

# Number A

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Teacher: \_\_\_\_\_

Class: \_\_\_\_\_

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## Place Value

### Learning outcomes

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1. Give the value of the digit by identifying its position in a number
2. Order positive and negative numbers
3. Order decimals
4. Order fractions

### Starter activity

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Rearrange the letters to make the keywords for the lesson

1. *t g e i e n r*
2. *v e o p t i s i*
3. *t i n r a o f c*
4. *l d a i m c e*
5. *i v n g e a e t*

# Place Value

## Activity 1

What is the value of the underlined digit in the numbers

a)  $3\underline{4}1 =$

b)  $\underline{1}86 =$

c)  $23\underline{8}0 =$

d)  $1\underline{5}07 =$

e)  $5\underline{2}994 =$

f)  $\underline{8}3205 =$

g)  $1.\underline{6}52 =$

h)  $32.\underline{7}14 =$

i)  $0.55\underline{4}6 =$

SCORE \_\_ / 9

## Activity 2

Rewrite each set of numbers in ascending order

a) 856 , 238, 307, 264, 384, 91

b) 7732, 7347, 7017, 6348, 8374, 9001

c) -8, -3, -9, -7, -4

d) -25, -6, -74, -69, -8

e) 18, -45, 63, -75, -34

SCORE \_\_ / 5

# Place Value

## Activity 3

Rewrite each set of numbers in ascending order

- a) 6.09, 8.03, 8.86, 9.32, 9.73
- b) 0.89, 0.9, 1.04, 1.12, 0.91
- c) 7.69, 7.8, 7.82, 8.004, 8.03
- d) -6, -6.1, -6.06, -0.066, -6.601
- e) 0.8, -0.08, -0.58, 0.08, -0.008

SCORE \_\_ / 5

## Activity 4

1. Put the fractions in ascending order (12 marks)

- a)  $\frac{2}{8}, \frac{2}{3}, \frac{2}{5}, \frac{2}{9}$       b)  $\frac{3}{12}, \frac{9}{12}, \frac{11}{12}, \frac{7}{12}$       c)  $\frac{1}{2}, \frac{1}{4}, \frac{3}{4}, \frac{5}{8}$
- d)  $\frac{1}{3}, \frac{7}{9}, \frac{5}{6}, \frac{4}{6}$       e)  $\frac{5}{8}, \frac{14}{16}, \frac{1}{2}, \frac{3}{4}$       f)  $\frac{9}{12}, \frac{4}{9}, \frac{2}{3}, \frac{5}{6}$

2. Compare the fractions and write =, < or > in the box (4 marks)

- a)  $\frac{4}{6}$    $\frac{9}{12}$       b)  $\frac{6}{9}$    $\frac{2}{3}$       c)  $\frac{3}{5}$    $\frac{5}{8}$       d)  $\frac{1}{4}$    $\frac{2}{6}$

SCORE \_\_ / 16

## Place Value

Plenary - What have I learnt today?

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# Addition and Subtraction

## Learning outcomes

1. Apply the column method to add positive numbers, including decimals
2. Apply the column method to subtract positive numbers, including decimals
3. Solve problems involving addition and subtraction of positive numbers

## Starter activity

Order the temperatures below from lowest to highest:



$18^{\circ}\text{C}$

$-4^{\circ}\text{C}$

$43^{\circ}\text{C}$

$21^{\circ}\text{C}$

$-17^{\circ}\text{C}$

$-42^{\circ}\text{C}$

.....

.....

.....

.....

.....

.....

