

# Independent Learning Instructions - Year 9

1. Your work will predominantly be Hegarty Maths based.
2. The first 6 chapters covered in year 9 are detailed within this document; task numbers that suit each Learning Outcome are given. This, in most cases, will be consolidation work.
3. The details of 2 additional chapters are provided for extension.
4. The 10 Ticks index and resources, including solutions, are available on *Teams* as additional support and/or extension to learning.

Pages within this document:

**Page 2 -** Hegarty task sheet. We would advise where possible that tasks are completed on a copy of this.

**Page 3/4 -** Foundation GCSE task information - class names ending with a 3.

**Page 5/6 -** Higher GCSE task information - class names ending with a 1 or 2.

**Page 7 -** Details of 10 Ticks

**Task Number**

**Title of Task**

In order to improve on this topic you must watch the video and take notes beforehand

**Keywords**

**Video Notes**

**Now for the task (remember to show your working out)**

Was this a 'card sort' / multiple choice task?    Yes                   No

**Task Score \_\_\_\_\_ %    *You can redo this task to try and improve your score***

**Self-Reflection: Do you know where you have made your mistakes?**

**Write down anything that will help you to remember for next time**

# GCSE Foundation Learning - Year 9

- You are able to reattempt tasks if you wish to improve your score.
- Use the search bar at the top of [www.hegartymaths.com](http://www.hegartymaths.com) if you aim to locate some information from another task video that you feel will be useful.

<b>1: Basic Number</b>		Hegarty Task
<b>To be successful in this unit I need to:</b>		
1	Use a number line to represent negative numbers	37
2	Use inequalities with negative numbers	267
3	Compare and order positive and negative numbers	37
4	Work out answers to problems with more than one mathematical operation	150
5	Use the four rules of arithmetic with integers and decimals	47 48 50

<b>2: Measures and Scale Drawing</b>		Hegarty Task
<b>To be successful in this unit I need to:</b>		
1	Convert from one imperial unit to another	See 10 Ticks
2	Use approximate conversion factors to change between imperial and metric units	See 10 Ticks
3	Read and use scale drawings	864 onwards
4	Draw nets of some 3D shapes	833 onwards
5	Identify a 3D shape from it's net	As above
6	Read from and draw on isometric paper	See 10 Ticks
7	Interpret diagrams to draw plans and elevations	843 onwards

<b>3: Charts, Tables and Averages</b>		Hegarty Task
<b>To be successful in this unit I need to:</b>		
1	Use tally charts and frequency tables to collect and represent data	401
2	Use grouped frequency tables to collect and represent data	402
3	Draw pictograms to represent statistical data	426
4	Draw bar charts and vertical line graphs to represent statistical data	425
5	Draw a line graph to show trends in data	See 10 Ticks
6	Work out the mode, median, mean and range of small sets of data	404 405 409 410
7	Decide which is the best average to use to represent a data set	401

<b>4: Angles</b>		Hegarty Task
<b>To be successful in this unit I need to:</b>		
1	Calculate angles on a straight line	477
2	Calculate angles around a point	479
3	Use vertically opposite angles	480
4	Recognise and calculate the angles in different sorts of triangle	485
5	Calculate the sum of the interior angles in a polygon	561
6	Calculate the interior and exterior angles of a regular polygon	563
7	Calculate angles in parallel lines	481 483
8	Use angle properties in quadrilaterals	560
9	Use a bearing to specify a direction	492 onwards

<b>5: Number Properties</b>		<b>Hegarty Task</b>
<b>To be successful in this unit I need to:</b>		
1	Find multiples of whole numbers	33
2	Recognise multiples of numbers	33
3	Identify the factors of a number	27
4	Identify prime numbers	28
5	Identify prime factors	29
6	Identify the lowest common multiple of two numbers	34
7	Identify the highest common factor of two numbers	31
8	Identify square numbers	99
9	Use a calculator to find the square of a number	Google and your calc
10	Recognise the square roots of square numbers up to 225	101
11	Use a calculator to find the square root of any number	Google and your calc
12	Use some of the important keys when working on a calculator	129

<b>6: Approximations</b>		<b>Hegarty Task</b>
<b>To be successful in this unit I need to:</b>		
1	Round a whole number	17
2	Round decimal numbers to a given accuracy	56
3	Identify significant figures	Google
4	Round numbers to a given number of significant figures	130
5	Use approximation to estimate answers and check calculations	131
6	Round a calculation at the end of a problem, to give what is considered a sensible answer	Google

<b>Foundation Chapter 25: Powers and standard form</b>		<b>Hegarty Task</b>
<b>To be successful in this unit I need to:</b>		
1	Write a number as a power of another number	102
2	Use powers	103
3	Multiply and divide by powers of 10	15 16
4	Use rules for multiplying and dividing powers	105 106
5	Write a number in standard form	122 123
6	Calculate with numbers in standard form	125 126

<b>Foundation Chapter 23: Congruency and Similarity</b>		<b>Hegarty Task</b>
<b>To be successful in this unit I need to:</b>		
1	Demonstrate that two triangles are congruent	682 onwards
2	Recognise similarity in two shapes	608
3	Show that two shapes are similar	609
4	Work out the scale factor between similar shapes	610

## GCSE Higher Learning - Year 9

- You are able to reattempt tasks if you wish to improve your score.
- Use the search bar at the top of [www.hegartymaths.com](http://www.hegartymaths.com) if you aim to locate some information from another task video that you feel will be useful.

