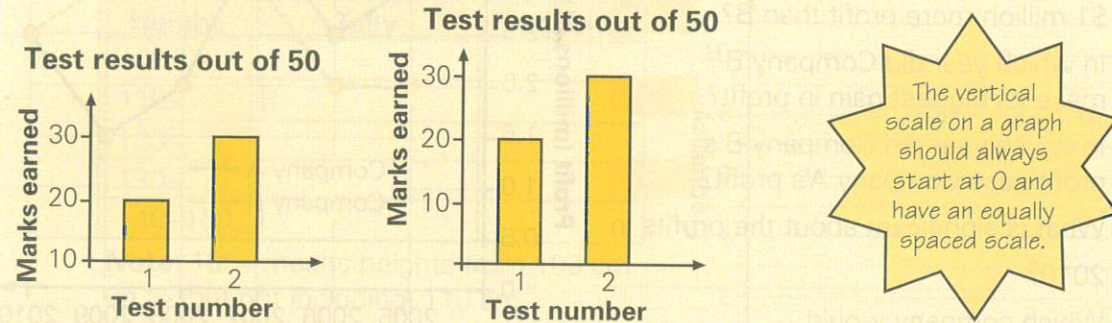


## Statistics: Misleading graphs and reports

**Statistical reports** often include graphs to explain patterns and justify conclusions. Some graphs can be drawn in a misleading way so that data and results are not represented fairly.

**Example:** From the first graph, Anthony claimed that he did twice as well in his second test (the second bar is twice as high as the first). But, because the vertical scale starts at 10, this relationship is untrue. The graph should be drawn like the second one.



### Practising misleading graphs and reports

1. Here are two graphs about the cost of bread.

- Do both graphs show the same information?
- Why do the graph lines look different?

\_\_\_\_\_

- Which graph do you think a bread company would use to describe price increases?

Why? \_\_\_\_\_

\_\_\_\_\_

- Which graph do you think a group opposed to price increases would use?

Why? \_\_\_\_\_

\_\_\_\_\_

2. Why are these statements misleading?

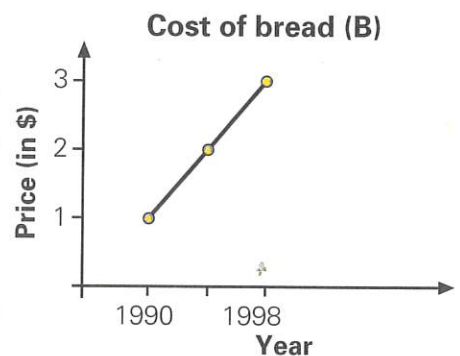
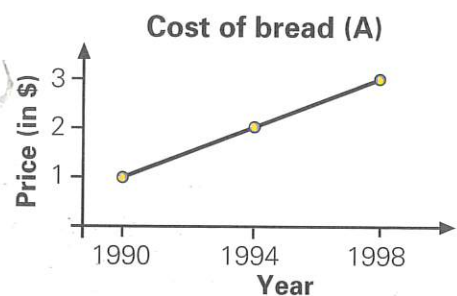
- '8 out of 10 of my friends prefer swimming in a pool, so 80% of all kids prefer pools.'

\_\_\_\_\_

- 'The average discount is higher at Shopsure than at DownPrice, so every price will be cheaper at Shopsure.'

\_\_\_\_\_

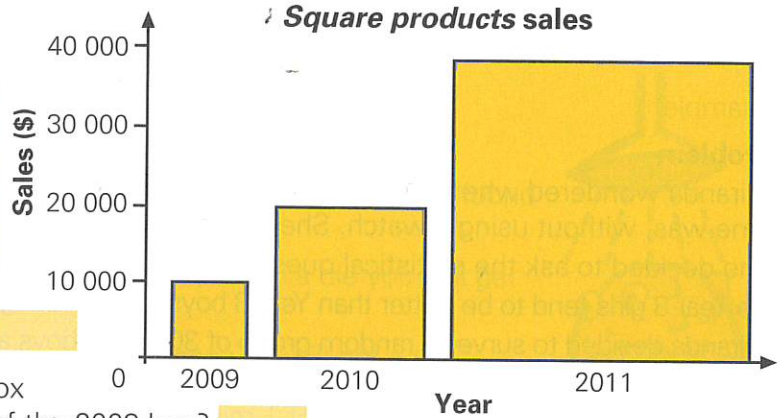
\_\_\_\_\_



## Statistics: Misleading graphs and reports

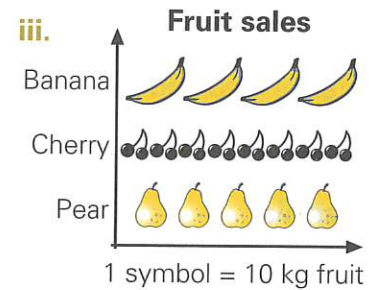
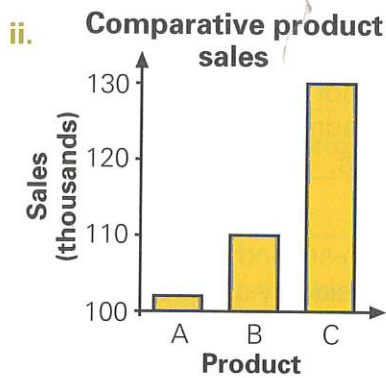
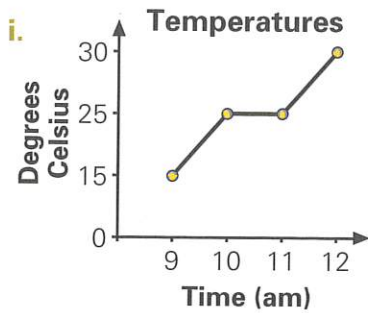
3. Sales are doubling each year for *Square Products*.

Square products sales	
Year	Sales (\$)
2009	10 000
2010	20 000
2011	40 000



- a. Is the 2010 box twice as tall as the 2009 box?
- b. Is the area of the 2010 box twice as big as the area of the 2009 box?
- c. Do you consider this graph misleading?  Why? \_\_\_\_\_

4. a. Why are these graphs misleading?



- b. Redraw each of the graphs so that they do not mislead.