Extension:

Here are four digits. Put one digit in each box to make the smallest possible total.  
Put one digit in each box to make the largest possible total.

$$\begin{array}{cccc} 6 & 3 & 9 & 7 \\ \square & \square & + & \square & \square \end{array}$$

Smallest possible total

$$\begin{array}{cccc} 6 & 3 & 9 & 7 \\ \square & \square & + & \square & \square \end{array}$$

Largest possible total

# Addition and Subtraction

## Activity 1

Answer the questions below using the column method:

### Section A:

1.  $132 + 1477 + 35 =$

2.  $349 + 2566 + 48 =$

3.  $47 + 8970 + 980 + 64 =$

### Section B:

1.  $457.02 + 65.44 + 7.49 =$

2.  $56.004 + 5478 + 124.88 =$

3.  $951 + 2644.105 + 535.71 =$

SCORE \_\_ / 6



# Addition and Subtraction

## Activity 2

Answer the questions below using the column method:

### Section A:

1.  $5498 - 642 - 481 =$

2.  $2566 - 48 - 240 =$

3.  $9845 - 758 - 37 =$

### Section B:

1.  $457.02 - 65.44 - 7.49 =$

2.  $5478 - 56.004 - 124.88 =$

3.  $2644.105 - 951 - 535.71 =$

SCORE \_\_ / 6

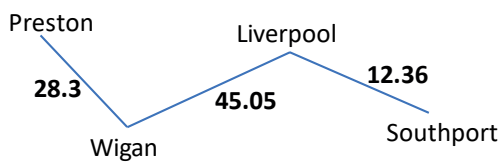
# Addition and Subtraction

## Activity 3

Answer the questions below using the column method:

1. Ammar is saving money to buy a new guitar. The guitar costs £175. In March he saved £42.07. In April he saved £21.52  
How much more does he need to save? (2 marks)

2. The map below shows the distance between four places in kilometres.  
Work out the distance between Preston and Liverpool (2 marks)



SCORE \_\_ / 4

## Plenary - What have I learnt today?

# Multiplication and Division

## Learning outcomes

1. Recall multiplication techniques for positive integers
2. Recall division techniques for positive integers
3. Solve real world problems involving multiplication and division of positive integers

## Starter activity

Spot the mistakes in the answers below and perform the correct calculations:

1. 
$$\begin{array}{r} \overset{4}{\cancel{5}}\overset{1}{0}2 \\ 105 - \\ \hline 307 \end{array}$$

2. 
$$\begin{array}{r} 784 \\ 217 + \\ \hline 991 \end{array}$$

3. 
$$\begin{array}{r} \overset{3}{\cancel{2}}\overset{1}{4}5 \\ 56 - \\ \hline 229 \end{array}$$

# Multiplication and Division

## Activity 1

Multiply the calculations below using the grid method, double check your answers using the column method:



1.  $34 \times 3 =$

4.  $47 \times 13 =$

2.  $17 \times 4 =$

5.  $51 \times 20 =$

3.  $5 \times 83 =$

6.  $38 \times 14 =$

SCORE \_\_ / 6

## Activity 2

Use the division method from the examples to solve the following calculations



1.  $28 \div 7 =$

4.  $116 \div 8 =$

2.  $360 \div 10 =$

5.  $456 \div 6 =$

3.  $465 \div 5 =$

6.  $658 \div 16 =$

SCORE \_\_ / 6

# Multiplication and Division

## Activity 3

Answer the questions below



(3 marks)

1. *At a wedding there will be 20 tables.  
15 tables will seat 6 guests.  
5 tables will seat 8 guests  
Calculate the number of chairs needed.*



2. *Olive works in a theatre.  
She is paid £8 per hour for the first 130 hours she works each month. Olive is then paid an overtime rate of £9 an hour for any additional hours.  
In November she works 147 hours.  
How much should Olive be paid?*



(3 marks)

SCORE \_\_ / 6

# Multiplication and Division

Plenary - What have I learnt today?

