Worksheet 2.3.5 How to stop energy from travelling

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1 Comparing insulation types >

Lauren’s class are comparing types of insulation. They’re going to wrap beakers of water in different materials and see which keeps them hotter for longer. They’re going to compare bubble wrap, felt and newspaper.

Can they make their experiment a fair test and, if so, how?

2 Keeping cans cool >>

Ellie has just got cans of soda from the fridge for her and her friend Abbie. It’s a hot day and they’re looking forward to the cold drinks. They’re sat under a tree but it’s still around 25 °C. The soda is gassy though so they don’t want to drink them too quickly. In any case they want to make them last.

Abbie takes a drink and puts the can down in the shade. ‘Best not hold it too long or it’ll get warmed up from your hand.’ ‘No,’ says Ellie, ‘It’ll stay cold longer if you hold onto it because your hand will shield it from the sun’s rays.’

Who do you think is right, and why?

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3 The Ice Beaker Challenge >>>

Harry’s class are doing an investigation called the ‘Ice-Beaker Challenge’. Each team is supplied with a beaker. They have to prepare it with insulation to receive and preserve an ice cube. Fifteen minutes later the ice cubes are measured and the biggest wins. It will have melted less than the others and proved that the insulation was the most effective.

When they are planning how to insulate their ice cube, Harry’s team have various ideas. Look at each of these ideas, identify what’s good about them and what’s not so good.

|  |  |  |
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| Idea | Why this is a good idea… | Why it’s not so good… |
| ‘We should wrap the ice cube in aluminium foil several times.’ |  |  |
| ‘We should put it straight on the bottom of the beaker and scrunch lots of newspaper on top of it.’ |  |  |
| ‘We should make an expanded polystyrene lid for the beaker. Then we can tie a cotton loop around the ice cube and dangle it from the lid.’ |  |  |