

CONTENTS

(TEACH N LEARN · PRIMARY 6)

1 ALGEBRA	4
1.1 Using Letters As Numbers	
1.2 Simplifying Algebraic Expressions	
1.3 Problem Solving	
1.4 Challenges	
2 ANGLES IN GEOMETRIC FIGURES	17
2.1 Finding Unknown Angles	
2.2 Problem Solving	
2.3 Challenges	
3 NETS	29
3.1 Solids	
3.2 Nets Of Solids	
3.3 Challenges	
4 FRACTIONS	40
4.1 Dividing A Whole Number By A Proper Fraction	
4.2 Dividing A Proper Fraction By A Proper Fraction	
4.3 Problem Solving	
4.4 Challenges	
5 RATIO	51
5.1 Ratio And Fraction	
5.2 Equivalent Fractions And Ratios	
5.3 Changing Ratios	
5.4 Challenges	
6 PERCENTAGE	69
6.1 Finding The Whole When A Percentage Is Known	
6.2 Change In Percentage	
6.3 Problem Solving	
6.4 Challenges	

7 SPEED	84
7.1 Distance And Speed	
7.2 Average Speed	
7.3 Problem Solving	
7.4 Challenges	
8 CIRCLES	100
8.1 Radius, Diameter And Circumference	
8.2 Area Of A Circle	
8.3 Problem Solving	
8.4 Challenges	
9 PIE CHART	113
9.1 Understanding Pie Charts	
9.2 Problem Solving	
10 AREA AND PERIMETER	120
10.1 Area And Perimeter Of Composite Figures	
10.2 Problem Solving	
10.3 Challenges	
11 VOLUME OF SOLIDS AND LIQUIDS	133
11.1 Volume Of Solids	
11.2 Volume Of Liquids	
11.3 Problem Solving	
11.4 Challenges	
ANSWER KEY & DETAILED SOLUTIONS	150~174
PARENTS' WORKSHOP SUPPORT	175

*More challenging problems especially for advanced pupils.

UNIT 7 SPEED



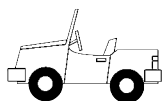
DISTANCE AND SPEED

Vocabulary



Speed How fast someone or something is moving. It is measured as distance travelled per unit time.

Example: Unless otherwise stated, the speed limit on all roads in Singapore is 50 kilometres per hour (50 km/h).



There are 3 related quantities: distance, time and speed. Given any two quantities, the third quantity can be calculated.

$$\text{Speed} = \text{Distance} \div \text{Time}$$

$$\text{Distance} = \text{Speed} \times \text{Time}$$

$$\text{Time} = \text{Distance} \div \text{Speed}$$

1. A motorist takes 2 hours to travel 180 km. What is his speed?

Method 1

$$2 \text{ h} \rightarrow 180 \text{ km}$$

$$1 \text{ h} \rightarrow 180 \div 2 = 90 \text{ km}$$

His speed is 90 km/h.

To find the speed is to find the distance travelled per hour.

Method 2

$$\begin{aligned} \text{Speed} &= 180 \div 2 \\ &= 90 \text{ km/h} \end{aligned}$$

$$\text{Speed} = \text{Distance} \div \text{Time}$$

His speed is 90 km/h.

AVERAGE SPEED

Vocabulary



Average Speed The average distance travelled per unit time.



To find average speed for whole journey, we need to find total distance travelled and total time taken, then divide the total distance travelled by the total time taken.

$$\text{Average speed} = \frac{\text{Total distance travelled}}{\text{Total time taken}}$$

1. Annie took 4 minutes to swim 200 m and another 4 minutes to run 1000 m. What is her average speed for the whole journey?

$$\begin{aligned}\text{Total distance travelled} &= 200 + 1000 \\ &= 1200 \text{ m}\end{aligned}$$

$$\begin{aligned}\text{Total time taken} &= 4 + 4 \\ &= 8 \text{ min}\end{aligned}$$

$$\begin{aligned}\text{Average speed} &= \frac{1200}{8} \\ &= 150 \text{ m/min}\end{aligned}$$

Her average speed for the whole journey is 150 m/min.

2. Joe drives for 3 hours at a speed of 60 km/h and another 2 hours at a speed of 70 km/h. What is his average speed for the whole journey?

$$\begin{aligned}\text{Total distance travelled} &= 3 \times 60 + 2 \times 70 \\ &= 320 \text{ km}\end{aligned}$$

$$\begin{aligned}\text{Total time taken} &= 3 + 2 \\ &= 5 \text{ h}\end{aligned}$$

$$\begin{aligned}\text{Average speed} &= \frac{320}{5} \\ &= 64 \text{ km/h}\end{aligned}$$

His average speed for the whole journey is 64 km/h.

Exercise 7.4 CHALLENGES

- *1. A train is 120 m long.
It travels through a tunnel at a speed of 15 m/s.
The entire train takes 3 minutes 40 seconds to pass through the tunnel.
What is the length of the tunnel?
- *2. Three boys took part in a 600-metre race.
When Andy crossed the finishing line, he was 100 m ahead of Ben and 200 m ahead of Chris.
How far was Chris from the finishing line when Ben completed the race?