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# Decimal Calculations

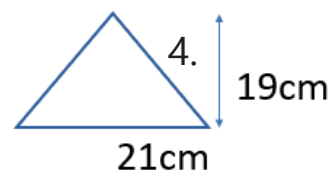
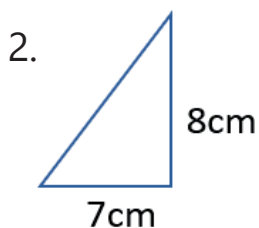
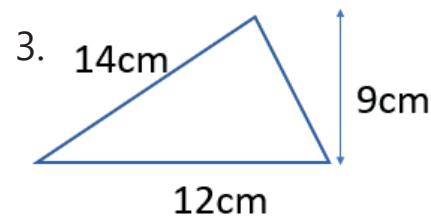
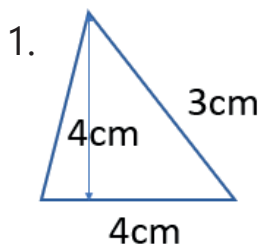
## Learning outcomes

1. Apply multiplication techniques to whole numbers and decimals
2. Calculate decimal by decimal multiplications
3. Apply division techniques to decimals
4. Solve problems in real world context

## Starter activity

Calculate the areas of the triangles below:

$$\text{Area of Triangle} = \frac{\text{base} \times \text{height}}{2}$$



# Decimal Calculations

## Activity 1

Using the same method as the examples solve the following calculations, each answer will correspond to a letter. Once you have all the letters you can crack the code!

A	B	C	D	E	F	G	H	I	J	K	L	M
509.6	17.1	0.002	1.58	701.1	7.65	187	90.3	123.902	459.1	56.82	46	231
N	O	P	Q	R	S	T	U	V	W	X	Y	Z
70.72	9.03	1238.2	5096	2331.6	233.16	312.4	85.5	707.2	56	248	67.01	855

- a)  $35 \times 6.6$       b)  $9.8 \times 52$       c)  $7.1 \times 44$       d)  $5 \times 18.06$       e)  $19.43 \times 12$

.....

.....

.....

.....

.....

- f)  $41 \times 3.022$       g)  $6 \times 38.86$       h)  $85 \times 0.09$       i)  $14.25 \times 6$       j)  $68 \times 1.04$

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SCORE \_\_ / 10

## Activity 2

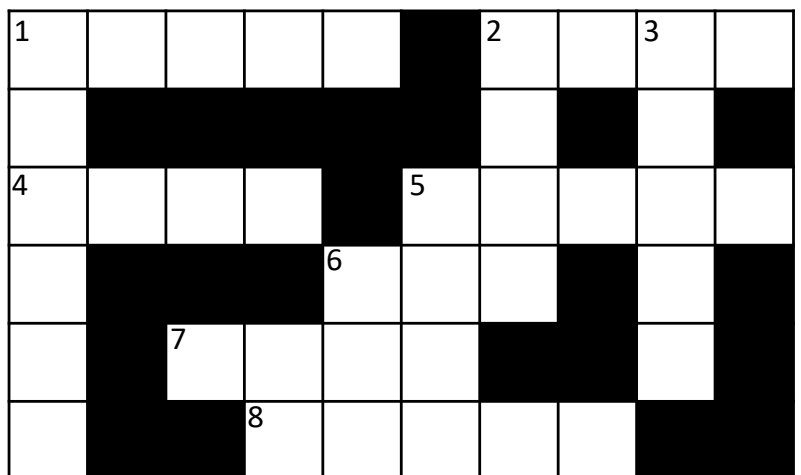
Solve the questions and place them into the 'Crossword' the decimal places should have their own square!

### Across

1.  $24 \times 7.1$  (1 mark)
2.  $0.1 \times 14.2$  (1 mark)
4.  $11.2 \times 2$  (1 mark)
5.  $8 \times 35.5$  (1 mark)
6.  $1600 \times 0.001$  (2 marks)
7.  $287 \times 0.2$  (1 mark)
8.  $43.24 \times 20$  (1 mark)

### Down

1.  $12.01 \times 16$  (2 marks)
2.  $2 \times 0.83$  (1 mark)
3.  $5.5 \times 7.7$  (1 mark)
5.  $24.4 \times 0.1$  (1 mark)
6.  $40 \times 0.04$  (1 mark)



