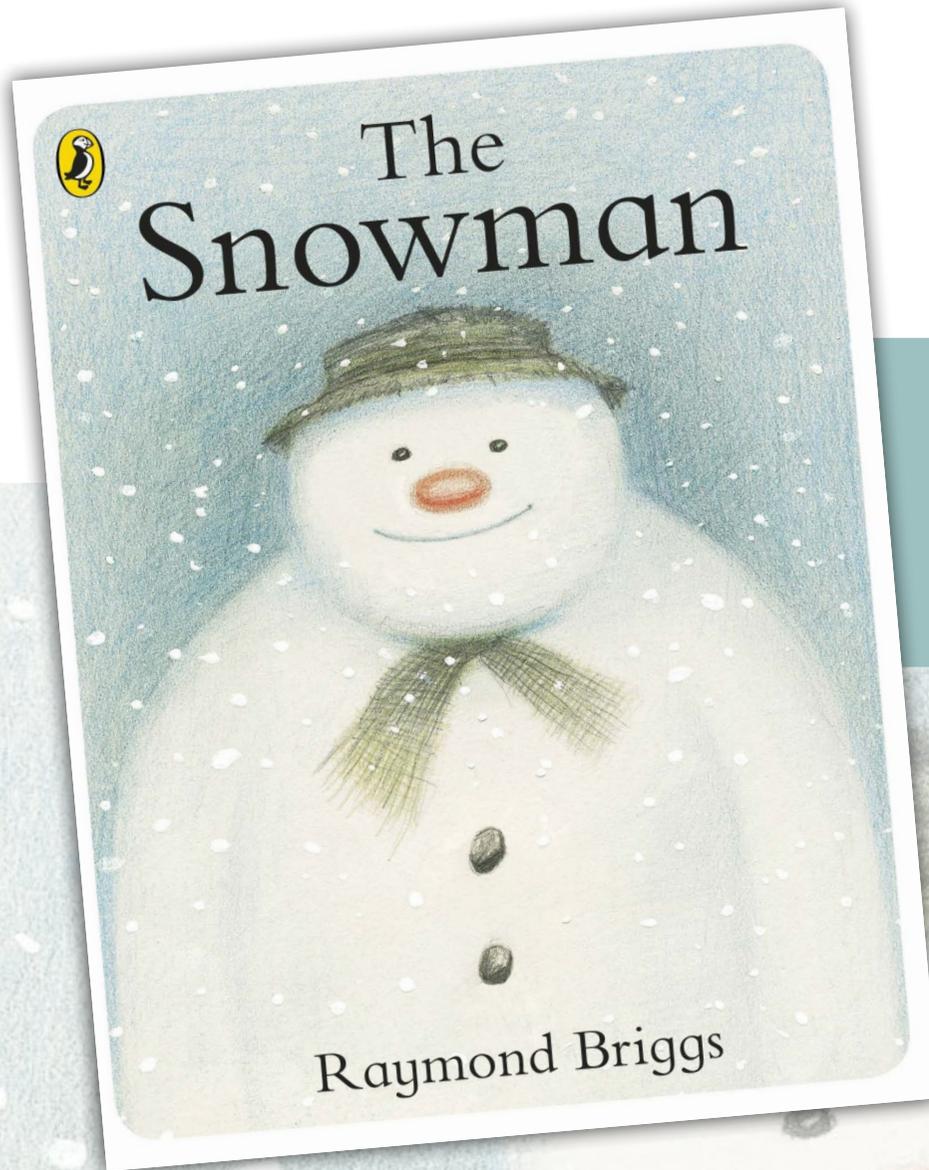




# STEM By The Book



## The Snowman Raymond Briggs

### Experiences and Outcomes

Through creative play, I explore different materials and can share my reasoning for selecting materials for different purposes. [SCN 0-15a](#)

Through exploring properties and sources of materials, I can choose appropriate materials to solve practical challenges. [SCN 1-15](#)

