

# Diagnostic TASK

## FOCUS

### Understand Units

- Key Understandings 3, 4

### Direct Measure

- Key Understanding 3

## Which Line Is Longer?

Years 4–7

### Purpose

This variation of the Snail Trails task should be used to interview upper primary students who are not able to show, in the Broken Ruler task, that they are in the Measuring Phase.

To reveal if the student:

- chooses appropriate objects to represent units of length
- chooses objects that have uniform lengths, and lines up without gaps or overlaps
- chooses the same sized unit for each line
- is not distracted by the numbers (where there are more small units on one line and fewer larger units on the other line)
- can explain **why** the line with more units is shorter.

### Materials

A copy of the sheet with lines A and B marked

Mixed range of materials, e.g. matches, blocks, counters, unifix cubes, toothpicks, paperclips, marbles etc. (include broken matches and toothpicks)

Teacher Recording Sheet

### Procedure

Individual interviews are appropriate for this task.

Give the student the sheet of paper with the two lines and ask them to say which is longer. Say: *Two students were arguing over which line was longer. Jane thought line A was longer than line B. Which do you think is longer? Use these materials to help you.*

Prompt the student to use units to measure both lines.

If the student places the same sized unit on both lines, change the units on one line so that the number of units on the **shorter** line is more than the number of units on the **longer** line. For example, remove the units from the shorter line and replace them with a smaller unit or, if the student has already used the smallest unit, substitute larger units on the longer line (NB: Line A is longer).

Ask the student to say how long each line is, using the units now on each line, and then ask the student again to say which is the longer line.

Ask the student to explain their choice by asking *How do you know?* If the student has changed their mind, ask, *Why did you change your mind?*

Record the responses.

# Which Line Is Longer? Teacher Recording Sheet

Name \_\_\_\_\_ Year \_\_\_\_\_ Date \_\_\_\_\_

1. Two students were arguing over which line was longer. Jane thought line A was longer than line B. Which do you think is longer? Use these materials to help you.

If necessary, prompt with, **Can you use any of these materials to find out how long this line is?** (point to one line) or **How many of these** (cubes) **fit along this line?**

Prompt the student to measure the other line if they do not do so independently.

2. If the student does not tell you which line is longer after placing materials on each line ask, **Now can you tell me which line is longer? How do you know?**

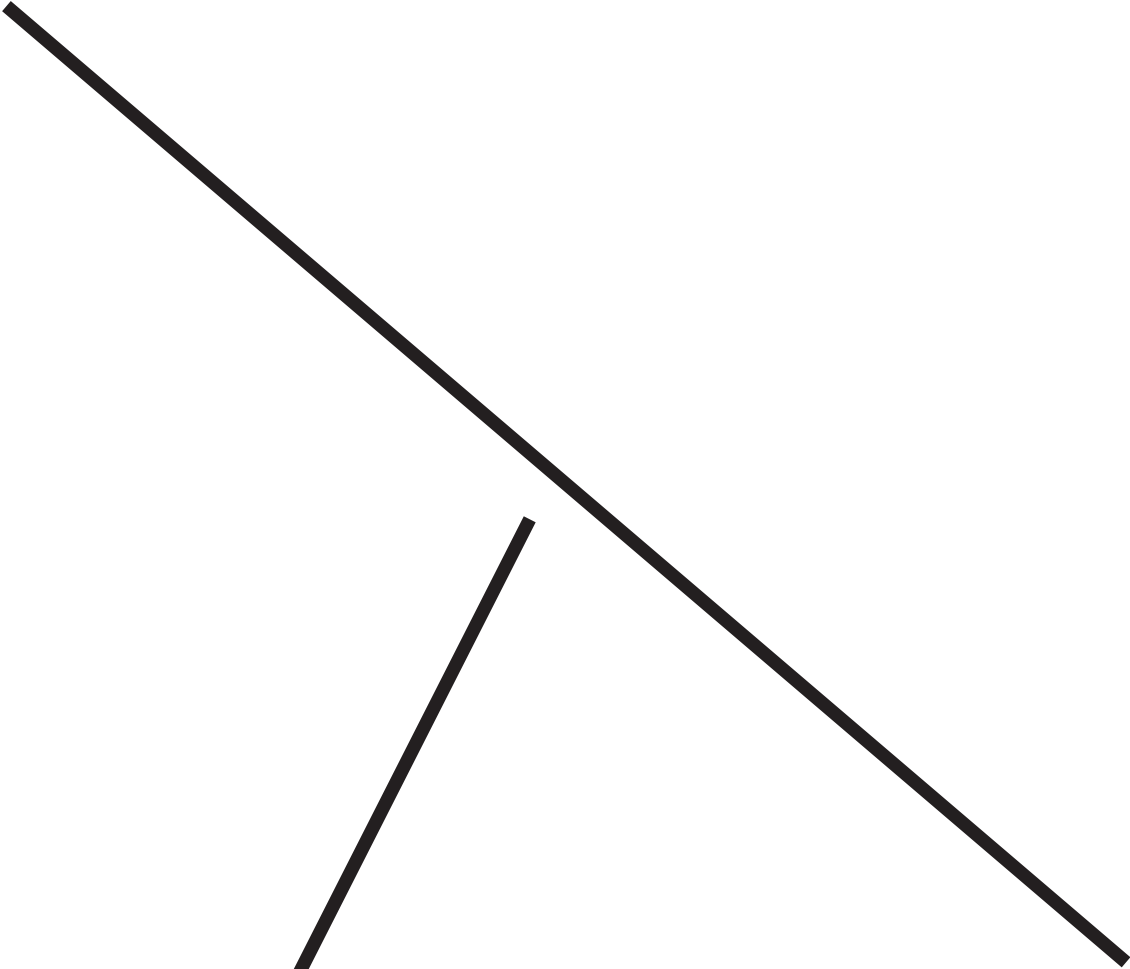
If the student chooses the same unit for both lines, remove the units from the *shorter* line and replace them with a *smaller* unit. If the student has already used the smallest unit, then substitute *larger* units on the *longer* line.

Ask: **How many counters** (or whatever unit used) **fit along here?** (point to the shorter line) **How many matches** (or whatever unit used) **fit along here?** (point to the longer line)

**So which one is longer? How do you know?** If the student changes their mind, ask, **Why did you change your mind?**

# Which Line Segment Is Longer?

A.



B.

