

## Y8 Unit 2 Overview-**Algebra**:

Test window: 9<sup>th</sup> December 2019 – 20<sup>th</sup> December 2019

Target grade for tests:

You will learn about:

- Algebraic expressions
- Common Scientific formulae
- Algebraic equations
- Algebraic inequalities



You will be able to:

- Use and interpret algebraic notation, including:  $a^2b$  in place of  $a \times a \times b$ , coefficients written as fractions rather than as decimals.
- Understand and use the concepts and vocabulary of factors.
- Simplify and manipulate algebraic expressions by taking out common factors and simplifying expressions involving sums, products and powers, including the laws of indices.
- Substitute numerical values into scientific formulae.
- Rearrange formulae to change the subject.
- Solve linear equations with the unknown on both sides of the equation.
- Find approximate solutions to linear equations using a graph.

| Lesson Overview  | Key Words  |
|--|--|
| <p><u>ALGEBRAIC PROFICIENCY: TINKERING</u></p> <ul style="list-style-type: none"><li>• Know how to write products algebraically</li><li>• Use fractions when working in algebraic situations</li><li>• Identify common factors (numerical and algebraic) of terms in an expression</li><li>• Factorise an expression by taking out common factors</li><li>• Simplify an expression involving terms with combinations of variables (e.g. <math>3a^2b + 4ab^2 + 2a^2 - a^2b</math>)</li><li>• Know the multiplication (division, power, zero) law of indices</li><li>• Understand that negative powers can arise</li><li>• Substitute positive and negative numbers into formulae</li><li>• Be aware of common scientific formulae</li><li>• Know the meaning of the 'subject' of a formula</li><li>• Change the subject of a formula when one step is required</li></ul> <p><u>SOLVE EQUATIONS</u></p> <ul style="list-style-type: none"><li>• Identify the correct order of undoing the operations in an equation</li><li>• Solve linear equations with the unknown on one side when the solution is a negative number</li><li>• Solve linear equations with the unknown on both sides when the solution is a whole number</li><li>• Solve linear equations with the unknown on both sides when the solution is a fraction</li><li>• Solve linear equations with the unknown on both sides when the solution is a negative number</li><li>• Solve linear equations with the unknown on both sides when the equation involves brackets</li><li>• Recognise that the point of intersection of two graphs corresponds to the solution of a connected equation</li><li>• Check the solution to an equation by substitution</li></ul> | <p>Refer to <a href="http://studymaths.co.uk/glossary.php">http://studymaths.co.uk/glossary.php</a> for definitions of the key words</p> <p>Product<br/>Variable<br/>Term<br/>Coefficient<br/>Common factor<br/>Factorise<br/>Power<br/>Indices<br/>Formula, Formulae<br/>Subject<br/>Change the subject</p> <p>Algebra, algebraic, algebraically<br/>Unknown<br/>Equation<br/>Operation<br/>Solve<br/>Solution<br/>Brackets<br/>Symbol<br/>Substitute<br/>Graph<br/>Point of intersection</p> <p><b>Notation</b><br/>The lower case and upper case of a letter should not be used interchangeably when worked with algebra<br/>Juxtaposition is used in place of 'x'. <math>2a</math> is used rather than <math>a^2</math>.<br/>Division is written as a fraction</p> |

**Suggested reading or support/ challenge available**



Support is available from a Maths teacher in 'MORALE' in M1 daily from 1:30pm -1:45pm

[www.mymaths.co.uk](http://www.mymaths.co.uk)  
login: penryn  
password:

[www.hegartymaths.com](http://www.hegartymaths.com)  
Go to student login at the top... find your school, enter your details and then set up your password...

<https://vle.mathswatch.com/vle/>  
login: school username followed by @penryn-college  
password: Penryn2016

**Use your revision guide**  
Use the code in the front of your guide to access your free online revision

[www.justmaths.co.uk/online](http://www.justmaths.co.uk/online)  
login: PenrynStudent  
password: Penryn

**Cross curricular**

*SMSC:*

- 1.1 Exploring, understanding and respecting cultural diversity e.g. exploration of different methods of multiplication (Chinese, Russian).
- 3.1 Developing personal qualities and using social skills (regular paired/ group work communication).
- 3.2 Participating, cooperating and resolving conflicts (paired/group activities).
- 4.2 Experiencing fascination, awe and wonder of mathematics.
- 4.4 Using imagination and creativity in learning.

*Literacy:*

Verbal communication of understanding using key words in the correct context. Development of written communication of methods and strategies to problem solve.

*NAC:*

**Science** – Use formulae involving fractions, decimals or negative numbers (Y10, 11). Transform formulae. Be aware of common scientific formulae. Use simple formulae.

**Business** – Use formulae involving fractions, decimals or negative numbers (Y10, 11). Use simple formulae (Y11).

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| Research                |  |
| Note-making             |  |
| Group work & discussion |  |
| Memorisation            |  |
| Precision & accuracy    |  |
| Independence            |  |
| Reflection              |  |