

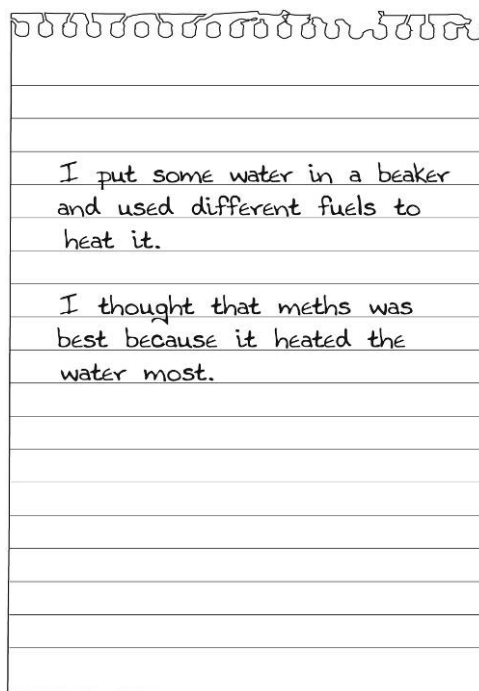
a) What advantages are there from using wood as a fuel?

[2 marks]

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In his Science lesson, Pete investigates which fuel heats water the best. Here is part of his conclusion:



I put some water in a beaker
and used different fuels to
heat it.

I thought that meths was
best because it heated the
water most.

b) Draw a table that Pete could use for his results.

[3 marks]

c) Explain why Pete's conclusion may not be right.

[3 marks]

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Level 6

- 3 a) When ice cream is taken from the freezer and put in the fridge, it warms up. When a cup of tap water is placed in the same fridge it cools down. Explain why this happens. [4 marks]

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- b) If the ice cream is wrapped in foil, and then in layers of newspaper when it is taken out of the freezer, it stays cold for longer. Explain why. [2 marks]

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- 4 As we use more electricity worldwide, there are plans to use more renewable resources.

- a) Explain why it is a good idea to use more renewable resources. [2 marks]

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- b) Many people feel that renewable resources will not supply our needs reliably. Choose **one** renewable energy resource and explain why it is not reliable.

[2 marks]

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**Level 7**

- 5 Microwave ovens create microwaves that are absorbed by water.

- a) Explain why a microwave oven can be used to heat a glass of milk.

[2 marks]

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- b) Explain why it is not a good idea to heat up a glass of milk and a plate of biscuits in the microwave at the same time. [2 marks]

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- 6 Energy performance certificates are needed for all newly built houses in the UK. This is designed to encourage buildings to be more energy-efficient.

- a) Explain how energy-efficient homes can reduce emissions of greenhouse gases. [3 marks]

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- b) Explain how energy usage is reduced by including the following features:

- i) heat exchangers [3 marks]

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- ii) double glazing. [2 marks]

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Level 8

- 7 a) During a thunder storm, we see lightning almost immediately but thunder takes longer to reach us. What is the speed of sound in air if thunder from a storm 1000m away is heard 3s after the lightning is seen? [3 marks]

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- b) A signal is tapped on one end of an iron bar. How long does the signal take to reach the other end of the bar? The bar is 250 m long and the speed of sound in iron is 5000 m/s. [3 marks]

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- c) Use your ideas about sound to explain this:

After an earthquake, people may be trapped under buildings. People can often let rescuers know that they are there by tapping on pipes or rubble.

[3 marks]

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