SCORE \_\_ / 14



## Decimal Calculations

### Activity 3

Solve the questions below:

1.  $0.6 \div 0.02 =$

5.  $360 \div 0.12 =$

2.  $20 \div 0.004 =$

6.  $0.784 \div 0.7 =$

3.  $750 \div 2.5 =$

7.  $0.066 \div 0.3 =$

4.  $5.6 \div 0.004 =$

8.  $2.6772 \div 0.08 =$

SCORE \_\_ / 8

### Activity 4


Solve the questions below:


1. *Mia has 20 metres of ribbon.  
She is cutting it into pieces that are 0.8m long.  
How many pieces of ribbon will she have?*

(2 marks)

2. Here are some prices of fruit in a shop.

 Grapes £0.68 per kg

 Oranges £2.05 per kg

 Apples £1.94 per kg

Find the total cost of:

a) 1.3kg of grapes

b) 4.2kg of oranges

c) 0.5kg of apples

(2 marks)

(This activity continues on the next page)

## Decimal Calculations

### Activity 4

3. Jonah and his wife are taking their 5 children to the cinema. 

Work out the total cost for the family.

Adults     £17.30 each

Children   £8.55 each

(2 marks)

4. A teacher is placing textbooks that are 2.5cm thick on a bookshelf. 

They want to place 80 textbooks on the shelf. The bookshelf is 190cm long.

Does the teacher have enough room on the bookshelf for all the textbooks? (2 marks)

SCORE \_\_ / 8

### Plenary - What have I learnt today?

# Negative Number Calculations

## Learning outcomes

1. Add and subtract with negative numbers
2. Multiply and divide with negative numbers
3. Solve problems involving negative numbers

## Starter activity

Solve the following BIDMAS problems:

1.  $2 \times 4 + 7 - 2 =$
2.  $16 \div 8 + 12 =$
3.  $4^2 - (12 + 13) =$

# Negative Number Calculations

## Activity 1

Solve the following

1.  $9 + 4 - 7 =$

5.  $-4 - (-8) =$

2.  $-3 - 8 + 16 =$

6.  $-10 + (-11) =$

3.  $-5 + 70 - 154 =$

7.  $-16 - 17 + (-2) =$

4.  $-7 - 54 - 6 =$

8.  $-32 - (-54) =$

SCORE \_\_ / 8

## Activity 2

Solve the following

Section A:

1.  $-4 \times 7 =$

5.  $-4 \times -9 \times -6 =$

2.  $13 \times -6 =$

6.  $-8 \times -3 \times 2 =$

3.  $14 \times -3 \times 4 =$

7.  $-16 \times -3 \times -2 =$

4.  $5 \times -2 \times -3 =$

8.  $-1 \times -2 \times 23 =$

(This activity continues on the next page)

# Negative Number Calculations

## Activity 2

### Section B

1.  $7 \div -1 =$

5.  $(-30 \times 4) \div 6 =$

2.  $-14 \div -2 =$

6.  $(-14 \div -2) \times 5 =$

3.  $-60 \div 4 =$

7.  $(-30 \times 4) \div -60 =$

4.  $-36 \div -4 =$

8.  $(-40 \div -2) \div -5 =$

SCORE \_\_ / 16

## Activity 3

Solve the following:

1. Mrs Handover has to pay the following bills this month:

**£1436.54, £3447.89 and £921.99.** She only has **£4672.77** in her bank account.

How much debt will she be in?

(2 marks)

2. Ahmed watches his bank account and notices that his balance changes by **-£604.22** over the course of 4 days. What was the average change per day?

(2 marks)

SCORE \_\_ / 4

# Negative Number Calculations

Plenary - What have I learnt today?

