

UNIT 5. HEAT AND LIGHT

1. **Read** about how thermal energy moves. Then answer the questions.

Thermal energy likes to move around. There are three ways that thermal energy can move: convection, radiation or conduction. Convection occurs when thermal energy moves because matter is moving. For example, when an area of warm air is heated by the sun and rises, or when warmer liquid rises to the top of a cooking pot as the pot is heated. Radiation occurs when there is no matter for thermal energy to move through, for example in space. This is how thermal energy travels between the Sun and the Earth's atmosphere. Finally, thermal energy can move by conduction. This occurs when thermal energy passes from one object to another when they are touching each other. For example, when you touch an ice cube, thermal energy passes from your fingers to the ice cube, melting it.

a) In what ways can thermal energy move?

b) What is the name for the transfer of thermal energy caused by the movement of matter?

c) What type of energy transfer takes place when you stand on warm sand and your feet get hotter?

2. **Underline** true or false? Correct the wrong statements.

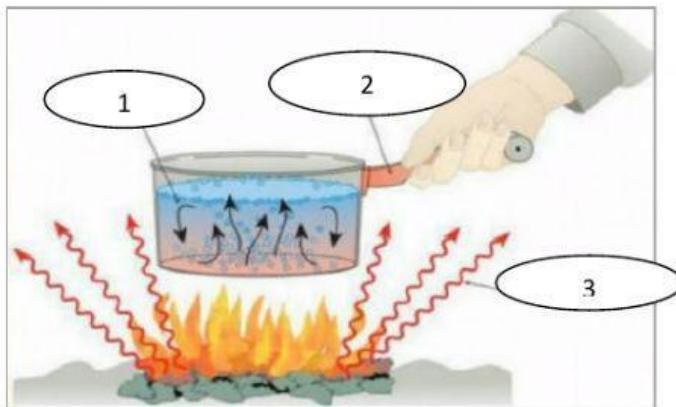
a) Heat and temperature are the same thing. True / False

b) Thermal energy can make objects contract. True / False

c) Heat travels from colder objects to hotter objects True / False

d) Thermal energy can cause objects to change state. True / False

3. **Label** the three ways in which heat is being transferred in the picture.



1: _____
2: _____
3: _____

3. Name the process being described.

evaporation solidification condensation melting

a) When a liquid changes into a solid: _____
b) When a liquid changes into a gas: _____

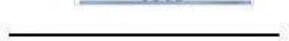
c) When a solid changes into a liquid: _____
d) When a gas changes into a liquid: _____

4. Write **reflection** or **refraction**. Label the pictures.

a) We can split white light into colours. _____



b) Light bounces off shiny surfaces. _____



c) Water changes the direction of the light that passes through it. _____

d) When we look at a straw in a glass of water, it appears to be bent. _____



e) When we look in a mirror we can see our own face. _____

5. Finish the sentences using the words in the box.

a) The mirror reflects the light, causing the light to change _____.

transparent

b) You can see the reflection of the object in the _____.

direction

c) When light passes through some _____ substances, it changes direction slightly.

dark

d) Light colours absorb light energy _____ than _____ colours .

mirror

better

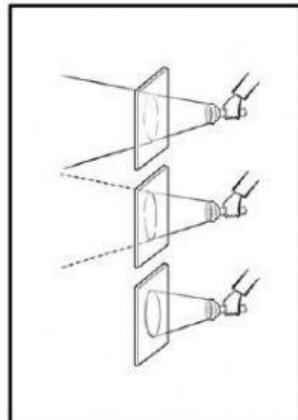
6. Classify the terms in the table below.

conduction	translucent	condensation	convection	evaporation
opaque	radiation	reflection	refraction	solidification
				transparent

Heat	Light

7. Match the pictures with the words and definitions.

opaque



It blocks some light, but some passes through

transparent

It blocks the light, completely

translucent

It doesn't block light, it passes through