Area of Experience: Mathematical Education

Maths

At Junior Certificate level I can:

These 9 statements were drafted by JCSP Maths Teachers based on the Common Introductory Course (Project Maths) June 2014

Strand 1: Maths Statistics and Probability (MSP)

- MSP1 Introduction to Probability ☐☐☐
- MSP2 Statistics ☐☐☐

Strand 2: Maths Geometry and Trigonometry (MGT)

- MGT1 Geometry ☐☐☐
- MGT2 Geometry ☐☐☐

Strand 3: Maths Number (MN)

- MN1 Number Systems ☐☐☐
- MN2 Decimals, Place Value, Fractions and Percentages ☐☐☐
- MN3 Fraction Operations 1 ☐☐☐
- MN4 Fraction Operations 2 ☐☐☐
- MN5 Sets ☐☐☐

Strand 4: Maths Algebra (MA)

Strand 5: Maths Functions (MF)

Current Statements

1 **Use of Number** ☐☐☐
Apply the knowledge and skills necessary to preform mathematical calculations

2 **Sets, Relations and Charts** ☐☐☐
Interpret and draw basic statistical charts and sets

3 **Perimeter, Area and Volume** ☐☐☐
Calculate perimeter, area and volume of given shape

4 **Money** ☐☐☐
Apply the knowledge and skills needed to manage money in daily life

Work begun ☐☐☐ | Work in progress ☐☐☐ | Work completed ☐☐☐

Area of Experience: Mathematical Education

Maths

At Junior Certificate level I can:

5 **Use of Calculator** ☐☐☐
Apply the knowledge and skills necessary to perform basic operations using a calculator

6 **Use of number with Calculator** ☐☐☐
Apply the knowledge and skills necessary to perform mathematical calculations

7 **Graphs, Construction and Transformations** ☐☐☐
Apply the knowledge and skills required to sketch graphs and transformation and to perform basic construction in geometry

8 **Time, Speed and Scale** ☐☐☐
Demonstrate and apply an understanding of time, speed and scale

9 **Knowledge and Application of Geometry** ☐☐☐
Apply the knowledge and skills necessary to perform specified geometrical operations

10 **Knowledge and Application of Algebra** ☐☐☐
Apply the knowledge and skills necessary to perform specified operations in algebra

11 **Circle, Cylinder and Sphere** ☐☐☐
Calculate the perimeter, area and volume of curved shapes

12 **Trigonometry** ☐☐☐
Use trigonometry to solve problems

13 **Sets and Statistics** ☐☐☐
Draw and interpret sets and statistics

14 **Knowledge and Application of Geometry 2** ☐☐☐
Perform additional operations in Geometry

15 **Knowledge and Application of Geometry 3** ☐☐☐
Perform additional operations in Geometry

16 **Quadratic and simultaneous Equations** ☐☐☐
Solve quadratic and simultaneous equations and simplify algebraic fractions

17 **Factorisation, Inequalities and Equations** ☐☐☐
Factorise, graph and solve inequalities and solve more challenging equations in Algebra

18 **Knowledge and Application of Coordinate Geometry** ☐☐☐
Apply my knowledge of Coordinate Geometry

19 **Knowledge and understanding of Maths Theorems** ☐☐☐
Apply my knowledge and understanding of theorems

Work begun ☐☐☐ | Work in progress ☐☐☐ | Work completed ☐☐☐

Introduction to Probability
Maths Statistics and Probability (MSP)

Maths

Statement code no. MSP1

Student: Class:

At Junior Certificate level I can:

Recall, explain and apply facts related to probability

Date Commenced: ☐☐/☐☐/☐☐ Date Awarded: ☐☐/☐☐/☐☐

Learning Targets I can...

1	Explain the keywords: experiment, trial, outcomes, fairness, bias, sample space, event, fundamental principle of counting	☐☐☐
2	Explain the meaning of the term probability and how it is applied in real life	☐☐☐
3	Order the probability of events happening from impossible to certain on a scale	☐☐☐
4	Measure the probability of an event happening on a probability scale, with 0 being impossible and 1 being certain to happen	☐☐☐
5	Represent the probability of an event as a percentage, fraction and decimal	☐☐☐
6	List all the possible outcomes of a practical experiment e.g. flipping a coin and rolling a dice	☐☐☐
7	Carry out a simple experiment and based on my results estimate the probability of an event happening in the future (relative frequency)	☐☐☐
8	List all the possible outcomes from a selection of options and apply the fundamental principle of counting	☐☐☐
9	Construct a tree diagram and list all the possible outcomes	☐☐☐
10	Construct a two-way table (sample space)	☐☐☐

Statistics
Maths Statistics and Probability (MSP)

Maths

Statement code no. MSP2

Student: Class:

At Junior Certificate level I can:

Collect, organise, represent and interpret data

Date Commenced: ☐☐/☐☐/☐☐ Date Awarded: ☐☐/☐☐/☐☐

Learning Targets I can...

