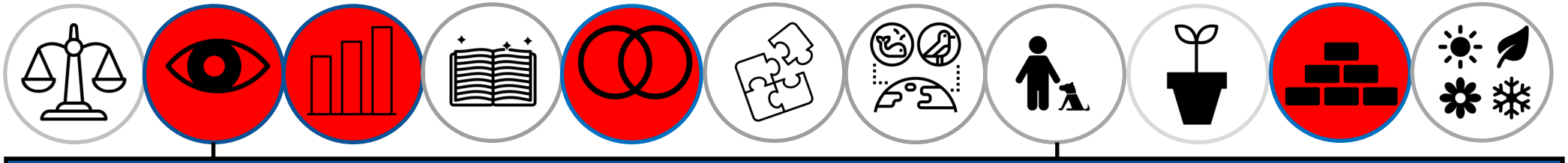
# Year 1: Everyday Materials

## SCIENCE CONTEXT: Physics



## KEY VOCABULARY:

| | |
|---|---|
| Names of materials | Wood, plastic, glass, metal, water, brick, paper, elastic, foil and rock. |
| Material | Material is the matter from which a thing is or can be made from. |
| Properties | A property of an object or material is a feature that makes it suitable for a particular use. |
| Waterproof | Something that keeps water out is waterproof. |
| Absorbent | Types of materials which can soak up liquid. |
| Rough | Uneven and not smooth. |
| Smooth | Smooth objects have no lumps or bumps . |
| Stretchy | A stretchy material can be pulled to extend length. |
| See-through | A material rtat allows light to pass through and you can see through it. |
| Shiny | Shiny objects are bright when a light is shone on them. |
| Dull | Not light, or bright. |
| Hard | A hard material is strong and can't be scratched/broken easily. |
| Soft | Not firm, or hard. |

## As Scientists we will...

Pupils should 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

**Working scientifically:**

Pupils should be taught to:

- Recognise that questions can be answered in different ways,
- Observe closely,
- Perform simple tests,
- Gather and record data.

**Notable scientist: Sarah Boone**

**Key Questions:**

1) **Show pictures of different materials– can you name these materials?**
2) **Show pictures of different objects– what material are these made from?**
3) **Can you describe the properties of: plastic, wood, glass, metal and rock?**

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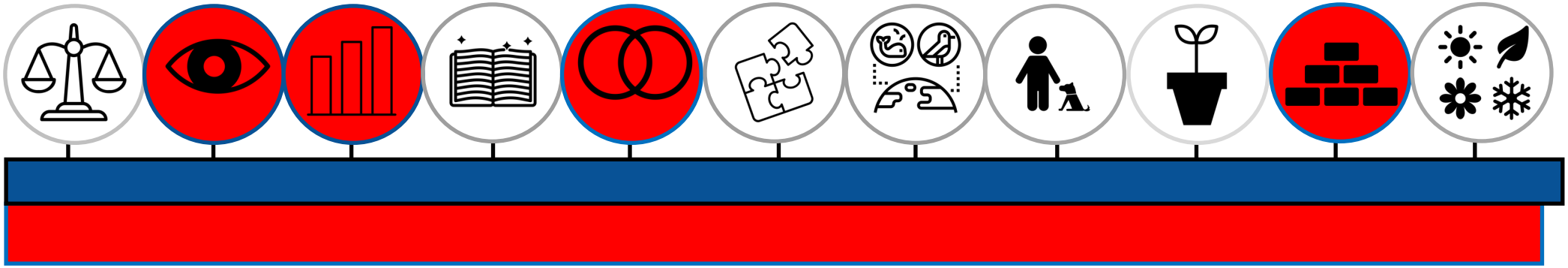

**Prior learning:**

Use all their senses in hands-on exploration of natural materials. Explore collections of materials with similar and/or different properties. Talk about the differences between materials and changes they notice. (Nursery - Materials, including changing materials).

**What I need to know:**

All objects are made of one or more materials. Some objects can be made from different materials e.g. plastic, metal or wooden spoons. Materials can be described by their properties e.g. shiny, stretchy, rough etc. Some materials e.g. plastic can be in different forms with very different properties.

**Opportunities for science capital:**

Invite someone in whose job relies on knowledge of materials– such as a builder– to talk to the class about how they rely on their scientific knowledge of materials to help them with their job.

Alternatively, book a workshop with Sphere Science.

**Assessment:**

By the end of this unit of work, pupils should be able 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 and compare and group together a variety of everyday materials on the basis of their simple physical properties.

Pupils should also have an understanding of who Sarah Boone is and how her work has contributed science.

Pupils should be beginning to recognise that questions can be answered in different ways, observe closely, perform simple tests and gather and record data.

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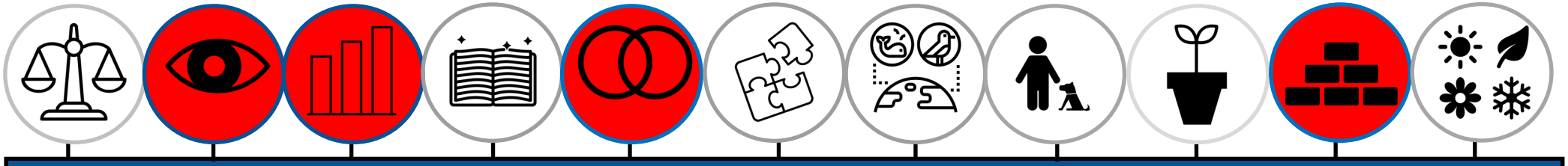

## Theme 1: What are objects made of?

**Starter**

Complete KWL grid.

