Home-School Learning Collaboration – Mathematics

ERDINGTON ACADEMY

Topics in this cycle: Algebra, Geometry, Probability, Polygons & Transformations. Sequences, Graphs, Probability & Comparing Shapes. Graphical Solutions, Trigonometry & Mathematical reasoning.	Taught: Summer 1 & 2	Year Group: Year 9
Key knowledge/concepts to be learnt ('Tell me about….')		**Websites/blogs/YouTube links and further reading to deepen and consolidate learning**

Algebra, Geometry, Probability, Polygons & Transformations:

- Substitute into formulae. Use inverse operations in formulae.
- Know and use the formula for the area of a triangle and work out the area and perimeter of shapes made from rectangles and triangles. Work out the circumference & area of a circle.
- Work out the expected results when an experiment is repeated. Compare experimental and theoretical probabilities. List all the possible outcomes of two events in sample space diagrams. Use tree diagrams and work out probabilities from tree diagrams.
- Identify the properties of quadrilaterals. Use properties of triangles to work out missing angles. Identify and use properties of quadrilaterals.
- Transform shapes of a co-ordinate axis.

Sequences, Graphs, Probability & Comparing Shapes:

- Use and find the nth term to generate a sequence.
- Recognise and continue Geometric & Quadratic sequences.
- Learn to plot and use, linear, quadratic, and cubic graphs.
- learn to use distance-time graphs to solve problems.
- learn to recognise and interpret graphs showing constant rates of change.
- Solve simultaneous equations by drawing graphs.
- To find the equation of a line through two points.

Websites/links column:

https://vle.mathswatch.co.uk/

https://corbettmaths.com/

https://www.mathsgenie.co.uk/

https://www.youtube.com/watch?v=ZkC2FX5TOJ8

https://www.youtube.com/watch?v=WqpwuIsBqWs

https://www.youtube.com/watch?v=0OW2bU0So-4

https://www.youtube.com/watch?v=qnVVTBAfNu4

https://www.youtube.com/watch?v=AQ0tktNv9GY

- Draw and interpret quadratic equations.
- Calculate and compare probabilities.
- Use congruent shapes to solve problems about triangles and quadrilaterals.
- Work out whether shapes are similar, congruent or neither.
- Use Trigonometry to find missing lengths and angles on right angled triangles.

Graphical Solutions, Trigonometry & Mathematical reasoning:

- Solve a pair of simultaneous equations.
- Rearrange equations of graphs to find the gradient and the y-intercept.
- Find the equation of the line between two points.
- Solve simultaneous equations by drawing graphs.
- Solve inequalities by graphing straight lines.
- Solve inequalities that involve quadratic graphs.
- Plot and sketch graphs of the trigonometric functions.
- Use the trigonometric ratios with any angle from 0 to 360°.
- Use Trigonometry to find missing lengths and angles on right angled triangles.
- Understand how to use mathematical proof.

https://www.youtube.com/watch?v=2jrgXG0XsCc

https://www.youtube.com/watch?v=YJYhHQGopMQ

https://www.youtube.com/watch?v=tUWzTVItOTo

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Key Vocabulary and Definitions to Be Learnt		What Will the Assessment Look Like?
Ratio	the quantitative relation between two amounts showing the number of times one value contains or is contained within the other. "the ratio of computers to students is now 2 to 1"	End of topic assessment that will take place at the end of Summer 1 & Summer 2. The assessment will include fluency, reasoning, and problem-solving questions.
Proportion	a part, share, or number considered in comparative relation to a whole. "the proportion of greenhouse gases in the atmosphere is rising"	
Metric	relating to or based on the metre as a unit of length. "all measurements are given in metric form"	
circumference	the enclosing boundary of a curved geometric figure, especially a circle.	**Family Learning Opportunities**
area	the extent or measurement of a surface or piece of land. "the area of a triangle"	Devise a quiz on Trigonometry and test your family and friends. Redesign your garden/living room and calculate the total cost of materials using your knowledge of measures. Try to use as many shapes as possible.
right-angled triangle	A right-angled triangle is a triangle, that has one of its interior angles equal to 90 degrees or any one angle is a right angle.	
Pythagoras	a theorem attributed to Pythagoras that the square on the hypotenuse of a right-angled triangle is equal in area to the sum of the squares on the other two sides.	
bounds	Upper and lower bounds are the maximum and minimum values that a number could have been before it was rounded.	
error intervals	Error intervals are the limits of accuracy when a number has been rounded or truncated. They are the range of possible values that a number could have been before it was rounded or truncated.	