

PEMBRIDGE CE PRIMARY SCHOOL LEARNING JOURNEY ITINERARY

Pembridge is a school where we encourage everyone to be inspired through faith in God and to live by Christian values so that our teaching and learning is of the highest quality, our whole community flourishes and we reflect all that is worthy of praise.

SUBJECT: Science

YEAR: B

TERM: Spring 1

YEAR GROUPS: 1/2

KEY QUESTION: Why can't you make a teapot from chocolate?

PREVIOUS KNOWLEDGE *We would expect most children to already be able to:*

- Explore the natural world around them, making observations
- Know some similarities and differences between the natural world around them and contrasting environments
- Understand some important processes and changes in the natural world around them, including changing states of matter.

Knowledge to be learned in LKS2: Rocks + states of matter

- compare and group together different kinds of rocks on the basis of their appearance and simple physical properties
- describe in simple terms how fossils are formed when things that have lived are trapped within rock
- recognise that soils are made from rocks and organic matter
- compare and group materials together, according to whether they are solids, liquids or gases
- 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)
- identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature

End of Unit Objectives

*Some children will not yet have met what is expected and show they are **emerging** because they can:*

- Find materials and see that there are differences between them. Understand that the name of the object can be different from the name of the material from which it is made. **KQ1**
- Investigate the properties of materials using senses. Hammer a nail in to a material and observe what happens to the nail and the material. **KQ2**
- Identify materials that are waterproof. Understand that a waterproof material stops water from seeping through. Test materials to see if they are waterproof and sort in to waterproof / not waterproof. **KQ3**
- Sort materials in to materials you might build a house from and those you would not. Discuss why materials would be suitable / not suitable to build the structure of a house from. **KQ4**
- Choose materials to build a shelter. Know the purpose of a shelter. Make criteria. Build a shelter understanding why I have used my chosen materials. **KQ5**
- Observe the shelter after a week. Reason why it was fit for purpose or not. Discuss the results of my shelter against those of other groups. **KQ6**
- Explain knowledge about a given material using my scientific knowledge and vocabulary. Predict what will happen to a given material when it is heated by a flame. **KQ7**

*Most children will show that they have reached the **expected** level because they can:*

- Sort materials in to correctly named groups (wood, plastic, metal, glass, rock), using scientific words to describe their properties (shiny / dull, rough / smooth etc. Explain why a material is suitable / unsuitable for a particular use using scientific vocabulary. **KQ1**
- Understand the purpose of a key rack and evaluate whether a material it is suitable / not suitable to make a key rack from using observations. Describe what happens using scientific vocabulary. **KQ2**
- Create an investigation to test whether a material is waterproof or not and make a conclusion from findings ranking materials. **KQ3**
- Think of criteria for a safe / strong structure. Investigate ways to make a material stronger. stiffer, more stable. **KQ4**
- Explain my choice of materials over others discussing why they will be the most successful compared to others. Evaluate materials and ease of use throughout the building process. **KQ5**
- Explain findings and what has been measured using scientific language. Make a conclusion of which shelter is the most successful and why. **KQ6**
- Discuss whether the material has stayed the same or changed and whether the results were expected or not. **KQ7**

*Some children will have gone beyond the expected level and show that they are **exceeding** because they can:*

- Discuss ways of sorting a material that belongs in more than 1 group / has more than 1 property, explaining what it might be like if everything was a particular property (soft). **KQ1**
- Suggest why a material might be suitable to use for a key hook on a mass scale thinking about its ease of sourcing and environmental impact. **KQ2**
- Describe if findings were expected or not using their scientific knowledge to explain. **KQ3**
- Evaluate whether tests were fair and if not, how could they be changed to make a fair test. **KQ4**
- Discuss what problems were found / could find with using a certain material and why this was / might be. **KQ5**
- Notice any patterns between materials used and results found across shelters. Consider whether houses could be built with chosen materials across different continents. **KQ6**
- Draw patterns between materials before and after being heated by a flame. **KQ7**

ASSESSMENT OPPORTUNITIES – What are children aiming for?

Children will be able to demonstrate their learning through:

- distinguish between an object and the material from which it is made
- identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock
- describe the simple physical properties of a variety of everyday materials
- compare and group together a variety of everyday materials on the basis of their simple physical properties
- identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses
- find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching
- carry out a simple fair test. Explain why it might not be fair to compare 2 things.
- explain things happened as they expected.
- suggest how to find things out.
- organise. find simple patterns / associations. measure using simple equipment.
- use scientific vocabulary to describe what they have seen and measured.

ENRICHMENT OPPORTUNITIES –

What can we give children along the journey to help them remember more?

We will endeavour to include:

- Using outdoor learning classroom.
- Investigations using scientific equipment.
- Practical experiences – observing, making, recording.
- Time to share and compare their investigations with those of their peers and draw overarching conclusions.

CROSS-CURRICULAR LINKS –

What links can we make to help children make sense of what we want them to know and be able to do?

This itinerary fits with our other learning through:

- D.T. – Using tools such as a hammer to test how materials react to having a nail hammered through them.
- D.T. – making a shelter and evaluating its success.
- Maths – Group and classify materials using Venn diagrams.
- PSHE – Respecting self and others when working in groups

LEARNING BEHAVIOURS *Children will be expected to:*

Tries new things	test the strength of materials, evaluating success.
Works hard	use scientific vocabulary to explain their findings.
Concentrates	listen attentively in group sessions and make predictions and conclusions.
Self-motivates	work in a group to share knowledge and use each other's strengths to help one another.
Imagines	predict how a material will perform/ react within an investigate.
Improves	know inventors created new materials through investigation and that we can test materials.
Understands others	gain a greater understanding of the way a material might be used for different purposes across the world.
Doesn't give up	continue to work hard to listen to the points of view of others - testing and evaluating success.