



Year 3 Hardcore Heat

TEACHER REFERENCE GUIDE

With Street Science, you became a junior scientist, conducting chemical reactions to transform heat energy and testing the conductivity of materials.

1. Use the **word bank** to complete the information about **heat production**.

Heat is a form of ENERGY. It can be produced from different forms of energy through events such as FRICTION or use of ELECTRICITY.

CHEMICAL reactions can both absorb and PRODUCE heat energy. We can feel and measure the effects of heat flow using a THERMOMETER.

WORD BANK: thermometer energy friction produce electricity Chemical

1. We used digital thermometers to **measure** and record how much heat was absorbed or produced in two **chemical reactions**. Your teacher can give you your results sheet or the class average results to help you calculate the change in **temperature** for each reaction.

GREEN Reaction – temperature increase

End temperature *MINUS* Start temperature *EQUALS* Temperature change

$$\boxed{41.3^{\circ}\text{C}} - \boxed{26.5^{\circ}\text{C}} = \boxed{14.8^{\circ}\text{C}}$$

YELLOW Reaction – temperature decrease

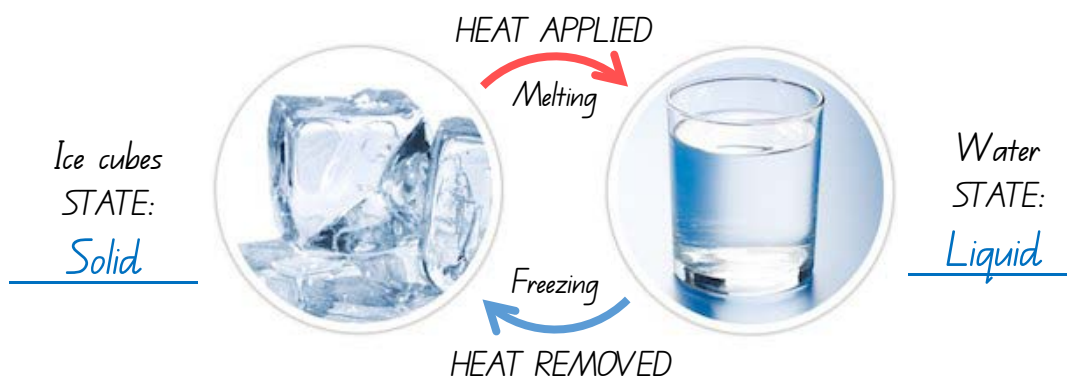
Start temperature *MINUS* End temperature *EQUALS* Temperature change

$$\boxed{26.3^{\circ}\text{C}} - \boxed{22.4^{\circ}\text{C}} = \boxed{3.9^{\circ}\text{C}}$$

Which reaction had a larger temperature change? The Green reaction



2. We tested how heat can be **conducted** through different materials by melting ice cubes. Name which states of matter we observed.



Predict what would happen to liquid water if we applied more & more heat energy? _____

If enough energy is added to liquid water it would boil into steam (gas water) .

3. Draw the objects which we tested and label the materials they are made of. State whether or not the ice melted in each material.

Object drawing	Fry pan	Round dish	Round bowl	Square tray	Round plate
Material	Metal	Silicon	Plastic	Styrofoam	Cardboard
Did the ice melt?	Yes	No	No	No	No

Which object was the best conductor of heat? The metal fry pan

Extras for Experts!



Science Steve wants to keep his lunch hot until break. Should he use a metal or foam bowl? Explain why?