1	Explain the keywords: survey, sample, population, bias, data, statistics	☐☐☐
2	Explore different ways of collecting data, e.g. questionnaires, observation, focus groups	☐☐☐
3	Design a simple questionnaire to collect required data	☐☐☐
4	Carry out a class survey	☐☐☐
5	Draw a bar chart	☐☐☐
6	Draw a line plot	☐☐☐
7	Draw a stem and leaf plot	☐☐☐
8	Select an appropriate method to present data	☐☐☐
9	Read and interpret the data from a bar chart, a line plot and a stem and leaf plot	☐☐☐
10	Find the mean, mode and median of a set of data	☐☐☐

Work begun ☐☐☐ | Work in progress ☐☐☐ | Work completed ☐☐☐

Geometry 1
Maths Geometry and Trigonometry (MGT)

Maths

Statement code no. MGT1

Student: Class:

At Junior Certificate level I can:

Recall and explain basic facts related to geometry (planes, points and angles) and I can perform basic geometric constructions

Date Commenced: ☐☐/☐☐/☐☐ Date Awarded: ☐☐/☐☐/☐☐

Learning Targets I can...

1	Explain the following keywords and symbols: angle, degree, plane, infinity , point, ray, line segment, collinear points, axiom, isosceles triangle, equilateral triangle, horizontal, vertical, parallel, perpendicular, vertex, AB , [AB, [AB], ∞	☐☐☐
2	Explain what an angle is and use the correct measurement to describe one e.g. 75^0	☐☐☐
3	Identify, explain and draw the line, line segment and ray/half-line and explain the meaning of collinear points	☐☐☐
4	Recognise and use a protractor, compass, set square and ruler	☐☐☐
5	Recognise an acute angle, a right angle, a straight line, an obtuse angle and a reflex angle	☐☐☐
6	Create angles and shapes using geostrips	☐☐☐
7	Identify the vertex and arms of an angle and label them correct	☐☐☐
8	Construct angles of different sizes	☐☐☐
9	Draw a triangle when provided with relevant information	☐☐☐
10	Identify isosceles and equilateral triangles	☐☐☐
11	Recognise horizontal, vertical, parallel and perpendicular lines	☐☐☐
12	Construct a line segment of given length on a given ray	☐☐☐

Work begun ☐☐☐ | Work in progress ☐☐☐ | Work completed ☐☐☐

Geometry 2
Maths Geometry and Trigonometry (MGT)

Maths

Statement code no. MGT2

Student: Class:

At Junior Certificate level I can:

Apply basic facts related to geometry to solve problems and plot shapes and points on a co-ordinate plane

Date Commenced: ☐☐/☐☐/☐☐ Date Awarded: ☐☐/☐☐/☐☐

Learning Targets I can...

1	Explain the following key words: opposite angles, alternate angles, corresponding angles, transversal, Cartesian/coordinate plane, central symmetry, axial symmetry, rotation	☐☐☐
2	Apply the fact that the angles of any triangle add up to 180^0 to solve a problem	☐☐☐
3	Apply the fact that the angle in a straight line is 180^0 to solve a problem	☐☐☐
4	Use vertically opposite angles to solve problems	☐☐☐
5	Identify and calculate corresponding and alternate angles formed when a line intersects parallel lines (transversal)	☐☐☐
6	Draw the image of given shapes under central symmetry	☐☐☐
7	Draw the image of given shapes under axial symmetry	☐☐☐
8	Draw the image of given shapes under rotation	☐☐☐
9	Draw the X and Y axes to scale and locate the origin	☐☐☐
10	Plot and locate points on the coordinate plane	☐☐☐

Work begun ☐☐☐ | Work in progress ☐☐☐ | Work completed ☐☐☐

Number Systems
Maths Number (MN)

Maths

Statement code no. MN1

Student: Class:

At Junior Certificate level I can:

Perform operations using natural numbers (N) and integers (Z)

Date Commenced: ☐☐/☐☐/☐☐ Date Awarded: ☐☐/☐☐/☐☐

Learning Targets I can...

1	Explain the following keywords and symbols: natural numbers(N), multiples, factors, prime number, square root, integers (Z)	☐☐☐
2	Add, subtract, divide and multiply natural numbers (N)	☐☐☐
3	List the multiples of a natural number (N)	☐☐☐
4	Find the LCM of two natural numbers (N)	☐☐☐
5	List the factors of a natural number (N)	☐☐☐
6	Find the HCF of two natural numbers (N)	☐☐☐
7	Distinguish between odd and even numbers	☐☐☐
8	Describe or give an example of a prime number	☐☐☐
9	List the prime numbers between 1 and 20	☐☐☐
10	Find the square of a natural number (n^2)	☐☐☐
11	Find the square root ($\sqrt{n}$) of a perfect square	☐☐☐
12	Draw a number line to represent natural numbers (N)	☐☐☐
13	Draw a number line to represent integers (Z)	☐☐☐
14	Add and subtract integers (Z)	☐☐☐
15	Multiply and divide integers (Z)	☐☐☐

Work begun ☐☐☐ | Work in progress ☐☐☐ | Work completed ☐☐☐

Decimals, Place Value, Fractions & Percentages
Maths Number (MN)

Maths

Statement code no. MN2

Student: Class:

At Junior Certificate level I can:

Use the equivalence of common fractions, decimals and percentages to compare proportions

Date Commenced: ▢▢/▢▢/▢▢ Date Awarded: ▢▢/▢▢/▢▢

Learning Targets I can...

