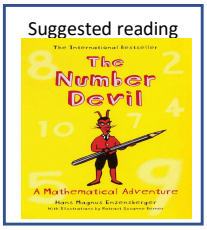
Waingels Maths

Year 8 – Developing Number

Number Sense

Suggested reading



Want to know more? Scan the QR code to visit the curriculum overview for Year 8 Maths, including topic summaries, key words, and books that you may want to read in your own time

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What do I need to be able 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

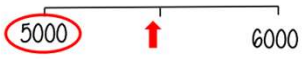
Keywords

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

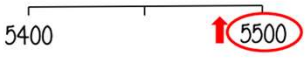
Round to powers of 10 and 1 sig figure

R If the number is halfway between we "round up"

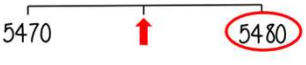
5495 to the nearest 1000



5475 to the nearest 100



5475 to the nearest 10



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 24 or 25

2.4 6192 This shows the number is closer to 25

2.46192 (to 2dp) - Is this closer to 246 or 247

2.46 192 This shows the number is closer to 246

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

The equal sign changes to show it is an estimation

$21.4 \times 3.1 \approx 20 \times 3 \approx 60$ 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

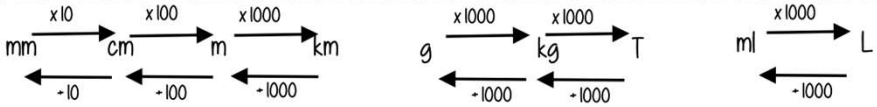
Debit - You have £0 or more in an account
Credit - You have less than £0 in an account

Money calculations are to 2dp

Using a calculator – ensure you are working in the correct units.
£1.30 + 50p = 1.30 + 50 (in pence)
= 1.30 + 0.50 (in pounds)

£1 = 100p

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)

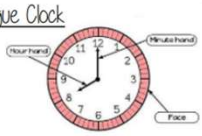
12 Months - one year = 52 weeks
31 days – **Jan, March, May, July Aug, Oct, Dec**
30 days – **April, June, Sept, Nov**
28 days – **Feb** (29 leap year)

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)