

# HOME LEARNING

## Year 10 – Maths

### Reading simple scales

Essential learning:	<ul style="list-style-type: none"><li>• Estimate the weight, capacity or length of given items</li></ul>
Practising:	<ul style="list-style-type: none"><li>• Read values from an appropriate scale</li></ul>
Learning about:	<ul style="list-style-type: none"><li>• Term to term rule</li><li>• Generate terms of a linear sequence</li></ul>
Extension:	<ul style="list-style-type: none"><li>• Generate terms of a quadratic sequence using second difference</li></ul>

### Contents:

<b>Worksheet 1</b>	Estimate the weight, capacity or length of given items
<b>Worksheet 2</b>	Read values from an appropriate scale
<b>Worksheet 3</b>	Sequences
<b>Worksheet 4</b>	Generate terms of a linear sequence
<b>Worksheet 5</b>	Generate terms of a quadratic sequence using second difference

Worksheet 1 Estimate the weight, capacity or length of given items

1 Use the measures in the box to estimate the following.

5 ml	5 kg	1.9 m	35 g	12 m	5 litres	17 cm
------	------	-------	------	------	----------	-------

- a) The weight of a cat .....  
.....
- b) The weight of a small bag of crisps .....  
.....
- c) The amount of water in a full bucket .....  
.....
- d) The amount of water in a tea spoon .....  
.....
- e) The length of a pencil .....  
.....
- f) The length of a bed .....  
.....
- g) The length of a bus .....  
.....

2 Circle the heaviest item.

bag of potatoes      bar of chocolate      bag of crisps

3 Circle the item that would hold the most water.

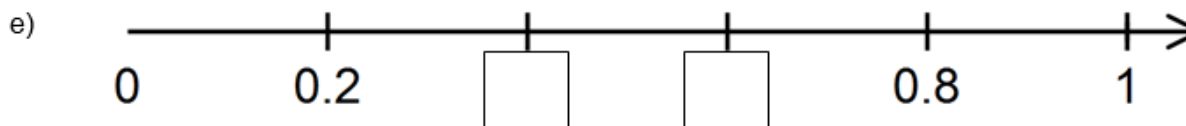
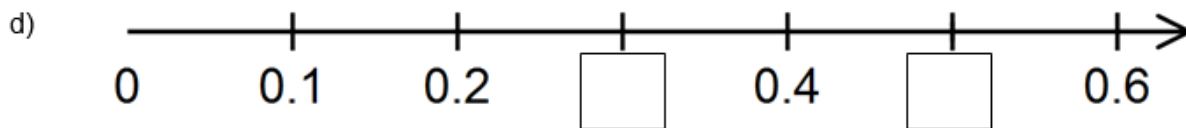
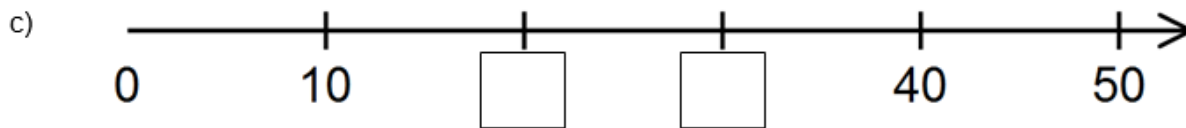
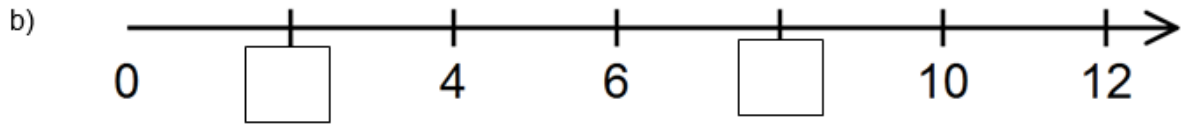
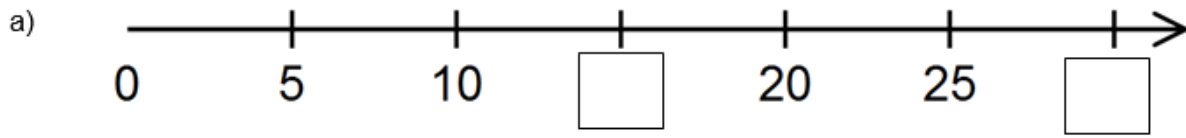
swimming pool      fish bowl      bucket

4 Circle the tallest item.

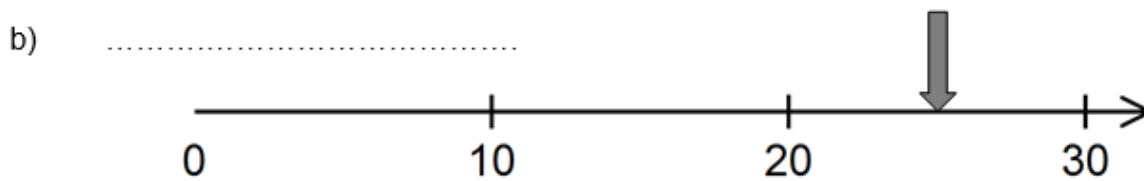
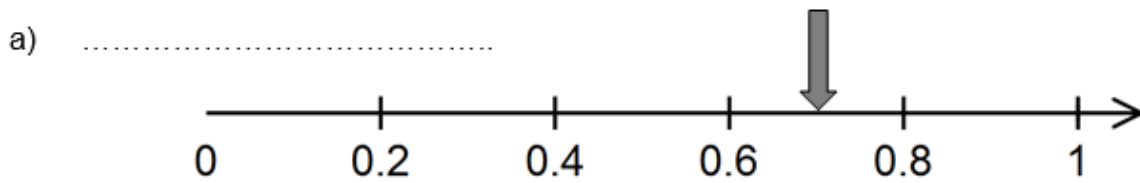
house      phone mast      road cone