1	Explain the keywords: fraction, decimal, percentage, equivalent, decimal point, estimation	▢▢▢
2	Recognise simple fractions: e.g. ¼ ½ ¾ 1	▢▢▢
3	Recognise simple decimals: e.g. 0.25 0.5 0.75 1	▢▢▢
4	Recognise simple percentages: e.g. 25% 50% 75% 100%	▢▢▢
5	Show simple fractions, decimals and percentages in picture form	▢▢▢
6	Match fractions to their equivalent decimals and percentages	▢▢▢
7	Give examples of fractions in everyday life e.g. time-clock, surveys (8 out of 10), test scores, sports- halftime, basketball quarters, recipes, etc.	▢▢▢
8	Give examples of decimals in everyday life e.g. money, distance, measurement, population size	▢▢▢
9	Give examples of percentages in everyday life e.g. statistics, Tax/VAT, sales, discount, profit, test scores, surveys, sports	▢▢▢
10	Read and write decimals correctly (by correct placement of the decimal point)	▢▢▢
11	Use estimation to order a mixture of fractions, decimals and percentages from smallest to largest e.g. $\frac{5}{8}$, 0.38, 71%	▢▢▢

Work begun ▢▢▢ | Work in progress ▢▢▢ | Work completed ▢▢▢

Fraction Operations 1
Maths Number (MN)

Maths

Statement code no. MN3

Student: Class:

At Junior Certificate level I can:

Perform operations with fractions

Date Commenced: ☐☐/☐☐/☐☐ Date Awarded: ☐☐/☐☐/☐☐

Learning Targets I can...

1	Explain the keywords: fraction, numerator, denominator, improper fraction, mixed fraction, equivalent	☐☐☐
2	Shade in a fraction on a diagram	☐☐☐
3	Simplify fractions	☐☐☐
4	Give examples of equivalent fractions and use a fraction wall	☐☐☐
5	Recognise simple fractions including mixed and improper fractions	☐☐☐
6	Convert mixed fractions to improper and vice versa	☐☐☐
7	Estimate the addition and subtraction of two fractions	☐☐☐
8	Add and subtract fractions which have a common denominator	☐☐☐
9	Add and subtract fractions which have a different denominator	☐☐☐
10	Place fractions in order of size on a number line	☐☐☐

Work begun ☐☐☐ | Work in progress ☐☐☐ | Work completed ☐☐☐

Fraction Operations 2
Maths Number (MN)

Maths

Statement code no. MN4

Student: Class:

At Junior Certificate level I can:

Perform some operations involving fractions, decimals and percentages

Date Commenced: ☐☐/☐☐/☐☐ Date Awarded: ☐☐/☐☐/☐☐

Learning Targets I can...

1	Convert fractions to decimals and vice versa	☐☐☐
2	Convert fractions to percentages and vice versa	☐☐☐
3	Match equivalent fractions, decimals and percentages using a fraction wall	☐☐☐
4	Multiply fractions	☐☐☐
5	Divide fractions	☐☐☐
6	Calculate a fraction "of" a number	☐☐☐
7	Use the estimate, calculate, check strategy when working with fractions	☐☐☐
8	Check addition, subtraction, multiplication and division of fractions on a calculator	☐☐☐
9	Increase and decrease a quantity by a given fraction	☐☐☐
10	Increase and decrease a quantity by a percentage	☐☐☐
11	Estimate the percentage of a given quantity	☐☐☐
12	Represent and interpret probability using fractions, decimals and percentages	☐☐☐
13	Represent the probability of an event occurring using fractions, decimals and percentages	☐☐☐

Work begun ☐☐☐ | Work in progress ☐☐☐ | Work completed ☐☐☐

Sets
Maths Number (MN)

Maths

Statement code no. MN5

Student: Class:

At Junior Certificate level I can:

Interpret and represent information using sets

Date Commenced: ☐☐/☐☐/☐☐ Date Awarded: ☐☐/☐☐/☐☐

Learning Targets I can...