Introduce vocabulary of different types of materials using exploration tables. Set up tables containing different types of: plastic, wood, glass, metal, water, rock, paper, fabric, elastic and foil.

**Main**

**Substantive knowledge:**

Material hunt: send children on a hunt around the classroom to identify and name a variety of different materials. Give children labels, or post-it-notes with the names of materials on, so they can stick it to the material when they've found it around the classroom. Photograph and put in floorbook.

**Disciplinary knowledge:**

**Identifying and classifying**

**Working scientifically objective: observe closely**

Provide groups with approximately 10 objects made from different materials; for HA children they could be provided with an object made from more than one material to give an understanding that objects can be made from more than one material.

Get children to distinguish between the object and what it is made from (e.g. this is a spoon, it is made from metal). For LA children, this could be done with pre-made labels for them to place the objects next to, MA/HA children could do this more independently by recalling the names of materials.

**Plenary / assessment**

Label a picture or diagram of an object made from different materials .

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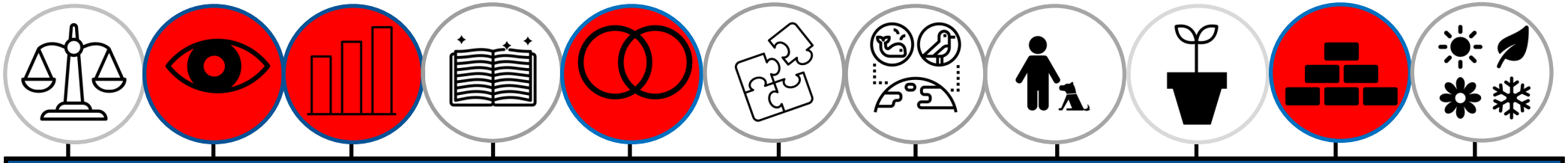

## Theme 2: Properties

**Starter**

Recap activity: match it! Match pictures of different objects with key vocab labels of the material they're made from.

**Main**

**Substantive knowledge:**

Set up investigation stations for children to investigate and explore properties. With the key vocabulary also on the table, set up a: hard/ soft table, shiny/dull, rough/smooth, waterproof/not waterproof, absorbent/not absorbent, stretchy/stiff, see-through/not see-through. Allow children plenty of time to play and manipulate the materials so they get a good understanding of the different properties. Photograph and put in floorbook.

**Disciplinary knowledge: Testing reflectiveness**

**Identifying and classifying**

**Working scientifically objective: Recognise that questions can be answered in different ways**

*Today we are going to be physicists*

Explore a range of materials e.g. foil, shiny fabric, glossy acetate, shiny paper, brightly coloured paper, netting… list words to describe their properties on a whiteboard (e.g. shiny/dull, glossy, translucent/ opaque).

Discuss how to test which are the most reflective, e.g. put in sunlight / torchlight / use a lamp, does it bounce off onto the wall/table? Can you see yourself in it?

Groups test and sort a range of materials and rank from most reflective to least.

**Plenary / assessment.**

Children sit in a circle and consider one group's sorting / ordering at a time– do the other groups agree with their ranking? Would you move any? Why? Adult collect children's ideas.

See TAPS for full plan and assessment criteria: Reflectiveness

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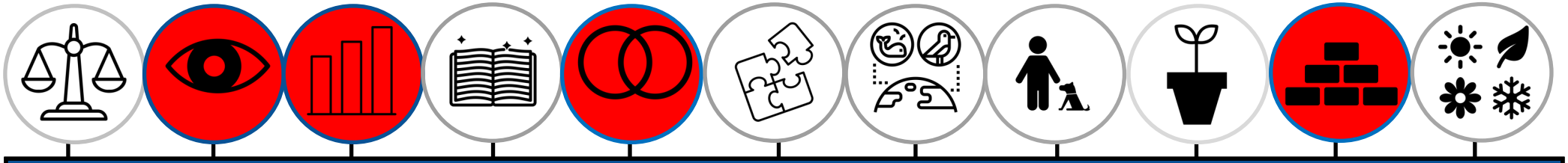

## Theme 3: Grouping and Comparing

**Starter**

Concept cartoon discussion starter: Science Discussion Starter A4.pdf

Who do the children agree with? Why?

Recap key vocabulary for different properties.

**Main**

**Disciplinary knowledge:**

**Grouping and comparing**

**Working scientifically objective: perform simple tests**

Provide groups with a range of objects/material. Ask them to decide on what properties they could test them for e.g. hard or soft, waterproof or not waterproof.

Once groups have decided on what they would like to test, discuss how they are going to test them e.g. placing droplets of water on to material to test if materials are waterproof or not, bending to test if materials are stiff or bendy.

Carry out test.

**Plenary / assessment.**

**Working scientifically objective: gather and record data**

Children record their data by grouping objects/ materials into sorting hoops.


Complete KWL grid.