Worksheet 2 Read values from an appropriate scale

1 Fill in the missing numbers.

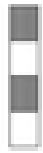


2 Write down the number shown by the arrow.



1. Here is a sequence of shapes made with grey and white tiles.

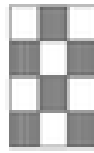
Shape number 1



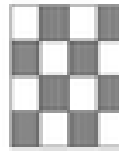
Shape number 2



Shape number 3



Shape number 4



a) Altogether how many tiles will be in shape number 5? .....

b) Altogether, how many tiles will there be in shape number 15 .....

c) Write down the missing number from the following sequence

The total number of tiles = ..... x the shape number

(3 marks)

2. Write down the next two numbers in the sequences below

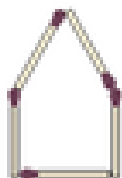
a) 281, 287, 293, 299, ....., .....

b) 63, 58, 53, 48, ....., .....

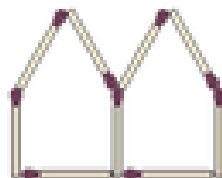
c) 1, 4, 9, 16, ....., .....

(3 marks)

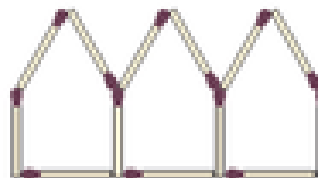
3. You can make 'huts' with matchsticks



1 hut needs  
5 matches



2 huts need  
9 matches



3 huts need  
13 matches

a) How many matchsticks would you need to make 8 huts?  
.....

b) I use 81 matchsticks to make some huts. How many huts do I make?  
.....

(4 marks)

Worksheet 4 Generate terms of a linear sequence

Example: Sequence A

The first term is 6. The term-to-term rule is 'add 5'

Term	1	2	3	4	5
Sequence	6	11	16	21	26

**Generating Sequences – Task 1**

For each description of a sequence below, generate the first 5 terms of each sequence.

Sequence 1:

The first term is 4.  
The term-to-term rule is "add 5".

<b>Term</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>Sequence</b>					

Sequence 2:

The second term is 8.  
The term-to-term rule is "add 3".

<b>Term</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>Sequence</b>					

Sequence 3:

The third term is 14.  
The term-to-term rule is "subtract 6".

<b>Term</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>Sequence</b>					

Sequence 4:

The first term is 4 and the fourth term is 16.  
The difference between each term is the same each time.

<b>Term</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>Sequence</b>					

Sequence 5:

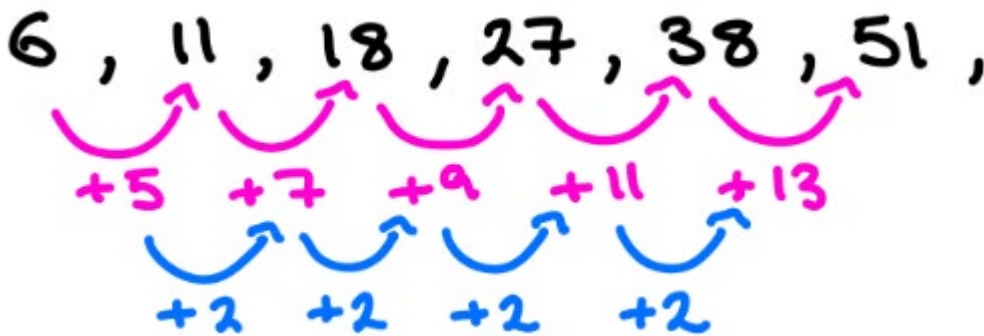
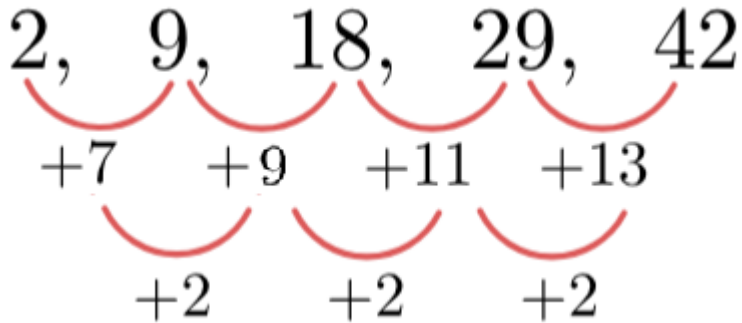
The second term is 7 and the fifth term is 16.  
The difference between each term is the same each time.

<b>Term</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>Sequence</b>					

Worksheet 5 Generate terms of a quadratic sequence using second difference

Task 1: Read through <https://www.bbc.co.uk/bitesize/guides/z6mtyrd/revision/1> and have a go at the tasks

Task 2: The term to term and second differences have been shown on the following examples. Find the next four terms of each sequence.



Task 3: Find the next two terms for the following quadratic sequences, by finding the second difference

a) 7, 11, 17, 25, ....., .....

b) 6, 12, 22, 36, ....., .....

c) 4, 11, 20, 31, ....., .....