

Lesson 111 ALGEBRA

The equals sign means balance

CURRICULUM ALIGNMENT

ALG.EXP.3 represent and express problems with known and unknown values in different ways to include the use of appropriate letter-symbols or words.

INTERACTIVES Balance Scales · challenge, display, explore

WHAT THIS LESSON TEACHES

The equals sign means the two sides are worth the same amount. It does not mean the answer comes next.

→ $3 + 4 = 7$ because both sides are worth 7, so a balance holding them would hang level.

→ 5 on one pan and $2 + 3$ on the other pan both make 5, so the beam stays level.

MODEL THIS ON THE BOARD

LEVELLING THE BUILDING PANS

- ① See 6 cubes already on the left pan of the maker balance.
- ② Build a matching set on the right pan with 4 cubes and then 2 more.
- ③ Both pans are now worth 6 so the beam hangs level and we write $6 = 4 + 2$.

DISCUSSION STARTER

REFLECT Does equals still mean 'the answer comes next', or something else now?

ANSWER KEY

Scaffold: visual check on the page

Q1: $3 + 3$

Spot: Niamh treated equals as 'the answer comes next'. Equals means both sides balance. $6 + 3 = 9$, so $\square + 2$ must also equal 9. $\square = 7$.

EXTENSION SHEET · STRETCH ANSWERS

S1:

$9 + 3 = 7 + 5$ is true (12 and 12). $8 + 4 = 6 + 5$ is false (12 and 11).

S2: 5

S3: No. Both sides must be worth 9, so the missing number is 6 ($6 + 3 = 9$).

S4: 3

S5: Any two numbers that make 15, for example $10 + 5$ and $9 + 6$