

Part A

1. When the liquid in a thermometer gets hot, it _____ and rises up the tube.
2. Solids (and most liquids and gases) _____ when they get hot and they _____ when they cool down.

Part B

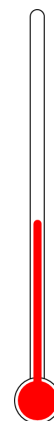
3. If you raise the temperature of a 20-metre-long steel beam from 10°C to 50°C it will expand by _____.
4. If you raise the temperature of a 20-metre-long aluminium beam from 10°C to 50°C it will expand by _____.
5. If you raise the temperature of a 40-metre-long steel beam from 10°C to 50°C it will expand by _____.
6. If you raise the temperature of a 40-metre-long aluminium beam from 10°C to 50°C it will expand by _____.
7. Describe why bridges are built with expansion gaps. Draw a diagram to help with the explanation.

8. Why does hot glassware often crack if it suddenly comes into contact with cold water?

9. Why does an iron rod expand when it is heated?

Part C

10. Briefly describe how a thermometer works.
11. If the temperature of all the oceans increases, what will happen to the sea level? Why?
12. If a balloon filled with air is hanging outside in the cold and it's then taken into a warm room, what will happen to its volume? Why?
13. If 1 litre of water is boiled and it turns into steam, it will expand to _____ litres (at normal atmospheric pressure).
14. Why is heating an unopened can of food (such as a can of baked beans) in the oven a bad idea?
15. Briefly describe how a steam turbine in a power station works? Include a diagram.



Part D

16. What happens to the volume of water as it cools down from 4°C until it freezes?
17. If you start with exactly 1 litre of water at 4°C, it will end up with a volume of _____ litres when it freezes.
18. Why should you avoid placing drink cans and bottles in the freezer?