

YEAR 8 - DEVELOPING NUMBER... Number Sense

What do I need to be able to do?

to do?

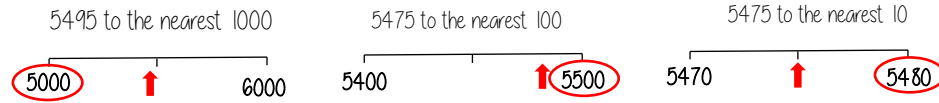
By the end of this unit you should be able to:

- Round numbers to powers of 10 and 1 sf
- Round numbers to any dp
- Estimate solutions
- Calculate using order of operations
- Calculate with money, units of measurement and time

Keywords

- Significant:** Place value of importance
Round: Making a number simpler but keeping its value close to what it was
Decimal: Place holders after the decimal point
Overestimate: Rounding up — gives a solution higher than the actual value
Underestimate: Rounding down — gives a solution lower than the actual value
Metric: A system of measurement
Balance: The amount of money in a bank account
Deposit: Putting money into a bank account

Round to powers of 10 and 1 sig figure R If the number is halfway between we "round up"



- 370 to 1 significant figure is 400
- 37 to 1 significant figure is 40
- 3.7 to 1 significant figure is 4
- 0.37 to 1 significant figure is 0.4
- 0.00037 to 1 significant figure is 0.0004

Round to the first non-zero number

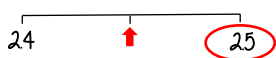
Round to decimal places

2.46192

Focus on the numbers after the decimal point

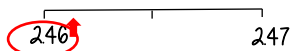
"To 1dp" — to one number after the decimal
 "To 2dp" — to two numbers after the decimal

2.46192 (to 1dp) - Is this closer to 2.4 or 2.5



2.46192 This shows the number is closer to 2.5

2.46192 (to 2dp) - Is this closer to 2.46 or 2.47



2.46192 This shows the number is closer to 2.46

Estimate the calculation

Round to 1 significant figure to estimate

$$4.2 + 6.7 \approx 4 + 7 \approx 11$$

This is an **overestimate** because the 6.7 was rounded up more

$$214 \times 3.1 \approx 20 \times 3 \approx 60$$

This is an **underestimate** because both values were rounded down

It is good to check all calculations with an estimate in all aspects of maths — it helps you identify calculation errors

Order of operations R

Brackets Operations in brackets are calculated first

Other operations e.g powers, roots,

Multiplication/ Division

They are carried out in the order from left to right in the question

Addition/ Subtraction

They are carried out in the order from left to right in the question

Calculations with money

Debit - You have £0 or more in an account

Credit - You have less than £0 in an account



Using a calculator — ensure you are working in the correct units

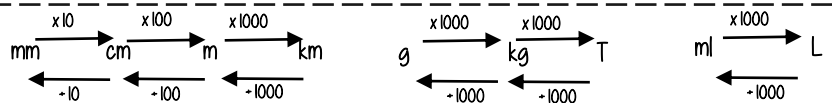
$$\begin{aligned} \text{£ } 1.30 + 50\text{p} &= 1.30 + 50 \text{ (in pence)} \\ &= 1.30 + 0.50 \text{ (in pounds)} \end{aligned}$$

Money calculations are to 2dp

$$\text{£ } 1 = 100\text{p}$$



Units are important: Useful Conversions



Metric measures of length

Kilo = 1000 x meter Centi = $\frac{1}{100}$ x meter

Milli = $\frac{1}{1000}$ x meter

Units of weight/ capacity

Weight = g, kg, t
 Capacity (volume of liquid) = ml, L

Time and the calendar

1 Year — the amount of time it takes Earth to go around the sun **365** (and a quarter) days
Leap Year — 366 days (every 4 years)



12 Months — one year = 52 weeks
 31 days — Jan, March, May, July
 Aug, Oct, Dec
 30 days — April, June, Sept, Nov
 28 days — Feb (29 leap year)

1 week — 7 days
 Monday, Tuesday, Wednesday
 Thursday, Friday, Saturday, Sunday

1 day — 24 hours
1 hour — 60 minutes
1 minute — 60 seconds

Use a number line for time calculations!

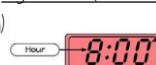
Analogue Clock



12-hour clock

- Use am (morning) and pm (afternoon)
- Only use hour times up to 12

Digital Clock (24-hour times)



24-hour clock

- 0-11 (morning hours)
- 12-23 (afternoon hours)