

Black, white or silver?

Some colours reflect heat and some colours absorb heat. What do you think are the coolest colours to wear on a hot day, or the best colours to absorb the heat in winter?

Task:

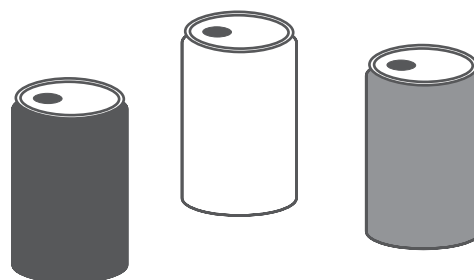
Work in small groups to investigate if different colours absorb or reflect heat from the sun.

What you need:

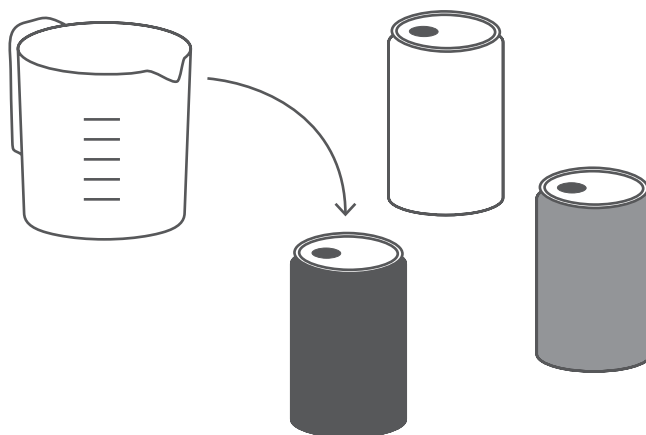
- Thermometer
- Three aluminium drink cans (the same size)
- Black, white and silver paint
- Watch or clock
- Cardboard
- Measuring jug
- Water

Instructions:

Step 1: Paint each of the cans – one black, one white and one silver.



Step 2: Use a measuring jug to fill each can with the same amount of water.



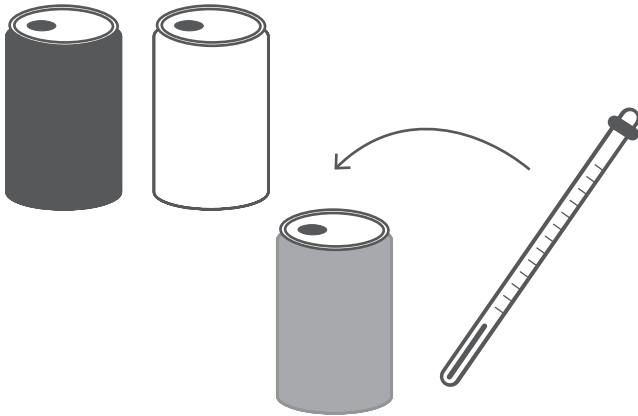
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Step 3: Record the initial temperature of the water in each can and record on Table 1.

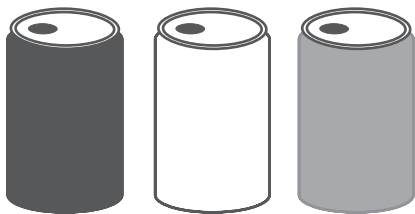
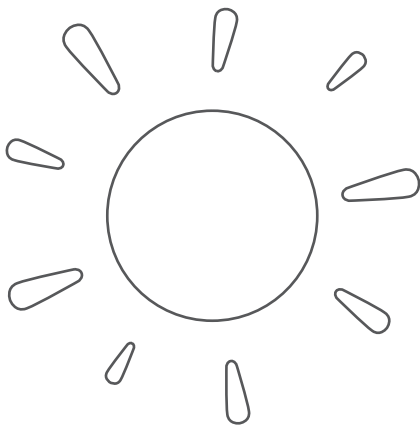
Make some predictions about the temperature reached inside each can on Table 1.

Step 5: Record the temperature of the water in each can at 10 minute intervals.

Step 6: Answer the questions on the activity sheet.



Step 4: Place the cans in a position that has full sun.



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Name: _____

Record the results of the experiment in the table below:

Can	Initial temp	Predicted temp reached	10 min	20 min	30 min	40 min	50 min
White							
Black							
Silver							

Graph your results on a separate sheet and answer the following questions:

1. What was the maximum temperature reached in each can?

White _____

Black _____

Silver _____

2. Were these temperatures higher or lower than you had predicted?

White _____

Black _____

Silver _____

3a. For each can, was heat absorbed or reflected?

White _____

Black _____

Silver _____

3b. Did any of the results surprise you?

Y / N

Why or why not? _____

4. Other than the colour of the cans were there any variables that might have affected the temperatures reached?

Think about:

– the placement of the cans – did they all receive the same amount of sun?

– the accuracy of your measurements – was the thermometer placed at the same depth in each can?
