ul style="list-style-type: none"> • Assessment from last lesson • Rocket words • Explaining what a conclusion is • Ensure we use scientific language to provide a scientific explanation • Compare with your prediction <p>Activity: Writing a conclusion</p> <p>Resources: Investigation sheet</p>	<p>A scientific conclusion explains what you found out in your experiment</p>
<p>Lesson 5</p> <p>KQ5: What is a control test?</p>	<ul style="list-style-type: none"> • Assessment from last lesson • Rocket words • Explain we will be baking today • Changing part of a recipe can affect the reaction during cooking 	<p>A variable is something that can be changed in an experiment</p>

	<ul style="list-style-type: none"> • We will be changing parts of our recipe/method to see the different reactions during cooking - this will affect the product produced • We need a control test and then we will change variables and compare to our control test • We might change <ul style="list-style-type: none"> - butter-margarine -sugar - sweetener -No flour -No sugar -Baking powder -Temperature -Time in the oven • You must only change 1 variable each time <p>Activity: Children use investigation sheet to write question, hypotheses, equipment, method, variables and why it will be a fair test</p> <p>Resources: Butter, caster sugar, flour, eggs, vanilla extract, milk, mixing bowl, whisk, wooden spoon, weighing scales, measuring jug, an oven, 20cm baking tin, baking powder, investigation sheet,</p>	
<p>Lesson 6</p> <p>What questions can I ask after I have conducted my experiment?</p>	<ul style="list-style-type: none"> • Assessment from last lesson • Rocket words • Recap our question and prediction • Recap our method and equipment • Collect results • Make a conclusion • Can we pose a new question? 	<p>Questioning can help us improve our experiments</p>

	<p>Activity: Make the cakes and investigation sheet</p> <p>Resources: Butter, caster sugar, flour, eggs, vanilla extract, milk, mixing bowl, whisk, wooden spoon, weighing scales, measuring jug, an oven, 20cm baking tin, baking powder, investigation sheet</p>	
--	--	--