<b>Higher 1: Basic Number</b>		<b>Hegarty Task</b>
<b>To be successful in this unit I need to:</b>		
1	Solve problems set in a real life context	-
2	Multiply and divide decimals	48 50
3	Round to a given number of significant figures	130
4	Find factors & Multiples	27 33
5	Identify prime numbers	28
6	Identify square and triangular numbers	99
7	Find square roots	101
8	Identify prime factors, LCM and HCF	29
9	Multiply and divide positive and negative numbers	Varied - use the search bar

<b>Higher Chapter 2: Fractions, Ratio &amp; Proportion</b>		<b>Hegarty Task</b>
<b>To be successful in this unit I need to:</b>		
1	Find one quantity as a fraction of another	77
2	Add and subtract fractions with different denominators	66
3	Multiply proper fractions	68
4	Multiply mixed numbers	69
5	Divide by fractions	70
6	Use a calculator to add and subtract fractions	Google
7	Use a calculator to multiply and divide fractions	Google
8	Increase and decrease quantities by a percentage	90
9	Express one quantity as a percentage of another	62
10	Work out percentage change	97

<b>Higher Chapter 3: Statistical Diagrams &amp; Averages</b>		<b>Hegarty Task</b>
<b>To be successful in this unit I need to:</b>		
1	Draw and interpret bar charts and pie charts	427
2	Draw and interpret line graphs	425
3	Use averages to solve problems	419
4	Identify the advantages & disadvantages of each average	413
5	Work out and use the range of a set of data	410
6	Calculate the mode, median and mean from a frequency table	417
7	Identify the modal group	404
8	Estimate the mean from a grouped frequency table	418
9	Draw, interpret and use scatter diagrams, and a line of best fit	453

<b>Higher Chapter 4: Number &amp; Sequences</b>		<b>Hegarty Task</b>
<b>To be successful in this unit I need to:</b>		
1	Recognise patterns in number sequences	-
2	Recognise how number sequences are built up	196
3	Generate number sequences given the nth term	262
4	Find the nth term of a linear sequence	197
5	Recognise and continue some special number sequences	261
6	Find the nth term from practical problems involving sequences	198
7	Generate the terms of a quadratic sequence given the nth term	247
8	Work out the nth term of a quadratic sequence	248

<b>Higher Chapter 5: Ratio &amp; Proportion</b>		<b>Hegarty Task</b>
<b>To be successful in this unit I need to:</b>		
1	Simplify a ratio	329
2	Divide amounts into a given ratio	332
3	Complete calculations from a given ratio and partial information	333 334
4	Recognise and solve problems involving direct proportion	330
5	Find the cost per unit mass or the mass per unit cost, best buys	337
6	Solve problems using rates of pay, speed, density and pressure	738
7	Calculate simple interest	93
8	Calculate compound interest	49
9	Solve problems with repeated percentage change	97
10	Calculate original amount after a percentage increase or decrease	96

<b>Higher Chapter 6: Angles</b>		<b>Hegarty Task</b>
<b>To be successful in this unit I need to:</b>		
1	Calculate angles on a straight line and about a point	478
2	Use vertically opposite angles	480
3	Recognise and calculate angles in different types of triangles	487
4	Calculate the sum of the interior angles in a polygon	562
5	Calculate the interior and exterior angles in a regular polygon	563
6	Find angles in parallel lines	481
7	Use angle properties in quadrilaterals	560
8	Read and interpret scale drawings and maps	864 onwards
9	Draw a scale drawing	See 10 Ticks
10	Draw, measure and interpret bearings	493

<b>Higher - 12: Similarity</b>		<b>Hegarty Task</b>
<b>To be successful in this unit I need to:</b>		
1	Show that two triangles are similar	Google
2	Work out the scale factor between two similar triangles	611 612 613
3	Work out the missing side using the scale factor	609 610
4	Solve problems involving the area of similar shapes	615 616 617
5	Solve problems involving the volume of similar shapes	618 619 620

<b>Higher - 14: Powers and Standard Form</b>		<b>Hegarty Task</b>
<b>To be successful in this unit I need to:</b>		
1	Use powers	102 103
2	Multiply and divide by powers of 10	15 16 121
3	Use rules for multiplying and dividing powers	105 106
4	Change a number into standard form	124
5	Calculate using numbers in standard form	122 123 125 126

## 10 Ticks - Year 9 Independent Learning

These resources are available as an 'extra' with the intention of supporting, consolidating and, where appropriate, extending learning.

- 10 Ticks Index - This can be used to find the relevant worksheets based on content.  
The levels are old-style SATs levels and should not be thought of as GCSE grades.
- Worksheets - Packs of worksheets, separated roughly in to similar content.
- Solutions - Available so that you can check your work.