Specific Heat Capacity

Energy = Mass x Specific Heat Capacity x Change in temperature

1000g = 1kg

1. How much **energy** is needed to raise the temperature of 2 kg of copper from 0°C to 10°C.The specific heat capacity of copper is 380J/kg°C.

2. A hot water bottle is filled with 0.8kg of water at 80°C. During the night it cools to 30°C. The specific heat capacity of water is 4200J/kg°C. How much **energy** has it given out?

3. How much **energy** is needed to heat 2kg of cooking oil with a specific heat capacity of 2000J/kg°C from 20°C to 120°C?

4. Andy has a bath and uses 1500g of water heated from 10°C to 40°C and with a specific heat capacity of 4200J/kg°C. How much **energy** does he use?

5. An electric kettle supplies 20,000J of energy to heat 0.5kg of water. What is the **temperature change**? The specific heat capacity of water is 4200J/kg°C.

6. A piece of lead with a specific heat capacity of 126J/kg°C is given 5000J of energy to heat it from 20°C to 250°C. What was the **mass** of the piece of lead?

7. A 2 kg metal cylinder is supplied with 1600J of energy to heat it from 5°C to 13°C. What is the **specific heat capacity** of the metal?

8. 201,600J is supplied to 600g of water with a specific heat capacity of 4200J/kg°C. What is the **change in temperature**?

9. ***CHALLENGE!*** Becky has a shower and uses 20,000g of water with a specific heat capacity of 4200J/kg°C. When the water is supplied with 336,000J of energy, it heats up to 50°C. What was the **starting temperature** of the water?

10. Explain why houses built of stone take a long time to warm up. But once they are warm, they stay warm for a very long time.

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