Conduction

Task 1: Temperature and heat

a)   Draw lines to **match** the information about heat and temperature.

| heat |

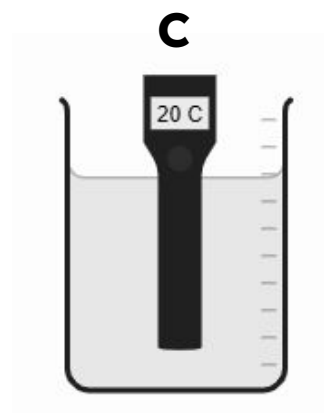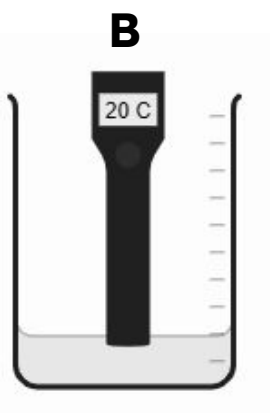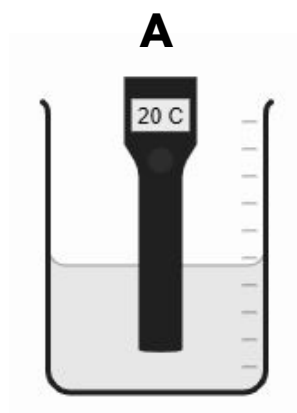| a way to measure how hot or cold something is |

| measured in degrees Celsius (°C) |

| temperature |

| a measure of the energy in the thermal energy store of an object |

| measured in joules (J) |

b)   **Which** beaker has the highest heat (thermal energy)?
Explain your answer.

A

20 C

B

20 C

C

20 C

Task 2: Understanding conduction

a) **Describe** the process of conduction.

b) **Explain** why using a metal mug to drink hot drinks from would **not** be a good idea. Use ideas about conduction in your answer.
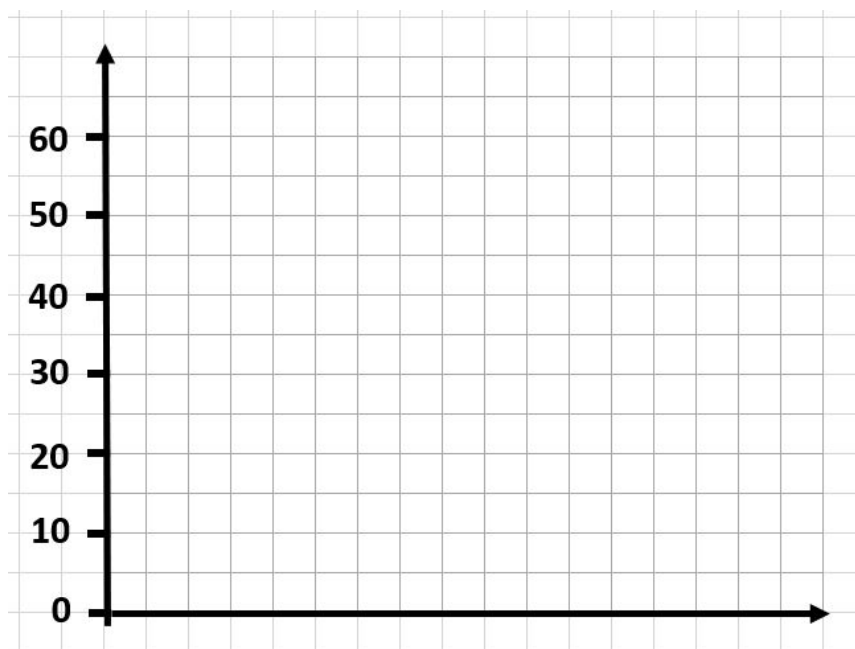
Task 3: Investigating conduction

a) **Calculate** the mean for each metal.

Type of metal rod	Time taken for pin to fall (s)			
	try 1	try 2	try 3	mean
steel	43	46	46	
copper	29	33	28	
brass	34	35	36	
aluminium	41	42	37	

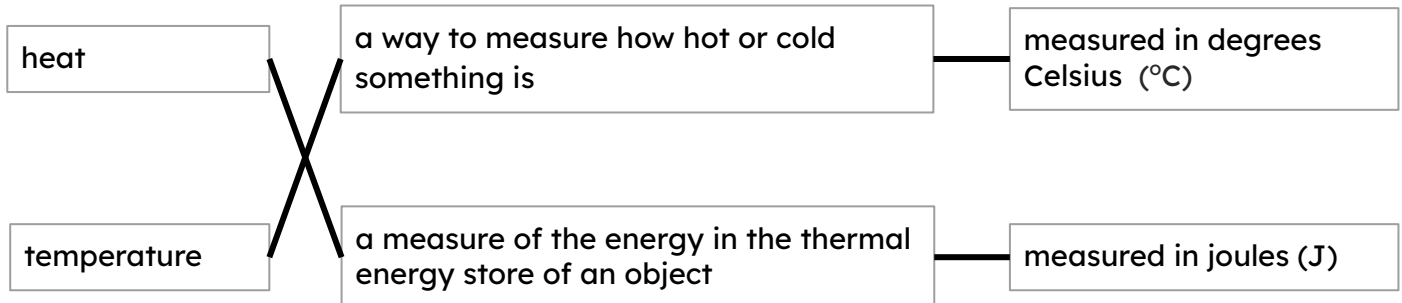b)   **Plot** the data from the table as a bar chart.

