

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 (chemistry)

YEAR: A

TERM: Spring 1

YEAR GROUPS: 1/2

KEY QUESTION: How do materials affect my life?

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:*

- With support, discuss the materials of different objects. Match the name of the material with the object. **KQ1**
- With support, describe the physical properties of every day materials (e.g. shiny / dull, rough / smooth etc.) Sort them in to groups. Discuss if any have more than one property. **KQ2**
- With support, discuss what it means for a material to be waterproof. Understand that a waterproof material stops water from seeping through. Set up an experiment to see if materials are waterproof / not waterproof. Make a prediction. **KQ3**
- With support, draw a conclusion from their experiment. Conclude which is the best waterproof material and why. **KQ4**
- With support, describe the properties of given materials. Predict what will happen to a given material when it is heated by a flame. Describe the properties of the material having been heated. Has it changed? How? **KQ5**

*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). Discuss similarities and differences between them. Begin to use scientific vocabulary (e.g. shiny / dull, rough / smooth etc.) to describe their properties. **KQ1**
- Using a Venn diagram, group materials according to their physical properties. Discuss how they could be sorted if they have more than 1 physical property (e.g. bendy and shiny). Children to sort using 2 criteria. **KQ2**
- Understand what the term 'waterproof' means. Set up an experiment to test different materials and to see if they are waterproof. Make a prediction based upon my scientific knowledge. **KQ3**
- Measure the amount of water collected from each sample. Draw a conclusion of which material is waterproof / the best to use for protection against the rain. **KQ4**
- Discuss the properties of given materials. Predict what will happen to a given material when it is heated by a flame. Describe why they think this will happen using scientific language. Describe the properties of the material having been heated and draw conclusions. Discuss whether the results were expected or not. Draw patterns between materials before and after being heated by a flame. **KQ5**

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

- Consider the consequences of everything being made from a particular material. Discuss what the benefits and the draw backs might be (e.g. ease of sourcing, environmental impact). **KQ1**
- Discuss what would the world might be like if no object was stiff. What affect would this have on construction etc.? **KQ2**
- Investigate how people made materials waterproof in history and how materials are made waterproof now. What is the same? What is different? **KQ3**
- Evaluate whether the tests were fair and if not, how could they be changed to create a fair test. **KQ4**
- Plan an experiment that investigates how materials react when they are cooled. **KQ5**

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
- suggest how to find things out.
- 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 to test how materials react.
- 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 properties 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 consider what the world would be like if all objects were made from one material.

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.