



## The Snowman

### Teacher's Notes

#### Background Information

Concept Cartoons are cartoon-style drawings which put forward a range of viewpoints about the science involved in everyday situations. By offering new ways of looking at the situation they make it problematic and provide a stimulus for developing ideas further. They are not normally humorous, but are designed to intrigue, to provoke discussion and to stimulate scientific thinking. Although some parallels can be found in research literature, we believe that concept cartoons are a unique approach to teaching, learning and assessment in science.

They do not necessarily have a single "right answer". In many cases the only reasonable conclusion is "it depends on...". Even apparently simple situations usually turn out to have a number of possible complicating factors when they are examined more closely. We believe that it is helpful for learners of all ages to realise that scientific problems may not have a single correct answer. This helps to reinforce a view of science as tentative, in which beliefs are justified by the evidence available but can be modified if additional evidence emerges.

**On the CD you find two concept cartoons about what happens when you put a coat on a snowman. You can use these either with the whole class through a computer or ideally an interactive whiteboard. You could let a group of children work together at one computer.**

It is important to encourage the children to talk to each other about what they think will happen before any practical investigation or finding out the answer. They need to be given a few minutes to do this.

- The first concept cartoon is designed to stimulate discussion and get them thinking and talking. It can also help them to plan what they need to do to investigate their ideas. It doesn't matter if they all have different ideas to start with.

The situation can be investigated using real snow or ice. Alternatively it can be modelled using water frozen in plastic drinks bottles or cups. An old sock or glove makes a useful model coat and allows the effect of the coat to be investigated.

- The second concept cartoon can be used as a follow up activity to help the children to reflect on their learning. It provides an opportunity to value their findings even if their results are unexpected. Unexpected results can prove an opportunity to discuss other possible factors that might be influencing the outcome. If there is time they could go on to investigate the effect of other factors such as the nature, colour and thickness of the coat.

#### Science background

A common misconception is that some materials have the property of making things warm. In this case because we have put coats on to keep warm there is a tendency to believe that the coat will also make the snowman warm so that it will melt quickly. In fact the coat acts as an insulator, reducing the movement of energy in either direction. On a person it can prevent energy loss, while it prevents the snowman from getting warmer. The snowman will therefore not melt easily while wearing a coat.

The situation can be investigated using real snow or ice. Water can be frozen inside plastic drinks bottles or plastic containers and used as model snowmen. An old glove or sock will make a model coat and allow the effect of the coat to be investigated. A useful extension is to investigate the effect of other factors such as the nature, colour and thickness of the coat.

**If you want know more about concept cartoons then visit:**

[www.conceptcartoons.com](http://www.conceptcartoons.com)