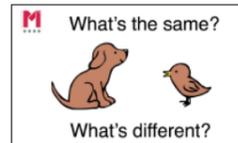
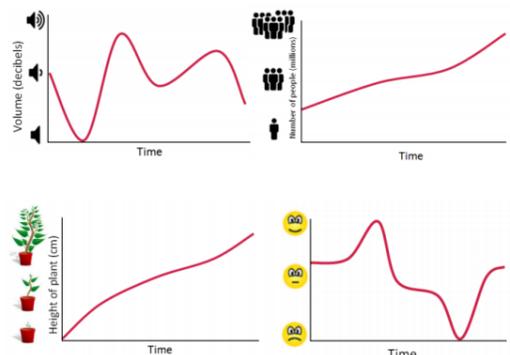


Year 5 Unit 3: Line graphs and timetables (2 weeks)



Before you start...

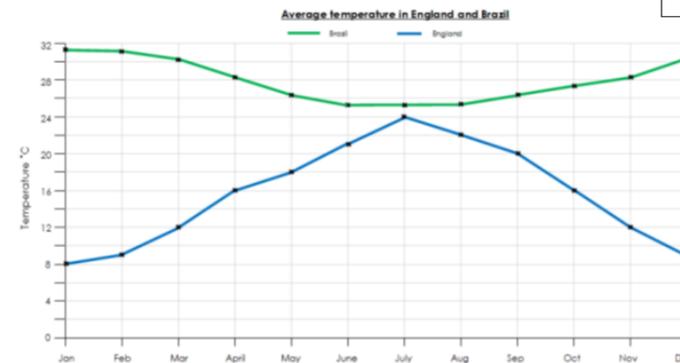
- What experience have pupils had using data, including line graphs and timetables in other subjects?
- How familiar are pupils with calculating intervals of time using both the 12-hour and 24-hour clock?
- Have pupils a secure understanding of units of measure including time and length?



Line Graph - When to use it? Why use it?

Line graphs are used to show trends between two connected values – usually how something changes over time. Often with line graphs we can use the line to estimate values that lie between each data point. We can also compare trends of more than one set of data by plotting multiple lines on the same graph.

Video: Telling the story of the graph



Interpreting line graphs

- L1 Tell the story of a line graph
- L2-3 Interpret, read and solve problems with line graphs
- L4 Interpret and read line graphs and tables

Pupils begin by exploring a range of line graphs without values on the axes in order to focus on telling the story of the data, thinking about the shape of the line. Scales are introduced in lesson two with a focus on accurately reading the graph. This is built upon to explore how the representation changes when you change the scale. Throughout these lessons pupils apply and consolidate skills including working with larger integers, strategies for addition and subtraction and estimation skills.

- ? How will you ensure pupils are exposed to a range of scales and understand the effect of altering the scale?
- ? What connections can you make to prior learning e.g. constructing a timeline, using a measurement scale, right angles and perpendicular lines?



Context is key

Where possible, consider real-life reasons for pupils to collect and present data. Making use of experiments or observations in foundation subjects or Science, or aspects of school life such as parent or pupil voice, can give meaningful contexts for working with data.

Constructing a line graph

- L5 Present information as a line graph

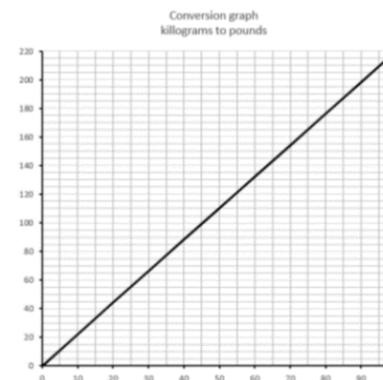
Pupils make connections to discussions held in the previous lesson (around how the chosen scale used on the axes could change the way the data looks) to make informed design choices for their own line graph. Pupils accurately plot the data onto the line graph and are then given a second set of data. Highlight that by placing multiple data sets onto one graph they are able to compare and contrast more efficiently.

- ? How might you use teacher modelling to ensure pupils avoid misconceptions and difficulty points? For example: the line graph always starting at zero, ensuring equal intervals in a scale, clear presentation.

Video: Reading line graphs with accuracy

Stop	Bus A	Bus B	Bus C
High Road	08:40	09:05	09:25
Near Lane	08:47	09:12	09:32
Main Street	08:56	09:21	09:41
Blue Road	09:09	09:34	09:54
Sway Retail Park	09:22	09:47	10:07

	Trains from London to Penzance					
	London Paddington	Exeter St Davids	Newton Abbot	Plymouth	Truro	Penzance
Train A	10:06	12:06	12:29	13:11	14:37	15:11
Train B	10:40	12:41	13:01	13:49	15:07	15:49
Train C	11:25	13:23	13:44	14:35	15:56	16:45



Lesson 6 is the suggested consolidation lesson. You may wish to use the suggested consolidation lesson before this to continue exploration of line graphs

Reading timetables

- L7-9 Read and interpret timetables

Timetables come in a variety of formats and involve a range of different conventions. Pupils should be exposed to timetables in different orientations and layouts. Connections should be made to situations where pupils use timetables outside of the classroom and it may be worth asking pupils to bring in examples/photos of timetables that they have used. Pupils will spend time reading and interpreting timetables and solve problems relating to the timetables that involve calculating intervals of time.

- ? How will you ensure pupils understand how to calculate intervals of time with appropriate strategies and avoid the misconception that you can use always use columnar addition/subtraction to calculate intervals of time?

This could be used as an opportunity to revise time on an analogue clock by giving pupils geared clocks and asking them to show the time that the station clock showed at each stop for each train.

Interpreting conversion graphs

- L6 Read and interpret conversion graphs

Pupils explore conversions graphs, which represent a relationship between measures e.g. miles and kilometres. They apply existing skills of interpreting and reading graphs to read a variety conversion graphs. They then apply this understanding to construct their own conversion graph.

- ? How you will contextualise the use of imperial units of measure used in this lesson to your pupils, who may be less familiar with these?