



Name: _____

Class: _____

Literacy support worksheet

5.1 Thermal energy moves down the temperature gradient

Pages 96–97 and 206

Thermal energy moves from hot to cold

1 What is thermal energy?

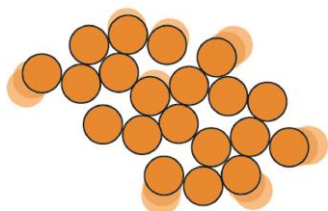
2 How can energy be transferred?

3 When will moving down the temperature gradient be stopped?

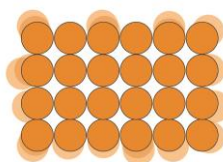
4 Can energy ever be lost or gained? Explain why.

5 Which molecules have: most, moderate or least space between particles; most, moderate or least movement; and most, moderate or least thermal energy?

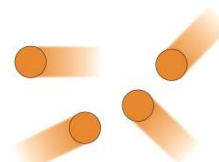
a



b



c





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- 6 An open and half empty plastic 2 L water bottle was left out on a hot day. The bottle was then sealed and placed in the freezer overnight.

a What does the bottle look like when it comes out of the freezer?

b Why does it look like this?

- 7 Draw the structure of the atoms of a metal when cooler and warmer.

- 8 A metal spoon is in constant motion, even though you can't see it. Why is this?

- 9 Why do metals expand when hot?

- 10 If a substance were perfectly insulated, what would happen?

- 11 Some boiling water is added to a room temperature mug.

a What is the temperature gradient?



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- b When will the mug of water reach thermal equilibrium? (Hint: what two things are of different temperatures?)

WORD DETECTIVE

12 Find a word

Find the words in the puzzle of letters below that will fit the clues given.

M	M	U	I	R	B	I	L	I	U	Q	E
T	H	E	R	M	A	L	L	A	T	E	M
R	E	L	O	O	C	D	E	T	A	E	H
A	M	O	L	E	C	U	L	A	R	Z	E
O	V	N	O	I	T	A	L	U	S	N	I
T	E	M	P	E	R	A	T	U	R	E	E
N	G	A	S	T	N	E	I	D	A	R	G

WORD	CLUE
T_____	_____ energy is the energy of moving/vibrating particles.
C_____	Thermal energy can be transferred from hotter objects to _____ objects.
E_____	When thermal energy is balanced with its surroundings, thermal _____ is achieved.
H_____	Atoms of a metal vibrate faster when they are _____.
G_____	A temperature _____ is the difference between two systems, such as an ice block and warm air.
G__	When particles become heated, they will move faster and further apart, which can cause a change in state from liquid to solid to _____.
T_____	A thermometer is used to measure _____.
I_____	A substance that prevents the movement of thermal or electrical energy is called _____.
M_____	Metals are not _____ substances.
M____	When a _____ is hot, its atoms vibrate faster than when it's cold.