1	**Write a number as a product of its prime factors**	
a	Write 120 as a product of its prime factors.	
b	Kathryn is asked to write 60 as a product of its prime factors. Here is her work.	

So 60 = 2 × 2 × 15

Kathryn is wrong. Explain the mistake she has made.

2	**Use prime factorisations to find the highest common factor of two numbers**	
a	Find the highest common factor of 72 and 180.	
b	Tom is asked to find the highest common factor of 72 and 168. Here is his working.	

$$72 = 2 × 2 × 2 × 3 × 3 \quad \text{and} \quad 168 = 2 × 2 × 2 × 3 × 7$$

Prime factors of 72   Prime factors of 168

The highest common factor of 72 and 168 is 504

Tom is wrong. Explain why.

3	**Use prime factorisations to find the lowest common multiple of two numbers**	
a	Find the lowest common multiple of 45 and 54.	
b	Carol is asked to find the lowest common multiple of 48 and 72. She writes $$48 × 72 = 3\ 456$$ Do you agree with Carol? Explain why.	

4	**Round numbers to one or two significant figures**	
a	Round 43 492 to two significant figures.	

b	Justin rounds 0.0763 to one significant figure. His answer is 0.1. Do you agree? Explain why.	

5	**Round numbers to one and two decimal places**	
a	Use your calculator to work out 3.2 + 23.6 ÷ 7. Round your answer to two decimal places.	
b	Aylsa is asked to round 902.449 to one decimal place. She writes $$902.449 \rightarrow 902.45 \rightarrow 902.5$$ Aylsa is wrong. Explain why.	

6	**Use standard form to write large numbers**	
a	Write 3.27×10^5 as an ordinary number.	
b	Lance writes 5.4×10^7 = 540 000 000. Do you agree with Lance? Explain why.	

7	**Use standard form to write small numbers**	
a	Write 0.000 188 in standard form.	
b	Jane writes 0.000 041 = 4.1×10^{-4} Jane is wrong. Explain her mistake.	

	Key learning point	☹	😐	🙂	😊
1	Write a number as a product of its prime factors				
2	Use prime factorisations to find the highest common factor of two numbers				
3	Use prime factorisations to find the lowest common multiple of two numbers				
4	Round numbers to one or two significant figures				
5	Round numbers to one and two decimal places				
6	Use standard form to write large numbers				
7	Use standard form to write small numbers				

Top three improvements for me to make

1a	$2 \times 2 \times 2 \times 3 \times 5$
1b	15 is not a prime number – you don't just divide by 2 until you run out of possibilities
2a	36
2b	504 is the LCM. The HCF is the product of the numbers in the intersection; i.e. 24.
3a	270
3b	The lowest common multiple of only sometimes the product of the two numbers. The LCM is actually 144 in this case. [Note: It is always true that LCM(a, b) = a × b ÷ HCF(a, b)]
4a	43 000
4b	e.g. It should be 0.08
5a	6.57
5b	e.g. It should be 902.4. You only check the next column along.
6a	327 000
6b	5.4×10^{7} = 54 000 000
7a	1.88×10^{-4}
7b	0.000 041 = 4.1×10^{-5}