

How much taller?

Purpose

To represent a subtraction problem using a tape diagram

Outcomes

NS2.2 Uses mental and written strategies for addition and subtraction involving two-, three- and four-digit numbers

MS2.1 Estimates, measures, compares and records lengths, distances and perimeters in metres, centimetres and millimetres

Framework reference

To move students to Place value level 3

Materials

- Streamers
- Measuring tapes

Teaching point

Prior to this lesson, students need to have already been introduced to tape diagrams to represent information in a word problem.



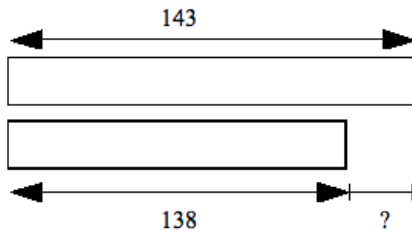
Suggested *Short, focused, frequent* activity

	Outline	Questions
Introduction	<p>Have the students sit in a semi-circle and select two students to stand at the front of the class.</p> <p>Provide the two selected students with a paper streamer that is longer than their combined heights and allow other students to assist them to cut the paper streamer into two pieces that match each student's height.</p>	<p><i>Which student is taller?</i></p>



Have each student write his or her name on the corresponding streamer. Attach the streamers to the board so that the left edges align and one is directly above the other.

Select students to measure the length of each streamer and record it as in the example below.



How could we use these streamers to determine the difference in the heights?



	Outline	Questions
	<p>Label the unknown quantity with a question mark on the diagram.</p> <p>Select a student to draw on the board a tape diagram, such as the one below, to represent the problem.</p> <div> </div> <p>Discuss the tape diagram and as a class, determine the difference between the two heights.</p> <p>Provide pairs of students with tape measures and have them measure and record their heights in centimetres.</p> <p>Have each pair of students then draw a tape diagram to represent the difference in their heights.</p> <p>Ask the students to write a number sentence to record how they determined the difference in height.</p>	<p><i>How could we use a tape diagram to represent the difference in height?</i></p>
Strengthening the concept	<p>Ask all of the students to line up in order of height from shortest to tallest.</p> <p>Starting at the bottom of the board, have all of the students record in ascending order their height and initials. If two students are the same height, this can be shown by recording them side-by-side.</p> <p>If there is only one pair of students who have a difference in height of two centimetres, choose a different difference.</p> <div> </div> <p>Have each student use the displayed data to select the names of two students and identify the difference in their heights.</p>	<p><i>I am thinking of two students that have a height difference of two centimetres. Who might they be? How do you know?</i></p>



Outline	Questions
<p>Ask the students to draw a tape diagram showing the difference in height between the two students selected and the name of one of the students.</p> <p>When finished, have each student find a partner and exchange tape diagrams. Have each student identify the missing name in the tape diagram.</p>	