By investigating how water can change from one form to another, I can relate my findings to everyday experiences. [SCN 0-05a](#)

I enjoy experimenting with a range of textiles [TCH 0-04](#)

I am developing and using problem solving strategies to meet challenges with a food or textile focus [TCH 1-04c](#)

## Resources

- 3 blocks of ice (snowmen) the same size – these can be made by freezing the same volume of water in Playdo tubs or similar
- A variety of fabrics and materials (fur, bubble wrap, tin foil etc) cut to the same size - to wrap around the blocks of ice
- A tray
- Plastic bags
- Elastic bands
- Measuring jug



## Activity – Snowman’s Coat

In the book “The Snowman” melts leaving only his hat and scarf, ask the learners how they think they could stop their snowman from melting when the weather starts to get warmer.

Allow the children to explore the different materials – allow them plenty of time to discuss what they think might happen if they wrap the snowman in some of the materials. Each groups should select two materials to investigate.

Now get your ice blocks or “snowmen” out of their tubs (Figure 1). It helps if you remove them from the freezer about 15 minutes prior to starting.

Wrap each of the chosen materials around a snowman, you can use an elastic band to secure them (Figure 2). Wrap each snowman in their “coat” and place them inside a separate plastic bag. Leave one snowman uncovered in a plastic bag (this will act as a control sample), now place all the bags in a tray to avoid spills – place the tray where it can be observed (Figure 3).



Figure 1



Figure 2



Figure 3

## Activity – Snowman's Coat (cont.)

Check the snowmen every ten minutes to see if they are melting and observe which one appears to be melting fastest, look for water gathering in the bag. After an hour (or once the control snowman has melted significantly) remove the snowmen from the bags. Unwrap the snowmen and observe each one, have they changed in size? Are they all the same?

By looking at the water that has gathered in the bags can you tell which snowman has melted the most? Feel the materials, some bags may not appear to contain very much water but is it possible the snowman has melted, and the material has absorbed the water? Squeeze any excess water from the material back into the bag.

Now pour the water from each bag into the measuring jug, you may wish to make a mark on the jug for each one, so it is easier to compare the results.



After one hour

Discuss which fabric or material stopped the snowman from melting, is this what you predicted? Talk about what sort of clothing we wear in cold weather.

Talk about the materials and select the best thermal insulator(s), would they make a good material for a coat? To extend the investigation think about a rainy day – would the material keep you warm and dry? How could you investigate this and find an answer?

## Hints and Tips

This topic helps to address a common misconception. Some learners may believe that adding clothing to the snowman will cause it to melt faster. This may be because we often use phrases such as “put on your warm clothes”.

Key learning from this activity should be that the materials and fabrics themselves are not warm, they are either good or poor thermal insulators. Good thermal insulators help to prevent the transfer of heat energy from one area to another - some materials delay thermal energy transfer from the surroundings, keeping the snowman frozen for longer.

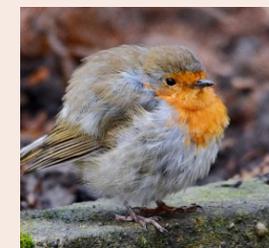
## What Next?

Talk about how materials can act as thermal insulators and when we might use this in daily life, think about vacuum flasks or thermal mugs that can keep liquids cold or warm.

Talk about how animals stay warm, investigate animals in the Arctic or Antarctic and how they use fur, feathers or blubber. If learners used a faux fur fabric, they may have found it acted as a good thermal insulator – keeping the snowman frozen for longer – investigate why this is.



A layer of air is trapped between fur or feathers creating a layer of insulation, learners may have noticed birds appearing plump in winter, this is because they have puffed out their feathers to trap air and retain body heat.



You can investigate how animals use body fat to retain body heat in our [Blubber Hands Investigation](#) in association with the Primary Science Teaching Trust. There is also a well-known Concept Cartoon that you might find useful [Concept Cartoons: Change of State and Insulation | STEM](#)