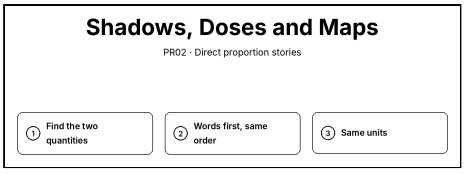
Shadows, Doses and Maps: teacher script

PR02-V1 · PR02 Direct proportion stories · teachers only. Without a screen, read each Say line and draw each Draw step on the board. About 83 seconds as a video.

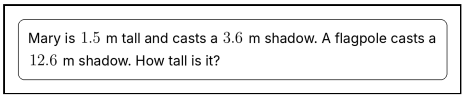
01



Say. Shadows, doses and maps. Find the two quantities that are in proportion. Write the ratio in words first, in the same order on both sides. And use the same units.

Draw. Write the title “Shadows, Doses and Maps” and the steps: 1. Find the two quantities; 2. Words first, same order; 3. Same units.

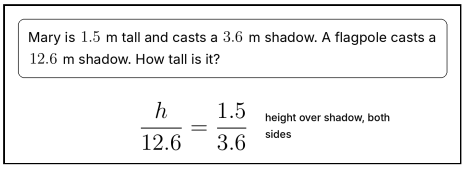
02



Say. Mary is 1.5 metres tall and casts a 3.6 metre shadow. A flagpole casts a 12.6 metre shadow. How tall is it?

Draw. Clear the board. Write “Mary is 1.5 m tall and casts a 3.6 m shadow. A flagpole casts a 12.6 m shadow. How tall is it?” in a box at the top.

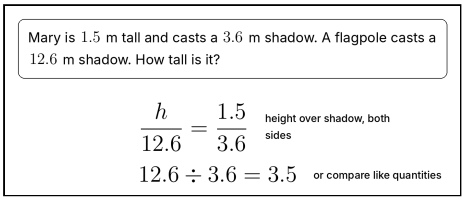
03



Say. Height over shadow on both sides: h over 12.6 equals 1.5 over 3.6.

Draw. Write h/(12.6) = 1.5/(3.6) on the next line. Beside it, write “height over shadow, both sides”.

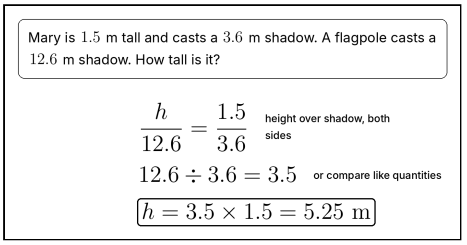
04



Say. Or compare like quantities: the flagpole's shadow is 3.5 times Mary's.

Draw. Write 12.6 ÷ 3.6 = 3.5 on the next line. Beside it, write “or compare like quantities”.

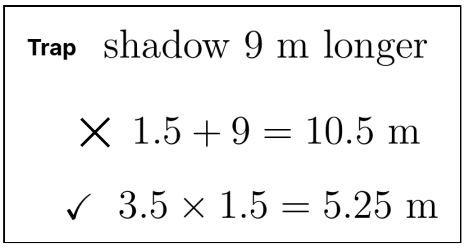
05



Say. So the flagpole is 3.5 times her height: 5.25 metres.

Draw. Write h = 3.5 × 1.5 = 5.25 m and box it on the next line.

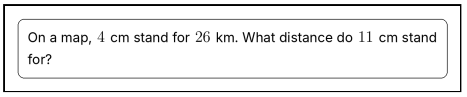
06



Say. Watch for the trap: using the difference. A shadow 9 metres longer doesn't mean a pole 9 metres taller. Use the factor.

Draw. Clear the board. Write “Trap” and shadow 9 m longer. Below, write 1.5 + 9 = 10.5 m and cross it out ×. Then write 3.5 × 1.5 = 5.25 m with a tick ✓.

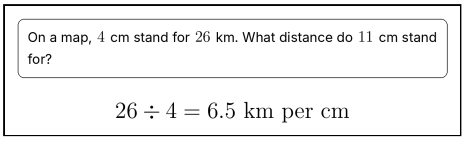
07



Say. On a map, 4 centimetres stand for 26 kilometres. What distance do 11 centimetres stand for?

Draw. Clear the board. Write “On a map, 4 cm stand for 26 km. What distance do 11 cm stand for?” in a box at the top.

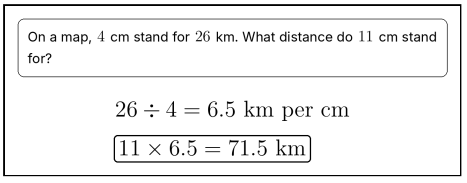
08



Say. Each centimetre stands for 26 divided by 4, that is 6.5 kilometres.

Draw. Write 26 ÷ 4 = 6.5 km per cm on the next line.

09



Say. So 11 centimetres stand for 71.5 kilometres.

Draw. Write 11 × 6.5 = 71.5 km and box it on the next line.

10

Trap $\dfrac{\text{km}}{\text{cm}}$

$\times \quad \dfrac{x}{11} = \dfrac{4}{26}$

$\checkmark \quad \dfrac{x}{11} = \dfrac{26}{4}$

Say. Watch for the second trap: the two ratios in different orders. Kilometres on top on both sides.

Draw. Clear the board. Write “Trap” and km/(cm). Below, write x/11 = 4/26 and cross it out ×. Then write x/11 = 26/4 with a tick ✓.

11

Your turn

Words first, same order.
Use the factor, not the difference.

Say. Now it is your turn. Words first, in the same order, and use the factor, not the difference.

Draw. Point to today’s activity: Words first, same order. Use the factor, not the difference.