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# Properties of Numbers

## Learning outcomes

1. Understand and use the terms odd, even, factor, multiple, square, cube and root
2. Understand what is a prime number and identify prime numbers less than twenty
3. Recognise sequences of triangular, square and cube numbers
4. Recognise Fibonacci and quadratic sequences and simple geometric sequences

## Starter activity

Complete the calculations

- |                      |                     |
|----------------------|---------------------|
| 1. a) $6 + 15 =$     | 2. a) $12 - 8 =$    |
| b) $9 + 17 =$        | b) $23 - 7 =$       |
| c) $21 + 18 =$       | c) $56 - 18 =$      |
| d) $49 + 34 =$       | d) $46 - 38 =$      |
| 3. a) $6 \times 5 =$ | 4. a) $21 \div 3 =$ |
| b) $11 \times 12 =$  | b) $45 \div 9 =$    |
| c) $13 \times 5 =$   | c) $100 \div 5 =$   |
| d) $14 \times 15 =$  | d) $144 \div 12 =$  |

# Properties of Numbers

## Activity 1

1. a) Give 2 examples of odd numbers, and state why they are odd (2 marks)
- b) Give 2 examples of even numbers, and state why they are even (2 marks)
2. a) List all the factors of 18 (1 mark)
- b) List the first 5 multiples of 8 (1 mark)
- c) Which number is a factor of all numbers? (1 mark)
3. Evaluate
 

a) $11^2$	b) $15^2$	c) $(-4)^2$
d) $4^3$	e) $2^3$	f) $(-3)^3$

 (6 marks)
4. Evaluate
 

a) $\sqrt{49}$	b) $\sqrt{144}$	c) $\sqrt[3]{125}$
----------------	-----------------	--------------------

 (3 marks)
5. Which is greater
 

a) $2^2$ or $\sqrt{25}$	b) $100^2$ or $10^3$
-------------------------	----------------------

 (2 marks)

SCORE \_\_ / 18

## Activity 2

1. a) List all the factors of the numbers 11 to 20 (5 marks)
- b) Using your answer to 'a)' identify all prime numbers from 11 to 20 (5 marks)

Number	Factors	Prime/Not prime
11		
12		
13		
14		
15		

Number	Factors	Prime/Not prime
16		
17		
18		
19		
20		

(This activity continues on the next page)



# Properties of Numbers

## Activity 2

2. Explain why any number ending in the digit 4 cannot be a prime number (1 mark)
3. Identify all the prime numbers between 20 and 30 (1 mark)

SCORE \_\_ / 12

## Activity 3

1. a) Fill in the boxes to continue the sequence of triangular numbers (2 marks)
- 1, 3, 6, 10, ,  ....
- b) Is 29 a triangular number? (1 mark)

2. a) Fill in the boxes to continue the sequence of square numbers (2 marks)
- 1, 4, 9, 16, ,  ....
- b) Is 48 a square number? (1 mark)

3. a) Fill in the boxes to continue the sequence of cube numbers (2 marks)
- 1, 8, 27, ,  ....
- b) Is 216 a cube number? (1 mark)

SCORE \_\_ / 9

# Properties of Numbers

## Activity 4

1. Calculate the next 3 terms of the Fibonacci sequences (2 marks)

a) 2, 3, , , , .....

b) -2, 1, , , , .....

2. Calculate the next 2 terms of the quadratic sequences (2 marks)

a) 0, 3, 8, , , .....

b) 3, 6, 11, , , .....

3. Calculate the next 2 terms of the geometric sequences (2 marks)

a) 2, 6, 18, , , .....

b) 512, 256, 128, , , .....

SCORE \_ / 6

## Plenary - What have I learnt today?

# Order of Operations

## Learning outcomes

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1. Recall and understand the meaning of BIDMAS
2. Perform simple calculations in the correct order using BIDMAS
3. Perform complex calculations in the correct order using BIDMAS

## Starter activity

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Can you find...

... an even number that has an odd number of letters?

... a square number that has a prime number of letters?

... a number with the same amount of letters as its value?

... an odd number that has an even number of letters?

Is there more than one example for any of these?

