

Statistics Through Science

Tables, bar charts & line graphs



1. Why do scientists record data as tables and graphs, not lists?

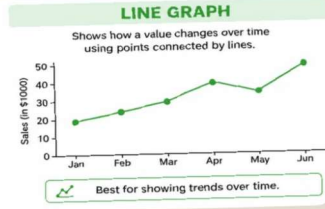
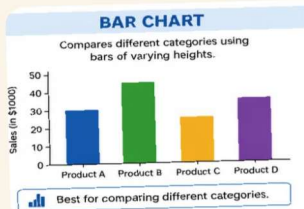
Tables and graphs make it much **easier** to see and compare data at a glance.

- A long list of numbers is hard to spot patterns in.
- Organised data helps us answer our scientific question.

3. When should we use a bar chart instead of a line graph?

A **bar chart** compares separate categories, like different rock types or plants.

- Bars work well when the groups aren't connected in a sequence.
- Line graphs work when data flows continuously, like time passing.



5. How do we read a graph to answer a scientific question?

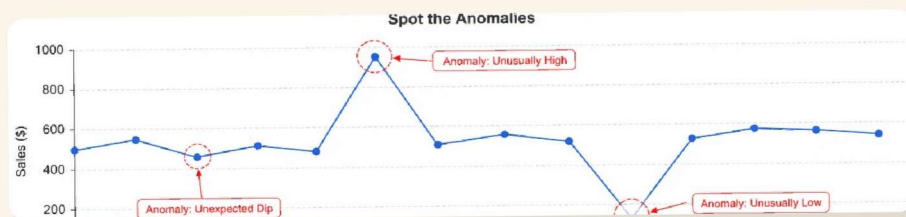
We look for the **highest, lowest and overall pattern** in the data.

- Comparing points tells us which group had more, less, or changed the most.
- We use this evidence to write a conclusion.

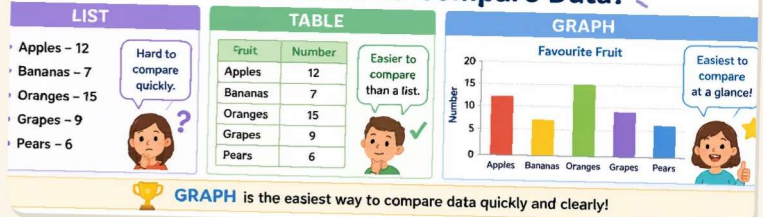
6. Greater Depth: how do scientists spot anomalies (odd results) in data?

An **anomaly** is a result that doesn't fit the overall pattern of the data.

- It stands out clearly on a graph as a point that breaks the trend.
- Scientists check for measuring or recording mistakes before trusting an anomaly.



Which is Easier to Compare Data?



2. Why does a line graph suit data that changes over time?

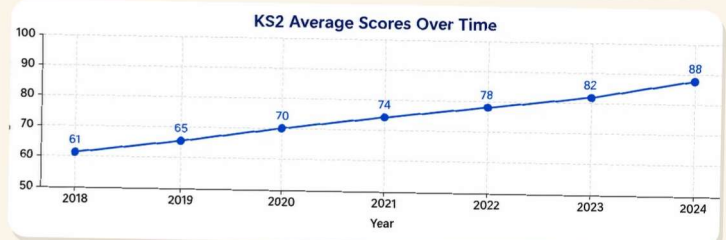
A **line graph** joins points to show a trend, like temperature rising through the day.

- The line's slope shows whether values are going up, down or staying the same.
- It's the best chart for continuous data, like growth or time.

4. How do we choose the right scale for our axes?

A good **scale** spreads our data evenly and clearly across the graph.

- Equal steps (like 0, 2, 4, 6) make the graph easy to read accurately.
- A scale too big or small can hide or exaggerate a pattern.



KEY VOCABULARY

data table bar chart line graph axis scale pattern anomaly record present conclusion

SKILLS I'LL USE

- Record data in a table
- Draw a bar chart & a line graph
- Choose an appropriate scale
- Read & interpret graphs
- GD: identify anomalies in data