Section A: Choose the best answer. (5 marks)

1. When a metal rod is heated, it expands. What does the word expands mean?

A. Gets heavier C. Changes into a liquid

B. Gets colder D. Gets bigger in size

2. According to the particle model, what happens to particles when a substance is heated?

A. They stop moving C. They become smaller

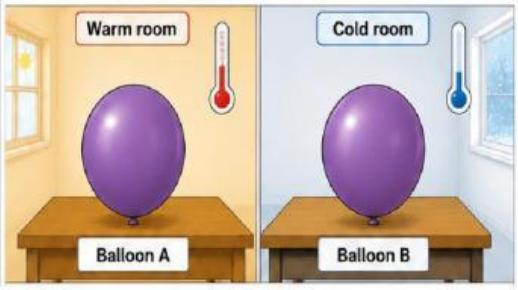
B. They gain energy and move faster D. They disappear

3. A metal jar lid is difficult to open. Which action will help loosen the lid?

A. Put the jar in a freezer C. Add cold water to the lid

B. Pour hot water over the lid D. Shake the jar strongly

4. Two identical balloons are filled with air. Balloon A is placed in a warm room while Balloon B is placed in a cold room.



Which statement best explains what happens?

A. Balloon A becomes smaller because particles move faster.

B. Balloon B becomes larger because particles slow down.

C. Balloon A becomes larger because air particles spread further apart.

D. Both balloons stay the same size.

5. Engineers leave small gaps between sections of a railway track.

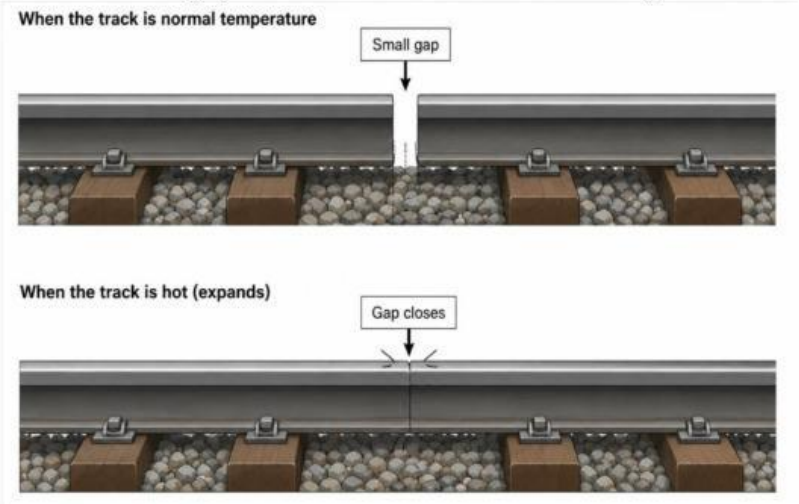


Figure 1

LIVEWORKSHEETS

Why are these gaps necessary?

A. To make trains move faster
B. To reduce the mass of the track
C. To allow expansion without bending the rails
D. To make the track look straight

Section B: Answer ALL of the questions. (15 marks)

6. Below is real-life examples of expansion and contraction. **Write A – D for the scientific explanation. [4] Scientific explanations:**

A. Thermal expansion of metals
B. Insulators are poor conductors of heat
C. Thermal contraction of gas particles
D. Expansion can occur if there is insufficient space

Situation	Scientific explanations
1. Balloon shrinks in a cold room	
2. Plastic spoon stays cool longer than a metal spoon	
3. Railway tracks may bend on very hot days	
4. Metal lid loosens when heated	

7. A bridge like in Figure 1 above is made mainly of metal. Engineers leave expansion gaps between bridge sections.

a. What is thermal expansion? [1]

_____

b. Explain why engineers leave gaps between sections of the bridge. [2]

_____

_____

8. Match column A with column B.[8]

a.	Thermal Expansion	○	○ Allows heat energy to pass through easily.
b.	Thermal Contraction	○	○ Becomes easier to open when heated because the metal expands.
c.	Conductor	○	○ A material gets bigger when heated.
d.	Insulator	○	○ A material gets smaller when cooled.
e.	Particle Theory	○	○ Explains that particles gain energy and move further apart when heated.
f.	Railway Track Gaps	○	○ Leaves space for metal rails to expand in hot weather.
g.	Hot Air Balloon	○	○ Rises because the heated air inside expands and becomes less dense.
h.	Metal Jar Lid	○	○ Slows down or prevents heat transfer.

LIVEWORKSHEETS