1	Identify and use the following keywords and symbols: Venn diagram, element ($\in$), union($\cup$), intersection ($\cap$), subset ($\subset$), cardinal number (#), universal set (U), null set ($\varnothing$)	☐☐☐
2	Describe or give an example of a set in maths	☐☐☐
3	List the elements of a set, e.g. A = {1,2,3}	☐☐☐
4	Recognise if a set is a subset of another set ($A \subset B$)	☐☐☐
5	Represent 2 sets on a Venn diagram	☐☐☐
6	List the elements of the union of two sets ($A \cup B$) and shade this on a diagram	☐☐☐
7	List the elements of the intersection of two sets ($A \cap B$) and shade this on a diagram	☐☐☐
8	List the elements of a universal set (U)	☐☐☐
9	Write down the cardinal number of a set (#A)	☐☐☐
10	Describe the null set $\varnothing$ or { }	☐☐☐
11	Describe or give an example of 2 equal sets	☐☐☐
12	Solve problems using 2 Venn diagrams	☐☐☐

Work begun ☐☐☐ | Work in progress ☐☐☐ | Work completed ☐☐☐

Use of Number

Maths

Statement Code no: 1

Student: Class:

At Junior Certificate level the student can:

Apply the knowledge and skills necessary to perform mathematical calculations

Date Commenced: ☐☐/☐☐/☐☐ Date Awarded: ☐☐/☐☐/☐☐

Learning Targets - This has been demonstrated by your ability to:

1	Recognise simple fractions, for example $^1/_4$, $^1/_2$, $^3/_4$ shown in picture or numerical form	☐☐☐
2	Simplify fractions: e.g. $^2/_4 = {}^1/_2$	☐☐☐
3	Work out a fraction of a given number	☐☐☐
4	Add and subtract fractions	☐☐☐
5	Add and subtract decimals	☐☐☐
6	Multiply and divide decimals	☐☐☐
7	Recognise equivalencies among simple fractions and decimals, for example $^1/_4 = 0.25$, $^1/_2 = 0.50$, $^3/_4 = 0.75$	☐☐☐
8	Work out a percentage of a given number	☐☐☐
9	Calculate percentage profit and loss	☐☐☐
10	Round off decimals to one or more decimal places or the nearest whole number	☐☐☐

Work begun ☐☐☐ | Work in progress ☐☐☐ | Work completed ☐☐☐

Sets, Relations and Charts

Maths

Statement Code no: 2

Student:

Class:

At Junior Certificate level the student can:

Interpret and draw basic statistical charts and sets

Date Commenced: ☐☐/☐☐/☐☐

Date Awarded: ☐☐/☐☐/☐☐

Learning Targets - This has been demonstrated by your ability to:

1	Read information from a Venn diagram	☐☐☐
2	Draw a Venn diagram illustrating two sets	☐☐☐
3	List the elements of a set, the union and intersection of two sets using set notation	☐☐☐
4	Draw an arrow diagram	☐☐☐
5	List the couples in a relation	☐☐☐
6	Read information from a bar chart, pie chart and trend graph	☐☐☐
7	Draw a bar chart and trend graph	☐☐☐
8	Complete a frequency table	☐☐☐
9	Work out mode	☐☐☐
10	Work out mean	☐☐☐

Work begun ☐☐☐ | Work in progress ☐☐☐ | Work completed ☐☐☐

Perimeter, Area and Volume

Maths

Statement Code no: 3

Student:

Class:

At Junior Certificate level the student can:

Calculate perimeter, area and volume of given shapes

Date Commenced: ☐☐/☐☐/☐☐

Date Awarded: ☐☐/☐☐/☐☐

Learning Targets - This has been demonstrated by your ability to:

1	Work out the perimeter of a variety of regular shapes	☐☐☐
2	Work out the area of squares and rectangles	☐☐☐
3	Work out the area of triangles	☐☐☐
4	Work out the area of other shapes such as T and L shapes	☐☐☐
5	Use small cubes to create bigger shapes	☐☐☐
6	Estimate how many small cubes will fill a larger box	☐☐☐
7	Measure the dimensions of a rectangular solid	☐☐☐
8	Work out the volume of a rectangular solid	☐☐☐
9	Work out the area of a circle	☐☐☐
10	Work out the volume of a cylinder	☐☐☐

Work begun ☐☐☐ | Work in progress ☐☐☐ | Work completed ☐☐☐

Money

Maths

Statement Code no: 4

Student: Class:

At Junior Certificate level the student can:

Apply the knowledge and skills needed to manage money in daily life

Date Commenced: ☐☐/☐☐/☐☐ Date Awarded: ☐☐/☐☐/☐☐

Learning Targets - This has been demonstrated by your ability to:

1	Recognise Euro notes and coins and state their value	☐☐☐
2	Count a collection of Euro notes and coins and record the total	☐☐☐
3	Add up the cost of a small basket of goods	☐☐☐
4	Calculate the cost of a meal from a menu	☐☐☐
5	Work out change due by subtracting total cost from amount given	☐☐☐
6	Divide a sum of money between a number of people	☐☐☐
7	Use the least number of Euro notes and coins to make a certain sum of money	☐☐☐
8	Read information from an electricity bill and a telephone bill	☐☐☐
9	Work out how much it would cost to borrow a sum (e.g. €1000, €2000) over a period of one year from banks, building societies etc.	☐☐☐
10	Work out how much you would earn on money saved over two years in banks, credit unions, post offices etc.	☐☐☐

Work begun ☐☐☐ | Work in progress ☐☐☐ | Work completed ☐☐☐

Use of Calculator

Maths

Statement Code no: 5

Student: Class:

At Junior Certificate level the student can:

Apply the knowledge and skills necessary to perform basic operations using a calculator

Date Commenced: ▢▢/▢▢/▢▢ Date Awarded: ▢▢/▢▢/▢▢

Learning Targets - This has been demonstrated by your ability to:

1	Find digits 0 – 9, the decimal point and necessary operations (+, –, x, ÷)	▢ ▢ ▢
2	Decide which operations are needed to solve simple problems and work out the answers using a calculator	▢ ▢ ▢
3	Use a calculator to convert a fraction to a decimal	▢ ▢ ▢
4	Use a calculator to convert simple decimals to percentages	▢ ▢ ▢
5	Show understanding of multiplication of whole numbers by 10, 100 and by 1000	▢ ▢ ▢
6	When multiplying numbers with decimals, show understanding of place value of decimal point	▢ ▢ ▢
7	When dividing, show understanding of the use of a decimal number instead of a remainder e.g. $36 \div 8 = 4.5$	▢ ▢ ▢
8	Show understanding that multiplying a number by itself gives the same result as using x^2	▢ ▢ ▢
9	Use the $\sqrt{}$ button (square root) on square numbers to find the reverse of x^2	▢ ▢ ▢
10	Use a calculator to correct work which has been completed without the use of a calculator e.g. homework	▢ ▢ ▢

Work begun ▢ ▢ ▢ | Work in progress ▢ ▢ ▢ | Work completed ▢ ▢ ▢

Use of number with Calculator

Maths

Statement Code no: 6

Student: Class:

At Junior Certificate level the student can:

Apply the knowledge and skills necessary to perform mathematical calculations

Date Commenced: ☐☐/☐☐/☐☐ Date Awarded: ☐☐/☐☐/☐☐

Learning Targets - This has been demonstrated by your ability to:

1	Recognise simple fractions, for example 1/4, 1/2, 3/4 shown in picture or numerical form	☐☐☐
2	Simplify fractions: e.g. 2/4 = 1/2	☐☐☐
3	Work out a fraction of a given number	☐☐☐
4	Add and subtract fractions	☐☐☐
5	Add and subtract decimals	☐☐☐
6	Multiply and divide decimals	☐☐☐
7	Recognise equivalencies among simple fractions and decimals, for example 1/4 = 0.25, 1/2 = 0.50, 3/4 = 0.75	☐☐☐
8	Work out a percentage of a given number	☐☐☐
9	Calculate percentage profit and loss	☐☐☐
10	Round off decimals to one or more decimal places or the nearest whole number	☐☐☐

Work begun ☐☐☐ | Work in progress ☐☐☐ | Work completed ☐☐☐

Graphs, Constructions and Transformations

Maths

Statement Code no: 7

Student: Class:

At Junior Certificate level the student can:

Apply the knowledge and skills required to sketch graphs and transformations and to perform basic constructions in geometry

Date Commenced: ☐☐/☐☐/☐☐ Date Awarded: ☐☐/☐☐/☐☐

Learning Targets - This has been demonstrated by your ability to:

1	Draw the X and Y axes	☐☐☐
2	Calibrate / graduate the X and Y axes	☐☐☐
3	Locate the origin on the axes	☐☐☐
4	Plot and join given points to form a graph	☐☐☐
5	Use the graph to discover new information	☐☐☐
6	Draw the image of given shapes under central symmetry	☐☐☐
7	Draw the image of given shapes under axial symmetry	☐☐☐
8	Draw a triangle when provided with relevant information	☐☐☐
9	Use mathematical instruments to draw a rectangle of given measurements	☐☐☐
10	Bisect an angle without using a protractor	☐☐☐

Work begun ☐☐☐ | Work in progress ☐☐☐ | Work completed ☐☐☐

Time, Speed and Scale

Maths

Statement Code no: 8

Student: Class:

At Junior Certificate level the student can:

Demonstrate and apply an understanding of time, speed and scale

Date Commenced: ☐☐/☐☐/☐☐ Date Awarded: ☐☐/☐☐/☐☐

Learning Targets - This has been demonstrated by your ability to:

1	Make conversions from the 12-hour clock to the 24-hour clock and vice versa	☐☐☐
2	Convert hours to minutes and vice versa	☐☐☐
3	Add time values	☐☐☐
4	Subtract time values	☐☐☐
5	Identify the start time and finish time of television programmes from television guides and calculate the duration of specified programmes	☐☐☐
6	Discover the departure time, arrival time and duration of a journey from bus, train and plane timetables	☐☐☐
7	Find the time a film ends, given the start time and the duration of the film	☐☐☐
8	Use the speed formula to calculate time, distance or speed	☐☐☐
9	Use scale on a map to identify distances between places	☐☐☐
10	Make use of scale to interpret representative sketches of large objects	☐☐☐

Work begun ☐☐☐ | Work in progress ☐☐☐ | Work completed ☐☐☐

Knowledge and Application of Geometry

Maths

Statement Code no: 9

Student: Class:

At Junior Certificate level the student can:

Apply the knowledge and skills necessary to perform specified geometrical operations

Date Commenced: ☐☐/☐☐/☐☐ Date Awarded: ☐☐/☐☐/☐☐

Learning Targets - This has been demonstrated by your ability to:

1	Measure angles using a protractor	☐☐☐
2	Recognise and identify all the common geometrical instruments	☐☐☐
3	Identify and recognise the various types of angles	☐☐☐
4	Construct angles of different sizes	☐☐☐
5	Understand knowledge that the angle in a straight line is 180 degrees	☐☐☐
6	Understand and apply the knowledge that opposite angles are equal	☐☐☐
7	Use set squares to construct rectangles	☐☐☐
8	Use geometrical instruments to construct triangles	☐☐☐
9	Understand and apply the knowledge that three angles of a triangle add up to 180 degrees	☐☐☐
10	Understand and apply the knowledge that the area of a triangle is equal to half the base x perpendicular height	☐☐☐

Work begun ☐☐☐ | Work in progress ☐☐☐ | Work completed ☐☐☐

Knowledge and Application of Algebra

Maths

Statement Code no: 10

Student: Class:

At Junior Certificate level the student can:

Apply the knowledge and skills necessary to perform specified operations in algebra

Date Commenced: ☐☐/☐☐/☐☐ Date Awarded: ☐☐/☐☐/☐☐

Learning Targets - This has been demonstrated by your ability to:

1	Understand and write simple equations	☐☐☐
2	Understand and apply the concepts of x^2 and x^3	☐☐☐
3	Find the value of expressions requiring one substitution eg. $3x + 2$ when $x = 4$ eg. $5x - 4$ when $x = 3$	☐☐☐
4	Find the value of expressions requiring two substitutions eg. $5x - 3y$ when $x = 3$ and $y = 2$ eg. $3x + 2y$ when $x = 2$ and $y = 4$	☐☐☐
5	Simplify expressions eg. $4x + 6 + 4y + 7 + 2x - 3y$	☐☐☐
6	Simplify expressions containing a bracket eg. $3(x + 4) + 7$	☐☐☐
7	Simplify expressions containing two brackets eg. $3(x + 5) + 3(x - 4)$	☐☐☐
8	Solve basic equations eg. $x - 4 = 6$ eg $x + 3 = 7$ eg $3x = 15$	☐☐☐
9	Solve more challenging equations eg. $6x + 2 = 32$	☐☐☐
10	Solve equations containing a bracket eg. $6(x + 5) = 42$	☐☐☐

Work begun ☐☐☐ | Work in progress ☐☐☐ | Work completed ☐☐☐

Circle, Cylinder and Sphere

Maths

Statement Code no: 11

Student:

Class:

At Junior Certificate level the student can:

Calculate the perimeter, area and volume of curved shapes

Date Commenced: ▢▢/▢▢/▢▢

Date Awarded: ▢▢/▢▢/▢▢

Learning Targets - This has been demonstrated by your ability to:

1	Identify the following parts of a circle: centre, radius, diameter, arc, sector, chord, circumference and segment	▢▢▢
2	Calculate the length of the circumference of a circle	▢▢▢
3	Work out the length of the perimeter of a sector	▢▢▢
4	Calculate the area of a disc	▢▢▢
5	Calculate the volume of a cylinder	▢▢▢
6	Calculate the curved surface area of a cylinder	▢▢▢
7	Calculate the total surface area of a cylinder	▢▢▢
8	Calculate the volume of a sphere	▢▢▢
9	Calculate the surface area of a sphere	▢▢▢
10	Work out the curved surface area of a hemisphere	▢▢▢

Work begun ▢▢▢ | Work in progress ▢▢▢ | Work completed ▢▢▢

Trigonometry

Maths

Statement Code no: 12

Student: Class:

At Junior Certificate level the student can:

Use trigonometry to solve problems

Date Commenced: ▢▢/▢▢/▢▢ Date Awarded: ▢▢/▢▢/▢▢

Learning Targets - This has been demonstrated by your ability to:

1	Identify the hypotenuse, adjacent side and opposite side for a given angle in a right angled triangle	▢ ▢ ▢
2	Use the Theorem of Pythagoras to work out the third side in a right angled triangle when the other two sides are known	▢ ▢ ▢
3	Find the value of the sine of an angle in a right angled triangle	▢ ▢ ▢
4	Find the value of the cosine of an angle in a right angled triangle	▢ ▢ ▢
5	Find the value of the tangent of an angle in a right angled triangle	▢ ▢ ▢
6	Use a scientific calculator to find the sine, cosine and tangent of any integer value of an angle up to 90°	▢ ▢ ▢
7	Use a scientific calculator to find the value of an angle, and round it to the nearest degree, when given its sine, cosine or tangent value	▢ ▢ ▢
8	Calculate sides and angles in a right angled triangle	▢ ▢ ▢
9	Solve problems involving angles of elevation	▢ ▢ ▢
10	Solve problems involving angles of depression	▢ ▢ ▢