# Order of Operations

## Activity 1

In these calculations, use BIDMAS to circle which part will be calculated first

1.  $24 + 12 \div 3 =$

4.  $3^2 \times 4 =$

2.  $13^2 \times (5 + 4) =$

5.  $25 \times 2 - 5 =$

3.  $(3 + 4)^2 + 2 =$

6.  $25 - 5 \times 4 + 3 =$

**Brackets**  $()$   
**Indices**  $a^2$   
**Division**  $\frac{a}{b}$   
**Multiplication**  $a \times b$   
**Addition**  $a + b$   
**Subtraction**  $a - b$

SCORE \_\_ / 6

## Activity 2

Complete the calculations

1.  $40 - 5 \times 6 =$

2.  $4 + 10 \times 6 =$

3.  $12 \div (6 - 2) =$

4.  $21 - 5 \times 4 =$

5.  $4 + 21 \div 7 =$

6.  $2 + 7 \times 6 =$

7.  $90 \div (14 - 4) =$

8.  $36 - 3 \times 8 =$

9.  $50 - 15 \div 3 =$

SCORE \_\_ / 9

# Order of Operations

## Activity 3

Complete the calculations

(2 marks each)

1.  $(3 + 2 \times 4)^2 =$

2.  $9 \div (2^2 - 4 \div 4) =$

3.  $16 - 4^2 + 3 =$

4.  $5 \times 8 - 3 \times 6 =$

5.  $(2 + 5) \times 3^2 =$

6.  $3 \times 4^2 + 3 \times 5^2 =$

7.  $\frac{7 \times 4}{2 + 5}$

8.  $\frac{12 \div (9 - 5)}{25 \div 5}$

SCORE \_\_ / 16

## Order of Operations

Plenary - What have I learnt today?

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# HCF, LCM, and Prime Factors

## Learning outcomes

1. Calculate the Highest Common Factors (HCF) of numbers
2. Calculate the Lowest Common Multiple (LCM) of numbers
3. Use prime factorisation to calculate prime factors of numbers
4. Calculate HCF and LCM of numbers using prime factors

## Starter activity

Rearrange these words about multiples and factors to make the sentences correct...

1. ... without a remainder. ....  
 ... can be divided by another ... .....  
 A multiple is a number that ... .....  
 ... a certain amount of times .... ..
2. ... number that divides ... .....  
 ... with no remainders. ....  
 ... into another number ... .....  
 A factor is a .... ..

# HCF, LCM, and Prime Factors

## Activity 1

1. Find the Highest Common Factor (HCF) of the numbers: (2 marks each)
  - a) 21 and 35
  - b) 28 and 42
  - c) 24 and 56
  
2. Anna has 36 identical sweets and wants to arrange them all into equal piles.
  - a) First she makes piles of 2 sweets. How many piles could she make? (1 mark)
  
  - b) Could she make piles of 5 sweets using all the sweets? Explain your answer. (2 marks)
  
  - c) In total, how many different ways are there for Anna to divide the 36 sweet into equal piles. List all the different possibilities. (1 mark)

SCORE \_\_ / 10

## Activity 2

1. Find the Lowest Common Multiple (LCM) of these numbers: (2 marks each)
  - a) 7 and 8
  - b) 6 and 8
  - c) 12 and 18
  
2. A zoo has between 95 and 155 animals. The number of animals divides exactly by 20 and 30 (1 mark each)
  - a) Write down all the multiples of 20 between 95 and 155
  
  - b) Write down all the multiples of 30 between 95 and 155
  
  - c) How many animals are there?

