Summer Learning Journey for Maths
Year 8F Unit 10 Straight Line Graphs

How does this unit link to prior learning?

- Be able to substitute numbers into formulas
- Plotting coordinates in four quadrants
- Be able to simplifying ratios
- Calculate the midpoint between two numbers

Prior Knowledge Check

1. Find the value of $2x + 3$ when x =4

2. Describe how you would plot these plot these coordinates (3,2) (-2 4)

3. Simplify this ratio 28:14

4. What number is halfway between 8 and 14?

What will you be learning about?

Plot straight line graphs using a variety of methods.
Calculate gradients of a graph.
Using direct proportion.

We will develop our learning each week by focusing on:

	RAG		RAG
1. Direct proportion on graphs • Recognising when values are in direct proportion. • Plotting graphs and reading values to solve problems.		**2. Gradients** *(GCSE Statistics)* • Plot a straight-line graph and work out its gradient.	
3. Equations of straight lines *(GCSE Statistics)* • Plot the graphs of linear functions.		**4. Equations of straight lines** *(GCSE Statistics)* • Find midpoints of line segments.	
5. Equations of straight lines *(GCSE Statistics)* • Write the equations of straight line graphs in the form y = mx + c		**6. Direct proportion problems** • Identify and describe practical examples of direct proportion. • Solve problems involving direct proportion with or without a graph.	
7. Revision Lesson • Select topics you feel the class need to revise. • Classroom based or Mathswatch.		**8. Assessment Lesson** • Do 10-minute top up and go through answers together, students self-assess. • Open book assessment done in silence	
9. Feedback Lesson • Student to highlight their traffic light sheet. • Teacher to go through test and students to self-assess in green. • Students to complete the NOW section of the WOW-HOW-NOW sheet.			

Key Vocabulary						
Direct	Proportion	Gradient	Plot	Equation	Linear	Function
Midpoint	axis	Coordinate	Graph	y-intercept	Line segment	

How will this help you in the future?

KS4

Direct proportion on graphs

- You will use this in GCSE when working with **ratio and proportion problems**.
- It helps you understand **straight-line graphs that go through the origin**.
- You'll need this for solving problems with formulas and scaling.
- Comes up in both **calculator and non-calculator papers**.

Gradients

- Gradient means **how steep a line is** – a key GCSE skill.
- You'll use it when analysing **graphs in maths and statistics**.
- Helps with understanding **rates of change** (how quickly something increases/decreases).
- Appears in algebra and graph questions regularly.

Equations of straight lines

- Writing equations like **y = mx + c** is a major GCSE topic.
- You'll need to:
  - Plot straight-line graphs
  - Find gradients and intercepts
- Midpoints link to **coordinate geometry questions** in GCSE.
- This topic often appears in **higher tier papers**.

Direct proportion problems

- Builds on direct proportion but with **problem solving**.
- You'll need this for **worded GCSE questions**.
- Links to algebra, graphs, and ratio all in one.
- Helps you decide when to use formulas or graphs.

Beyond LHS

Direct proportion on graphs

- Used when things increase at the same rate (e.g. pay per hour worked).
- Helps in jobs like **construction, engineering, and science.**
- Useful for understanding **cost vs quantity** (e.g. shopping, fuel costs).
- Important in jobs that involve measurements and scaling (e.g. designers, architects).

Gradients

- Used in construction (e.g. **slopes of roads, roofs, ramps**).
- Important in geography and science (e.g. **speed, distance-time graphs**).
- Used in engineering and design to calculate angles and slopes.
- Helps in data jobs where trends on graphs matter.

Equations of straight lines

- Used in computing and coding (creating graphs and models).
- Important in engineering and physics (modelling relationships).
- Helps with predicting trends (e.g. business profits over time).
- Used in map reading and navigation (coordinates and positions).

Direct proportion problems

- Used in science experiments (e.g. **doubling ingredients or measurements**).
- Important in jobs like medicine, engineering, and technology.
- Helps with everyday decisions (e.g. **recipes, budgeting, scaling up quantities**).
- Useful in any career where you solve real-life problems using maths.