Alexander Hosea Curriculum Map – Year 4 **Subject: Science (States of Matter)**

<table>
<tr><td colspan="5">Programme of Study Statements
• 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</td><td>Key Vocabulary
Solid, liquid, gas, state change, melting, freezing, melting point, boiling point, evaporation, temperature, water cycle</td></tr>
<tr><td colspan="5">Investigations and Skills for thinking like a Scientist
      </td><td>Sticky Knowledge:
Solids, liquids and gases are described by observable properties.
• Materials can be divided into solids, liquids and gases.
• Heating causes solids to melt into liquids and liquids evaporate into gases.
Cooling causes gases to condense into liquids and liquids to freeze into solids.
• The temperature at which given substances change state are always the same.</td></tr>
<tr><td><u>Comparative Tests</u>

How does the mass of a block of ice affect how long it takes to melt?

How does the surface area of water affect how long it takes to evaporate?

Does seawater evaporate faster than fresh water?</td><td><u>Identify & Classify</u>

Can you group these materials and objects into solids, liquids, and gases?

How would you sort these objects/materials based on their temperature?</td><td><u>Observation over time</u>

Which material is best for keeping our hot chocolate warm?

How does the level of water in a glass change when left on the windowsill?</td><td>Pattern seeking

Is there a pattern in how long it takes different sized ice lollies to melt?

How does evaporation rate change as you add more salt to your water?</td><td><u>Research</u>

What are hurricanes, and why do they happen?</td><td colspan="2">Prior Knowledge:
• Distinguish between an object and the material from which it is made. (Y1 - Everyday materials)
• Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. (Y1 - Everyday materials)
• Describe the simple physical properties of a variety of everyday materials. (Y1 - Everyday materials)
• Compare and group together a variety of everyday materials on the basis of their simple physical properties. (Y1 - 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)
Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. (Y2 - Uses of everyday materials</td></tr>
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- **Potential Evidence to support our Scientists (I can..):**

Can give reasons to justify why something is a solid liquid or gas

- Can give examples of things that melt/freeze and how their melting points vary
- From their observations, can give the melting points of some materials
- Using their data, can explain what affects how quickly a solid melts
- Can measure temperatures using a thermometer
- Can explain why there is condensation on the inside the hot water cup but on the outside of the icy water cup
- From their data, can explain how to speed up or slow down evaporation
- Can present their learning about the water cycle in a range of ways e.g. diagrams, explanation text, story of a water droplet.

Big Question:

Where do ice cubes go when they disappear?

Why does it rain and hail?

Future Knowledge:

- Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets. (Y5 - Properties and changes of materials)
- Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution. (Y5 - Properties and changes of materials)
- Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. (Y5 - Properties and changes of materials)
- Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. (Y5 - Properties and changes of materials)
- Demonstrate that dissolving, mixing and changes of state are reversible changes. (Y5 - Properties and changes of materials)
- Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda. (Y5 - Properties and changes of materials)

Cultural Capital

Visits and visitors

We the Curious (Bristol)

Experiences and events

Key texts

Once Upon a Raindrop: The Story of Water
(James Carter)
Sticks
(Diane Alber)

Community events and links

Global issues

Water Aid
Flooding linked to Global Warming

Famous people/ Key Scientists

Anders Celsius
(Celsius Temperature Scale)
Daniel Fahrenheit
(Fahrenheit Temperature Scale / Invention of the Therm

Life Skills

Curiosity
Resilience
Making Links

Key places

Use School grounds for investigating e.g playground, outside learning spaces.