

WorksheetCloud: WORKSHEET

Grade 8

Subject: Natural Sciences

Topic: Expansion and contraction of substances

Activity 1

In this activity we will compare the expansion of different solid materials by drawing a graph. You will need the following information for your graph:

Material	How far a 100 metre length of the material will expand when the temperature increases by 10°C
Brass	19 mm
Iron	12 mm
Steel	11 mm
Platinum alloy	10 mm
Concrete	11 mm
Ordinary glass	11 mm
Ovenproof glass	3,5 mm

1. Draw a bar graph with 'Expansion' on the y-axis and 'Materials' as categories on the x-axis. Choose an appropriate title for your graph.
2. Which material expands the most upon heating?
3. Which material expands the least upon heating?
4. Which solid would be the best material to reinforce concrete? (Hint: the reinforcing material should expand as much as the concrete, otherwise it will damage the concrete during expansion.)
5. A man builds a house with large windows set in beautiful frames made of brass. The house is in a region where it gets very hot during summer. Imagine that the owner of the house has a problem: the windows of the house look beautiful in their shiny brass frames but they keep falling out during the summer months. As a scientist, how would you explain this and what would your advice to the owner of the house be? Should the frames be replaced? If so, with which material? What other solutions can you suggest?