c)   Starting with the metal with the highest thermal conductivity, **sort** the metals into order of thermal conductivity.

d)   Of the metals tested, **which** is best one to use to make saucepans? **Explain** your answer.
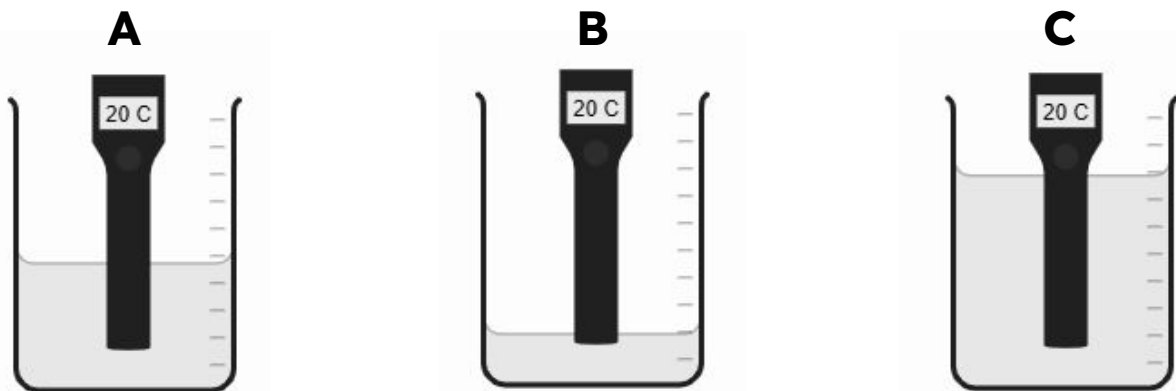
Conduction

Task 1: Temperature and heat

a)   Draw lines to **match** the information about heat and temperature.

| heat | | a way to measure how hot or cold something is | | measured in degrees Celsius (°C) |

| temperature | | a measure of the energy in the thermal energy store of an object | | measured in joules (J) |

b)   **Which** beaker has the highest heat (thermal energy)?
Explain your answer.

A   **B**   **C**

20 C   20 C   20 C

Beaker C.
The water in all of the beakers is the same temperature meaning the particles are moving with the same energy, but there is more water in beaker C so there are more particles.

Task 2: Understanding conduction

a) **Describe** the process of conduction.

Heating particles transfers energy to them causing them to gain energy in their kinetic energy store and vibrate more.

Vibrating particles collide with nearby particles transferring energy and causing them to vibrate more as well.

b) **Explain** why using a metal mug to drink hot drinks from would **not** be a good idea. Use ideas about conduction in your answer.

Metals are good conductors of thermal energy. They would not make a good drinking mug because the metal would conduct thermal energy from the drink and become hot which could burn your lips.
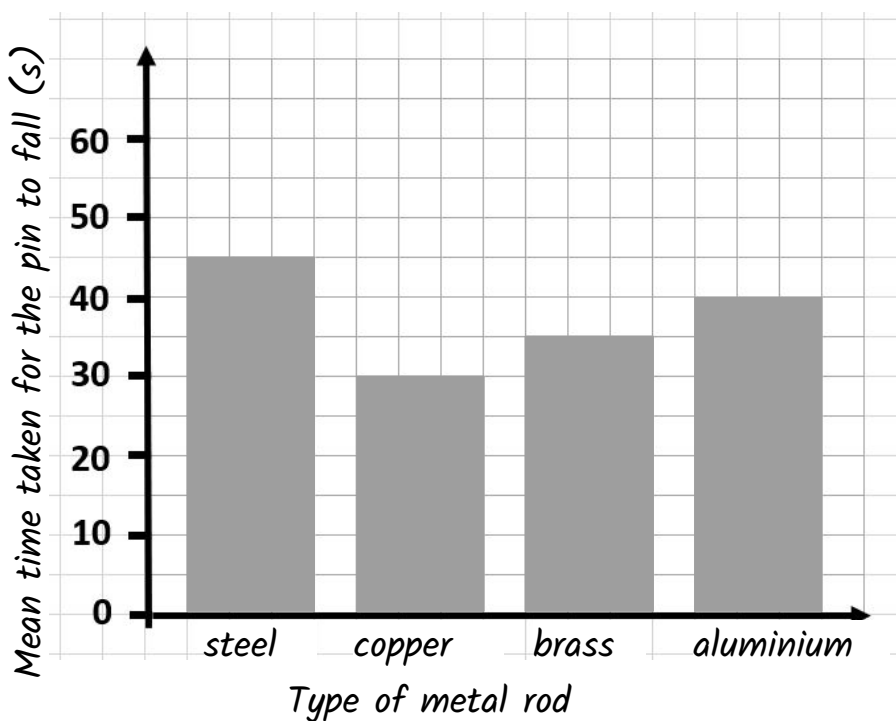
Name _____

Task 3: Investigating conduction

a) **Calculate** the mean for each metal.

Type of metal rod	Time taken for pin to fall (s)			
	try 1	try 2	try 3	mean
steel	43	46	46	45
copper	29	33	28	30
brass	34	35	36	35
aluminium	41	42	37	40

b)   **Plot** the data from the table as a bar chart.

c) Starting with the metal with the highest thermal conductivity, **sort** the metals into order of thermal conductivity.

copper
brass
aluminium
steel

d) Of the metals tested, **which** is best one to use to make saucepans? **Explain** your answer.

Copper is the best metal to make saucepans because it has the highest thermal conductivity so will cook food quickly.