Work begun ▢ ▢ ▢ | Work in progress ▢ ▢ ▢ | Work completed ▢ ▢ ▢

Sets and Statistics

Maths

Statement Code no: 13

Student: Class:

At Junior Certificate level the student can:

Draw and interpret sets and statistics

Date Commenced: ▢▢/▢▢/▢▢ Date Awarded: ▢▢/▢▢/▢▢

Learning Targets - This has been demonstrated by your ability to:

1	Draw Venn diagrams illustrating three sets	▢ ▢ ▢
2	Interpret information from three-set Venn diagrams	▢ ▢ ▢
3	Solve problems by using two-set and three-set Venn diagrams	▢ ▢ ▢
4	Write the Cardinal Number of a set	▢ ▢ ▢
5	List the subsets of a set	▢ ▢ ▢
6	Identify the Complement of a set	▢ ▢ ▢
7	Work out Set Difference	▢ ▢ ▢
8	Construct frequency tables from raw data	▢ ▢ ▢
9	Draw pie charts	▢ ▢ ▢
10	Draw bar charts	▢ ▢ ▢
11	Draw trend graphs	▢ ▢ ▢
12	Interpret information from pie charts, bar charts, and trend graphs	▢ ▢ ▢
13	Calculate the mode	▢ ▢ ▢
14	Calculate the mean	▢ ▢ ▢

Work begun ▢ ▢ ▢ | Work in progress ▢ ▢ ▢ | Work completed ▢ ▢ ▢

Knowledge and Application of Geometry 2

Maths

Statement Code no: 14

Student:

Class:

At Junior Certificate level the student can:

Perform additional operations in Geometry

Date Commenced: ☐☐/☐☐/☐☐

Date Awarded: ☐☐/☐☐/☐☐

Learning Targets - This has been demonstrated by your ability to:

1	Measure and label line segments	☐ ☐ ☐
2	Identify the angles in a triangle from their labels (e.g.<abc)	☐ ☐ ☐
3	Draw a line parallel to a given line	☐ ☐ ☐
4	Construct a line perpendicular to a given line	☐ ☐ ☐
5	Identify and calculate corresponding and alternate angles formed when a line intersects parallel lines	☐ ☐ ☐
6	Construct the perpendicular bisector of a line segment	☐ ☐ ☐
7	Identify and name different types of triangles	☐ ☐ ☐
8	Calculate the exterior angle in a triangle when the interior opposite angles are known	☐ ☐ ☐
9	Calculate all the angles in a triangle when the exterior angle and one interior opposite angle are known	☐ ☐ ☐
10	Identify congruent triangles	☐ ☐ ☐

Work begun ☐ ☐ ☐ | Work in progress ☐ ☐ ☐ | Work completed ☐ ☐ ☐

Knowledge and Application of Geometry 3

Maths

Statement Code no: 15

Student:

Class:

At Junior Certificate level the student can:

Perform further operations in Geometry

Date Commenced: ▢▢/▢▢/▢▢

Date Awarded: ▢▢/▢▢/▢▢

Learning Targets - This has been demonstrated by your ability to:

1	Understand and apply the fact that the base angles in an isoceles triangle are equal in measure	▢▢▢
2	Recognise that the largest angle in a triangle is always opposite the longest side	▢▢▢
3	Recognise that the smallest angle in a triangle is always opposite the shortest side	▢▢▢
4	Understand and apply the fact that the opposite sides and opposite angles in a parallelogram are equal in measure	▢▢▢
5	Recognise and apply the fact that the diagonal of a parallelogram bisects the area	▢▢▢
6	Understand and apply the fact that the diagonals in a parallelogram bisect each other	▢▢▢
7	Recognise and apply the fact that the area of a parallelogram is equal to base x perpendicular height	▢▢▢
8	Understand and apply the fact that the angle standing in a semicircle is 90°	▢▢▢
9	Recognise and apply the fact that there are 360° in a circle	▢▢▢
10	Calculate an angle in a cyclic quadrilateral when the opposite angle is given	▢▢▢

Work begun ▢▢▢ | Work in progress ▢▢▢ | Work completed ▢▢▢

Quadratic and Simultaneous Equations

Maths

Statement Code no: 16

Student: Class:

At Junior Certificate level the student can:

Solve quadratic and simultaneous equations and simplify algebraic fractions

Date Commenced: ☐☐/☐☐/☐☐ Date Awarded: ☐☐/☐☐/☐☐

Learning Targets - This has been demonstrated by your ability to:

1 Add and subtract algebraic fractions ☐☐☐

eg $\frac{x}{4} + \frac{x}{3}$ $\frac{2x+1}{3} - \frac{2x-3}{4}$

2 Solve equations containing algebraic fractions ☐☐☐

eg $\frac{x-3}{2} = 4$ $\frac{x-1}{2} = \frac{2x+1}{5}$

3 Simplify algebraic fractions ☐☐☐

eg $\frac{5x^2}{10x}$ $\frac{12xy^2}{3xy}$

4 Multiply algebraic fractions and simplify ☐☐☐

eg $\frac{3x}{y^2} \times \frac{y}{3}$

5 Divide algebraic fractions and simplify

eg $\frac{2x^2}{3} \div \frac{4x}{9}$

6 Solve quadratic equations ☐☐☐

eg $x^2 + 5x + 6 = 0$ $x^2 - 16x + 48 = 0$ $x^2 - 81 = 0$

7 Use quadratic equations to solve problems ☐☐☐

8 Solve simultaneous equations ☐☐☐

eg $x + y = 9$ $2x - 5y = 1$

$x - y = 3$ $5x + 3y = 18$

9 Use simultaneous equations to solve problems ☐☐☐

Work begun ☐☐☐ | Work in progress ☐☐☐ | Work completed ☐☐☐

Factorisation, Inequalities and Equations

Maths

Statement Code no: 17

Student: Class:

At Junior Certificate level the student can:

Factorise, graph and solve inequalities and solve more challenging equations in Algebra

Date Commenced: ▢▢/▢▢/▢▢ Date Awarded: ▢▢/▢▢/▢▢

Learning Targets – This has been demonstrated by your ability to:

1	Multiply two algebraic expressions eg $(x)(x^2)$ $(x + 2)(x + 3)$ $(2x + 3)(3x^2 - 2x + 3)$	▢▢▢
2	Solve more challenging equations eg $8x + 5 = 7x + 10$ $5(3x - 2) = 7(2x - 1)$	▢▢▢
3	Use equations to solve problems	▢▢▢
4	Use grouping to find the factors of algebraic expressions	▢▢▢
5	Find the factors of quadratic expressions (which have a positve third term) eg $x^2 + 8x + 12$ $x^2 - 12x + 20$	▢▢▢
6	Find the factors of quadratic expressions (which have a negative third term) eg $x^2 + 7x - 30$ $x^2 - 13x - 30$	▢▢▢
7	Find the factors of the difference of two squares eg $x^2 - 9$ $x^2 - 100$ $36x^2 - 49y^2$	▢▢▢
8	Simplify algebraic fractions eg $\frac{6x}{3x}$ $\frac{12(a + b)}{3(a + b)}$ $\frac{x^2 + 4x - 5}{x - 1}$	▢▢▢
9	Solve the inequalities ($<$, $>$, $\leq$, $\geq$) eg $4 - 3x \geq 13$	▢▢▢
10	Graph the solutions of these inequalities on the number line	▢▢▢

Work begun ▢▢▢ | Work in progress ▢▢▢ | Work completed ▢▢▢

Knowledge and Application of Coordinate Geometry

Maths

Statement code no. 18

Student: Class:

At Junior Certificate level I can:

Apply my knowledge of Coordinate Geometry

Date Commenced: ☐☐/☐☐/☐☐ Date Awarded: ☐☐/☐☐/☐☐

Learning Targets I can...

1	Coordinate the plane in the first quadrant	☐☐☐
2	Plot points on the coordinated plane	☐☐☐
3	Give the coordinates of a point on the plane	☐☐☐
4	Draw a straight line between two points using a ruler	☐☐☐
5	Find the midpoint of this line and give its coordinates	☐☐☐
6	Find the length of lines (horizontal and vertical)	☐☐☐
7	Find the length of a sloping line by constructing a right-angled triangle on it and using Pythagoras's theorem	☐☐☐
8	Identify the hypotenuse of a right-angled triangle	☐☐☐
9	Find the slope of a line by using a right-angled triangle and using y/x (Counting boxes method)	☐☐☐
10	Identify whether a line has a positive or negative slope	☐☐☐

Work begun ☐☐☐ | Work in progress ☐☐☐ | Work completed ☐☐☐

Knowledge and Understanding of Maths Theorems

Maths

Statement code no. 19

Student: Class:

At Junior Certificate level I can:

Apply my knowledge and understanding of Theorems

Date Commenced: ☐☐/☐☐/☐☐ Date Awarded: ☐☐/☐☐/☐☐

Learning Targets I can...

1	There is exactly one line through any two given points	☐☐☐
2	All the angles in a triangle add up to 180	☐☐☐
3	For two intersecting lines vertically opposite angles are equal	☐☐☐
4	When a transversal is drawn over two parallel lines the corresponding angles are equal	☐☐☐
5	When a transversal is drawn over two parallel lines the alternate angles are equal	☐☐☐
6	In an isosceles triangle two sides are of equal length and two angles are equal in measure	☐☐☐
7	The exterior angle of a triangle is equal in measure to the opposite Interior angles added together	☐☐☐
8	In a parallelogram opposite sides are equal	☐☐☐
9	In a parallelogram opposite angles are equal in measure	☐☐☐
10	The diagonals of a parallelogram bisect each other	☐☐☐

Work begun ☐☐☐ | Work in progress ☐☐☐ | Work completed ☐☐☐