

STICK AND SCHOOL SHADOWS

- 1 A 1 m stick casts a 0.6 m shadow. At the same moment the school casts a 6 m shadow.
- 2 Work out the scale: stick height $\div$ stick shadow = $1 \div 0.6$.
- 3 Multiply that scale by the school shadow: $(1 \div 0.6) \times 6 = 10$.
- 4 The school is about 10 m tall.

WARM-UP

Use three different methods to estimate the height of the school. Aim to have at least two estimates agree to within 10% — if they don't, decide which one to trust and why.

	Working	Estimate (m)
a. Method 1 — shadow + 1 m stick		
b. Method 2 — count bricks		
c. Method 3 — count storeys		
d. Compare: are two estimates within 10% of each other? (Y/N)		
e. Which estimate do you trust most? Why?		

PRACTICE

- 1 In the school yard a 1 m stick casts a 1 m shadow. The classroom block casts an 8 m shadow at the same time. How many metres tall is the classroom block?
- 2 A 2 m measuring stick by the gate casts a 1 m shadow. The sports hall casts a 5 m shadow. How tall is the sports hall in metres?
- 3 Beside the bike shed a 1 m stick casts a 2 m shadow. The shed wall casts a 10 m shadow. What is the height of the shed wall in metres?
- 4 A 1.5 m stick outside the office casts a 0.5 m shadow. The office roof line casts a 4 m shadow at that moment. How many metres tall is the office?

ALWAYS, SOMETIMES, NEVER

Always, sometimes or never true? Write A, S or N.

- a. A stick and the school cast shadows in the same ratio as their real heights when both are measured at the same moment
- b. If the school shadow is ten times the stick shadow then the school is ten times as tall as the stick
- c. Counting 140 brick courses of 7 cm each gives a height of exactly 10 m
- d. The shadow-and-stick method works on a cloudy day with no sunlight