LINEAR GRAPHS

MINI-LESSON

For the Linear Graphs key concept

Summary

Students explore the language and visual representations of linear graphs by matching up terms with diagrams.

Suitable for 2-6 students

Length 30 min (approximately)

Lesson Preparation

- **Matching Sets** (download) – one per pair of students

[Note: either cut up the sets of cards prior to running the activity or set aside time during the activity for students to do this.]

Optional:

- **Answers for Matching Sets** (download) **–** one for teacher reference
- **Scissors –** one pair for each student
- **Computer/Device with internet –** for looking up terminology, if needed

LEARNING INTENTIONS

This activity helps students to:

- Understand and use language involving the distance, mid-point and gradient of linear graphs.
- Understand and use language involving parallel and perpendicular lines.

CURRICULUM LINKS

- Finding the distance between two points on a Cartesian Plane (ACMNA214)
- Finding the gradient and mid-point of a line (ACMNA294)
- Working with parallel and perpendicular lines (ACMNA238)

AFTER THE LESSON

In later lessons, students can further embed their understanding of terminology by:

- developing a glossary that can be easily referred to.
- creating a mind map showing how different terms relate to each other.

INTRODUCTION — 3 MINUTES

Explain to students that in this activity they will be exploring the language of linear graphs.

Ask students, and briefly discuss:

- What is a linear graph?
- Why is it important to have a good understanding of mathematical language?

Whole group:

Sharing ideas with the group.

DEMONSTRATION — 10 MINUTES

Give each pair of students a set of cards. For each term, students need to identify the matching diagram. Note that for some terms, students will need to write in a definition of their own.

If helpful for getting started, as a group match up one term with its diagram and discuss why the match makes sense.

Prompt student thinking: As students work, ask scaffolding questions or give prompts e.g.:

- Choose one diagram. What does it show? Which term could it be/couldn't it be?
- How can you convince me that the match you have is correct? Is there another way you can check?
- Look up terms online for any definitions you are completely stuck on.

In pairs:

Match each of the eight terms with a diagram. Fill in any blank definitions.

DISCUSSION — 5 MINUTES

Go through the answers as a group, getting students to explain their reasoning for each match. Check that there is agreement on the definitions that students have written. Are some definitions more precise than others?

Whole group:

Discuss solutions.

DIG DEEPER — 10 MINUTES

Explain to students that not only is it important to understand each of these terms, but they become even more meaningful when you consider how they relate to one another.

As a final activity: go through each term and, one at a time, ask students for another term that relates to it. For example:

> Teacher: "The term I've chosen is 'Gradient'. What is another term that relates to it? How do they relate?"
>
> Student: "'Linear Graph' is related, since the gradient describes how steep a line on a Cartesian Plane is."

This can be a good opportunity to see if students have another way of describing the relationship, or if there is any part of their peer's description that they would change.

In pairs:

Contribute ideas about the relationship between terms.