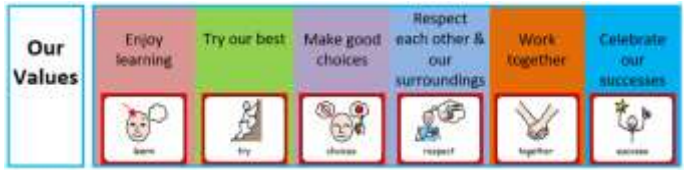
Science



SUBJECT MEDIUM TERM PLANNING - SCIENCE

Year Group: 1	**TERM:** Spring 1	**Theme:** Fire and Ice

National Curriculum:

Pupils will be taught to:

- 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.

Context: -

Children will be building on and applying their everyday material knowledge to identify key properties such as hard/soft. Children will then use this knowledge to carry out a fair test to see which material have the most effective properties for a boat. This will enable children to explore material properites further in Year 2, that materials can be changed by squashing, bending and understand that different materials can be used for the same thing.

Concepts: Everyday Materials

Vocabulary:

Working scientifically – investigate Identifying, classifying and grouping, simple tests

Prior Knowledge: **Everyday materials** Use all their senses in hands-on exploration of natural materials. (Nursery - Materials, including changing materials) • Explore collections of materials with similar and/or different properties. (Nursery - Materials, including changing materials) • Talk about the differences between materials and changes they notice. (Nursery - Materials, including changing materials) Children will know that objects are made up of different materials and will be able to provide examples of different properties	**Future Knowledge**: **Everyday materials** Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. (Y2 - Uses of everyday materials)
End points /by the end of this unit pupils will… • Children will identify different types of material (wood, plastic, glass, metal, water and rock) • Children will identify some properties (hard, soft, smooth, rigid, waterproof, absorbent, translucent) of different materials (wood, plastic, glass, metal, water and rock) • Children will be able to group together different types of materials and explain why they have grouped them in that way such as group all materials with a hard property)	**Crucial Knowledge** • Children will need to know that objects are made up of different materials • Children will need to know that objects have different properties • Children will need to know that different properties make something suitable for an object.

Lesson Number 1

Key learning: describe simple properties of materials	**Concepts:** Everyday Materials	**Lesson structure: Introduction, direct teaching, activities, key questions** **Concept map at the beginning of the topic. This will assess how much prior learning has been retained. What do the children already know about the topic?**
Success Criteria: This should what the children should be able to do by the end of the lesson • I can identify and name different materials • I can describe what the different materials are like • I can match the material to its property • I can compare different materials.	**Suggested resources:** A variety of different materials such as wood, plastic, metal, iron, cotton wool, paper, cotton, silk, rock Flipchart Wordmat with properties ipad	**Engage –** Key question (recap from Autumn 1) What is a material? https://www.youtube.com/watch?v=xOKr462HLc0 **Introduction:** Timer, how many different materials can the class name in 2 minutes – record these. **Tinker Time –** On tables have a variety of materials, children to record the name and then properties on post it notes. (Have word mats available of properties - hard/soft; stretchy/stiff; rough/smooth; bendy/not bendy; waterproof/not waterproof) **Independent** (record) children have a table that shows different materials, children to write the properties next to the materials. **Deepening**: Children to pick two different materials that are similar. Children to write which 2 materials they have picked and what properties they have in common. This same task for two materials that have different properties. This can be recorded verbally and saved on seesaw. **Challenge: Through questioning - Which two materials bend? (use different properties) Is all glass translucent?** **Adaptive teaching for SEND: word mats,** **Could group materials in terms of their properties**

Vocabulary:

Material (what something is made of)
Properties - hard/soft; stretchy/stiff; rough/smooth; bendy/not bendy; waterproof/not waterproof

Lesson Number 2

Key learning:
choose materials according to their property.

Concepts:
Everyday Materials

Success Criteria:
This should what the children should be able to do by the end of the lesson

- I can identify and name different material
- I can describe the properties of different materials.
- I can say why items are made with certain materials

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Working scientifically: identifying and classifying

Suggested resources:

Flipchart

A variety of different materials such as wood, plastic, metal, iron, cotton wool, paper, cotton, silk, rock

Lesson structure: Introduction, direct teaching, activities, key questions

Engage – recap what a material is

Introduce – Recap that different materials have different properties. Have a variety of different materials on the table, children need to group them based on their properties (prior knowledge)

What is wrong with this?
A paper umberalla, a chocolate teapot. Initiate conversations as to why the material isn't suitable for the purpose.

Independent (recorded) children to identify why the material isn't suitable for the purpose and what material they would use instead.

Can you imagine...	This wouldn't work because... (Remember to use property words)	It would be better to use (type of material)
A towel made out of metal?		
A window made out of cardboard?		
A chair made out of paper?		

Deepening – Link to topic of the Titanic – What materials would you use for a boat? – Class discussion

Challenge: Through discussions.
Adaptive teaching for SEND:
Have a variety of materials available, Word mats, pre learning of key

Vocabulary:
Material (what something is made of)
Properties - hard/soft; stretchy/stiff; rough/smooth; bendy/not bendy; waterproof/not waterproof

Lesson Number 3 and 4 (science afternoon)

Key learning: investigate properties of materials. Context: water and boats.	**Concepts:** Everyday Materials	**Lesson structure: Introduction, direct teaching, activities, key questions** **Engage –** Recap materials song https://www.youtube.com/watch?v=xOKr462HLc0 **Introduce –** designing and creating a boat that floats. Recap different properties. Children to explore the different materials **Independent task –** children to design and build a boat using the different materials**. Don't influence the children.** Ask questions whilst they are making and record their answers – Why have you chosen that material? What properties has that material got that makes it suitable to be used to make a boat? **Introduce –** Explain what a fair test is. All boats to be tested to see whether the chidren have used the correct materials based on their properties to build a boat that floats. **Reflection** – Did the boat float? If it did, why do you think it floated? If it didn't, why didn't it float? What materials should you have used? **Challenge: In their design and explanation of why they have used that material.** **Adaptive teaching for SEND: Provide pictures of boats**
Success Criteria: This should what the children should be able to do by the end of the lesson • I can recall properties of materials • I can name the properties for a boat • I can suggest materials for a boat • I can predict which materials would float in water • I can work scientifically • I can investigate which material would float • can say if my prediction is right	**Suggested resources:** Flipchart A variety of different materials such as wood, plastic, metal, iron, cotton wool, paper, cotton, silk, rock Ipad Post it notes to record answers	

Working scientifically: Fair tests 		

Vocabulary:

Materials (something an object is made from) - wood, plastic, metal, iron, cotton wool, paper, cotton, silk, rock

Properties hard/soft; stretchy/stiff; rough/smooth; bendy/not bendy; waterproof/not waterproof

End of topic assessment

Use everyday materials to assess children's knowledge
Explorify
Complete post assessment concept map