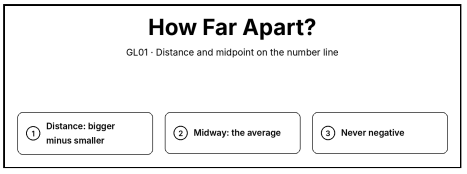
How Far Apart?: teacher script

GL01-V1 · GL01 Distance and midpoint on the number line · teachers only. Without a screen, read each Say line and draw each Draw step on the board. About 71 seconds as a video.

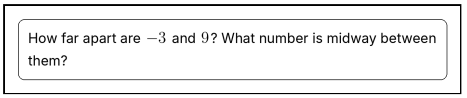
01



Say. Distances on the number line. The distance between two numbers is bigger minus smaller. The number midway is the average. And a distance is never negative.

Draw. Write the title “How Far Apart?” and the steps: 1. Distance: bigger minus smaller; 2. Midway: the average; 3. Never negative.

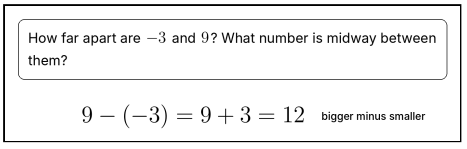
02



Say. How far apart are negative 3 and 9? And what number is midway between them?

Draw. Clear the board. Write “How far apart are −3 and 9? What number is midway between them?” in a box at the top.

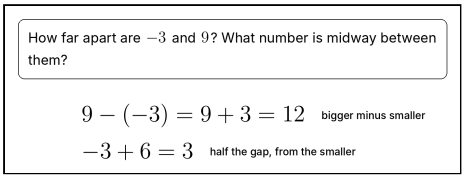
03



Say. Bigger minus smaller: 9 minus negative 3 is 9 plus 3, which is 12.

Draw. Write 9 − (−3) = 9 + 3 = 12 on the next line. Beside it, write “bigger minus smaller”.

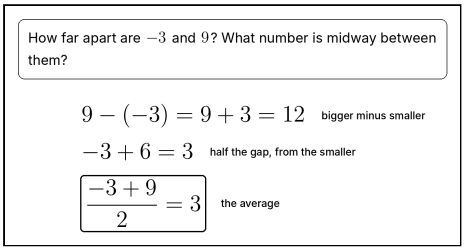
04



Say. To find the middle, go half the gap, 6, from the smaller number: negative 3 plus 6 is 3.

Draw. Write −3 + 6 = 3 on the next line. Beside it, write “half the gap, from the smaller”.

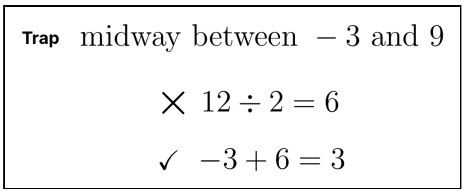
05



Say. That is the average of the two numbers: the same answer, 3.

Draw. Write (−3 + 9)/2 = 3 and box it on the next line. Beside it, write “the average”.

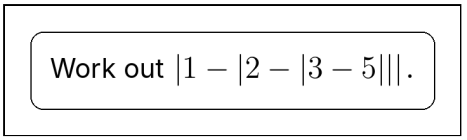
06



Say. Watch for the trap: 6 is half the gap, not the middle. You still have to add it to the smaller number.

Draw. Clear the board. Write “Trap” and midway between −3 and 9. Below, write 12 ÷ 2 = 6 and cross it out ×. Then write −3 + 6 = 3 with a tick ✓.

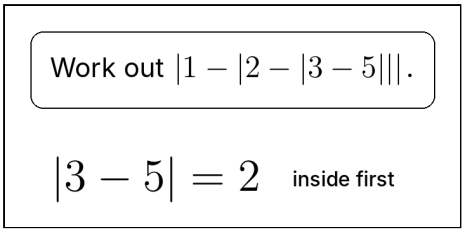
07



Say. Bars inside bars. Work out the absolute value of 1 minus the absolute value of 2 minus the absolute value of 3 minus 5.

Draw. Clear the board. Write “Work out |1 − |2 − |3 − 5|||.” in a box at the top.

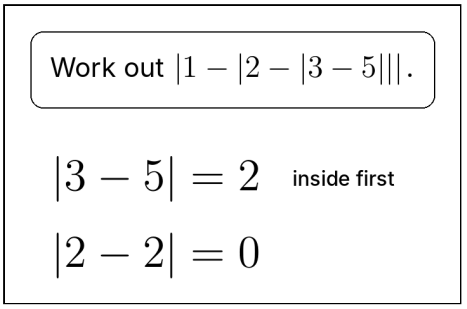
08



Say. Work from the inside first. The absolute value of 3 minus 5 is 2: a distance, never negative.

Draw. Write |3 − 5| = 2 on the next line. Beside it, write “inside first”.

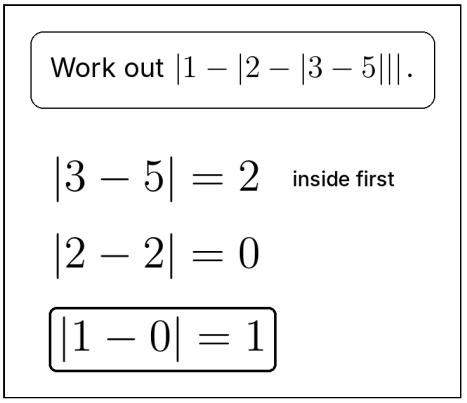
09



Say. Then 2 minus 2 is 0.

Draw. Write |2 − 2| = 0 on the next line.

10



Say. And 1 minus 0 is 1.

Draw. Write |1 − 0| = 1 and box it on the next line.

11

Your turn

Bigger minus smaller.

Midway is the average.

Say. Now it is your turn. Bigger minus smaller for a distance, and the average for the middle.

Draw. Point to today’s activity: Bigger minus smaller. Midway is the average.