SCORE \_\_ / 9



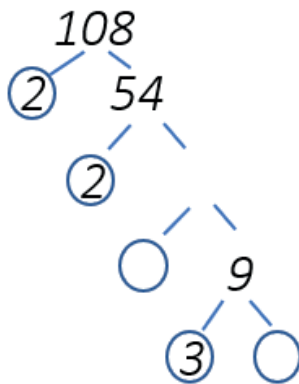
# HCF, LCM, and Prime Factors

## Activity 3

Express the numbers as a product of their prime factors

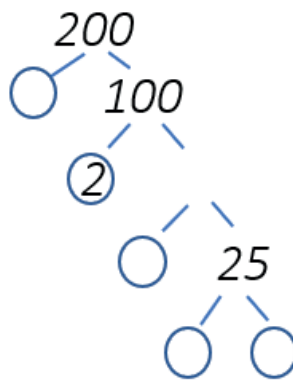
(2 marks each)

1.



$$108 =$$

2.



$$200 =$$

3.

120

$$120 =$$

SCORE \_\_ / 6

## Activity 4

Using the prime factor and Venn diagram method calculate the HCF and LCM of the numbers:  
(4 marks each)

a) 24 and 56

b) 12 and 28

c) 16 and 36

SCORE \_\_ / 12

## HCF, LCM, and Prime Factors

Plenary - What have I learnt today?

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# Rounding

## Learning outcomes

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1. Round to a specified number of decimal places
2. Round to a specified number of significant figures
3. Solve rounding problems set in context

## Starter activity

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Round the following to the nearest whole number

- |         |         |        |
|---------|---------|--------|
| a) 3.2  | b) 3.5  | c) 4.8 |
| d) 4.1  | e) 7.9  | f) 5.1 |
| g) 26.7 | h) 15.4 |        |

# Rounding

## Activity 1

Round the numbers to **one** decimal place

a)  $4.83 =$

b)  $2.16 =$

c)  $8.25 =$

d)  $64.99 =$

e)  $0.057 =$

f)  $0.109 =$

Round the numbers to **two** decimal places

a)  $5.783 =$

b)  $0.977 =$

c)  $6.008 =$

d)  $5.999 =$

e)  $300.004 =$

f)  $7.995 =$

SCORE \_\_ / 12

## Activity 2

Round the numbers to **one** significant figure

a)  $57402 =$

b)  $8.69 =$

c)  $0.261 =$

d)  $0.42 =$

e)  $0.758 =$

f)  $0.985 =$

Round the numbers to **two** significant figures

a)  $5288 =$

b)  $105.6 =$

c)  $1.087 =$

d)  $89.67 =$

e)  $53,879 =$

f)  $0.005089 =$

SCORE \_\_ / 12

# Rounding

## Activity 3

Answer the questions

1. The length of a snake is **1.265m**.
  - a) Round this to two decimal places
  - b) Round this to two significant figures
  
2. The area of Italy is **301,263km<sup>2</sup>**. Round this to two significant figures
  
  
  
  
  
  
  
  
  
  
3. The length of a dust mite is **0.0267cm**. Round this to two significant figures
  
  
  
  
  
  
  
  
  
  
4. A number, when rounded to two decimal places, equals **0.60**.  
Write down the smallest possible value of the number

SCORE \_ / 5

# Rounding

Plenary - What have I learnt today?

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## Estimating

### Learning outcomes

1. Estimate, without a calculator, the result of a calculation by using suitable approximations
2. Estimate, without a calculator, the result of more complex calculations including roots
3. Solve estimation problems set in context

### Starter activity

Round each of the following to one significant figure

a) 53 =

b) 749 =

c) 882 =

d) 643 =

e) 196 =

f) 0.932 =

g) 0.0788 =

h) 0.021111 =

i) 0.1065 =

# Estimating

## Activity 1

Use rounding to estimate the answers

(2 marks each)

a)  $214 + 457 =$

b)  $44 \times 49 =$

c)  $213 \div 52 =$

(3 marks each)

d)  $\frac{108 + 377}{48} =$

e)  $\frac{228 + 417}{390 - 124} =$

f)  $\frac{574 \times 792}{107} =$

g)  $\frac{4.2 \times 9.05}{1.3 + 0.75} =$

h)  $\frac{25.8 - 11.47}{0.99 - 0.19} =$

i)  $\frac{720 \times 0.688}{9.45 + 1.48} =$

SCORE \_\_ / 24

## Activity 2

Use rounding to estimate the answers

a)  $4.3^2 =$

b)  $6.7^2 + 23^2 =$

(2 marks each)

c)  $2.6 \times 4.1 - 3.2^2 =$

(3 marks)

