

# Maths - Year 6

## Calculating 3: Estimating, rounding and equivalence

### Key Vocabulary

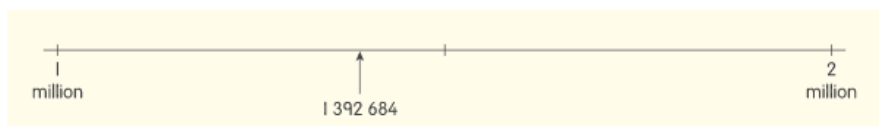
Equivalence	At least two numbers or quantities are the same or equal to each other.
Currency	A system of money in general use.
Exchanging/ carrying	Transferring digits from one place value column to another to support calculating.
Rounding	Increasing or decreasing a number or amount to make it closer to (usually) a multiple of ten, or a whole measuring unit, e.g. rounding 353 to 350 or 89 cm to 1 metre.

### Mathematical Skills

- Estimate the position of large numbers on a number line and round them to any required degree of accuracy, explaining in terms of place value.
- Choose a degree of accuracy for a calculation appropriate to a problem.
- Explain how rounding the numbers involved in a calculation will affect the answer, e.g. whether it will be an over- or underestimate.
- Refine calculations to improve the accuracy of an estimate.

### Mathematical Methods

#### - Rounding



Number	Rounded to the nearest			
	... million	... hundred thousand	... ten thousand	... thousand
1 392 684	1 000 000	1 400 000	1 390 000	1 393 000

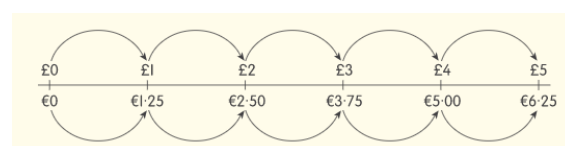
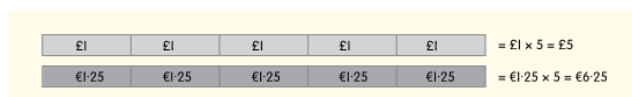
#### - Using rounding to estimate quantities and costs.

Cost of fuel, with price of £1.29 per litre rounded to the nearest 10 pence and amount of fuel of 3 787 350 litres rounded to the nearest

- ... **million** litres:  $1.3 \times 4\,000\,000 = 5\,200\,000$ , so estimate is £5 200 000
- ... **hundred** thousand litres:  $1.3 \times 3\,800\,000 = 4\,940\,000$ , so estimate is £4 940 000
- ... **ten** thousand litres:  $1.3 \times 3\,790\,000 = 4\,927\,000$ , so estimated cost is £4 927 000
- ... **thousand** litres:  $1.3 \times 3\,787\,000 = 4\,923\,100$ , so estimated cost is £4 923 100

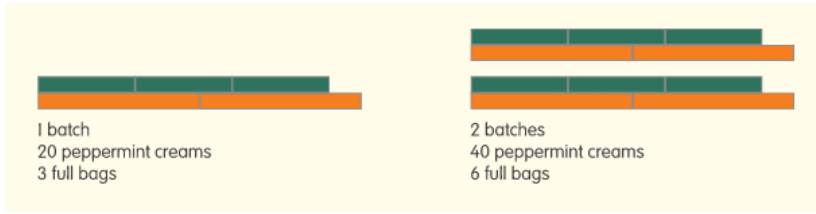
#### - Using estimating and rounding with currency exchange.

Currency conversion	Exchange rate
Pounds to euros (GBP to EUR)	1.2311
Pounds to US dollars (GBP to USD)	1.5375
Pounds to Australian dollars (GBP to AUD)	1.8760
Pounds to Canadian dollars (GBP to CAD)	1.7666
Pounds to Japanese yen (GBP to JPY)	175.4844
Pounds to South African rand (GBP to ZAR)	17.7969
Pounds to Saudi riyals (GBP to SAR)	5.7023
Pounds to Brazilian reals (GBP to BRL)	4.0050
Pounds to Norwegian kroner (GBP to NOK)	11.3721



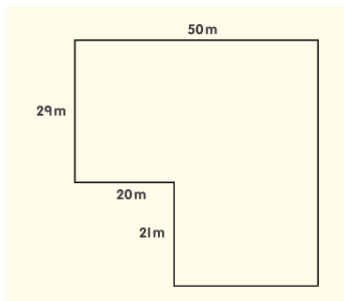
Pounds	Euros
£1	€1.25
£2	€2.50
£3	€3.75
£4	€5.00
£5	€6.25

- Using estimating and rounding with a scaling recipe.

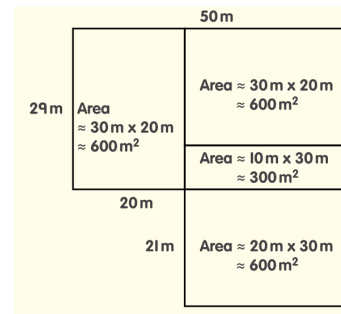


Number of batches	Number of bags	Amount of icing sugar	Amount of icing sugar for 300 bags
1	3	225 g	$225 \text{ g} \times 100 = 22\,500 \text{ g}$
5	15	$225 \text{ g} \times 5 = 1125 \text{ g}$	$1125 \text{ g} \times 2 = 2250 \text{ g}$ $2250 \text{ g} \times 10 = 22\,500 \text{ g}$
10	30	$225 \text{ g} \times 10 = 2250 \text{ g}$	$2250 \text{ g} \times 10 = 22\,500 \text{ g}$

- Estimating costs.



Material	Price
Turf	£9.79 per square metre
Grass seed	£6.99 per square metre
Concrete	£31.19 per square metre
Rubber surfacing	£58.90 per square metre
Fence panels	£53.93 per metre
Mosaic tiles	£27.96 per square metre



### Can you..?

- Anne solved this calculation. Can you estimate to check if she is correct?

		6	0	5	4	
7	)	4	2	3	7	8

- Edward has £118 to change into Swiss Francs. Can you estimate how many he will receive?

$$\text{£}1 = 1.2592 \text{ Swiss Francs}$$

- Calculate 18.5 miles in kilometres.

$$1 \text{ mile} = 1.60934 \text{ km}$$