(This activity continues on the next page)



# Estimating

## Activity 2

$$d) \frac{12.2^2}{0.24 + 0.19} =$$

$$e) \frac{21^2}{0.5 \times 0.21} =$$

$$f) \frac{0.23^2}{0.5 \times 2.1} =$$

$$g) \frac{(10.5 + 1.25)^2}{5.75 + 5.48} =$$

$$h) \frac{3.8^2 \times \sqrt{96}}{\sqrt{4.06}} =$$

$$i) \frac{3.03^2 \times 10.02}{3.02 \times \sqrt{8.74}} =$$

SCORE \_\_ / 25

## Activity 3

Answer the questions

1. A pen costs 14p. Estimate the cost of 26 pens. Give your answer in pounds. (2 marks)
  
2. 6923 people enter a marathon.
  - a) They each pay £20.50 to enter. Estimate the total amount paid to enter the marathon. (3 marks)
  
  - b) The average amount of sponsorship money collected by each runner is £128. Estimate the total amount of sponsorship money collected. (3 marks)

(This activity continues on the next page)

## Estimating

### Activity 3

3. A smoothie factory operates for 62 hours per week. It makes 325 litres of smoothie per hour. Each litre of smoothie contains 18 strawberries. Estimate the number of strawberries used each week. (3 marks)

SCORE \_ / 11

### Plenary - What have I learnt today?

## Limits of Accuracy

### Learning outcomes

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1. Use inequality notation to specify error intervals for numbers that have been rounded or truncated
2. Calculate limits of accuracy for numbers that have been rounded
3. Work out the limits of accuracy of compound units

### Starter activity

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Round these numbers to the given accuracy

a) 367 (10)

b) 13.53 (*integer*)

c) 4.5213 (1*dp*)

d) 16.0863 (2*dp*)

e) 12 382 (1*sf*)

f) 3.19437 (2*sf*)

# Limits of Accuracy

## Activity 1

1. Find the upper and lower bounds of these numbers which have been rounded to the given accuracy. Write your answers as an inequality (1 mark each)

a) 130 (10)

b) 15 (*integer*)

c) 4.5 (1dp)

d) 18.9 (1dp)

e) 3000 (1sf)

f) 12.3 (3sf)

2. A number rounded to the nearest 100 is 600. Tom says all the possible values of that number is represented by the inequality  $550 < x < 650$   
What error has he made? (1 mark)

SCORE \_\_ / 7

## Activity 2

1. Find the maximum and minimum possible values for the following:

a) The area of a rectangle with sides of length 7cm and 8cm measured to the nearest cm (2 marks)

(This activity continues on the next page)

## Limits of Accuracy

### Activity 2

- b) The volume of a cube with sides of length 9cm measured to the nearest cm  
(2 marks)
- c) The volume of a cuboid with side lengths given as 3.4cm, 4.5cm and 5.2cm measured to the nearest mm  
(2 marks)
2. Correct to 2 significant figures  $a = 59$ ,  $b = 26$  and  $c = 17$ .  
Calculate the upper bound for the value of  $\frac{a}{b-c}$  (3 marks)

SCORE \_ / 9

### Activity 3

1. Helen ran for 18 seconds (rounded to the nearest second) at 7.2m/s. Calculate the maximum possible distance that she could have run (2 marks)
2. Callum ran an 800m race (rounded to the nearest 10m) in 150 seconds (rounded to the nearest second). Calculate his maximum and minimum possible speed for the race (2 marks)

SCORE \_ / 4

## Limits of Accuracy

Plenary - What have I learnt today?

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Notes

Handwriting practice area with 30 horizontal dotted lines.



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