Y10 Unit 1 Overview-Number skills and Shape:

**Test window: WB 4th November 2019**

Target grade for tests:

You will learn about:

- Numbers and the number system (HCF, LCM, prime numbers powers and roots)
- Accuracy and estimating
- Calculating
- The importance of performing operations in the correct order
- Properties of shapes

You will be able to:

- Recognise prime numbers, factors, multiples, common factors, common multiples, HCF and LCM
- Evaluate powers and roots and recognise powers of 2, 3, 4, 5
- Recognise and using sequences of triangular, square and cube numbers and simple arithmetic progressions
- Order positive and negative integers, decimals and fractions and use the symbols =, ≠, <, >, ≤, ≥
- Apply the four operations to integers and decimals
- Round numbers and measuring to an appropriate degree of accuracy
- Estimate answers; checking calculations using approximation, including answers from the calculator
- Identify properties of the faces, surfaces, edges and vertices of: cubes, cuboids, prisms, cylinders, pyramids, cones and spheres
- Recognise properties and definitions of: special types of quadrilaterals, including square, rectangle, parallelogram, trapezium, kite and rhombus; and triangles using appropriate language
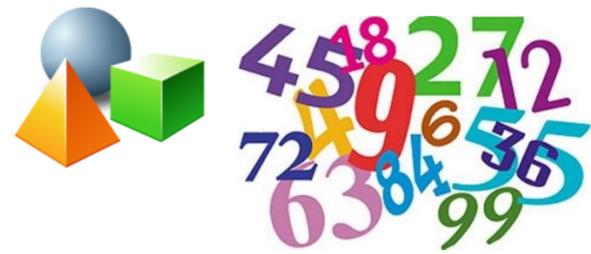
Lesson Overview	Key Words
NUMBERS AND THE NUMBER SYSTEM	**Refer to**
• Recall prime numbers up to 50	**http://studymaths.co.uk/glossary.php**
• Know how to test if a number up to 150 is prime	**for definitions of the key words**
• Know the meaning of 'highest common factor' and 'lowest common multiple'	Lowest common multiple and LCM
• Recognise when a problem involves using the HCF or LCM of two numbers	Highest common factor and HCF
• Understand the use of notation for powers	Power
• Know the meaning of the square root symbol (√)	Square and cube root
• Use a scientific calculator to calculate powers and roots	Triangular number, Square number, Cube number, Prime number
• Make the connection between squares and square roots (and cubes and cube roots)	Linear sequence
• Identify the first 10 triangular numbers	**Notation**
• Recall the first 15 square numbers	Index notation: e.g. 5^3 is read as '5 to the power of 3' and means '3 lots of 5 multiplied together'
• Recall the first 5 cube numbers	√49 is generally read as 'the square root of 49' and means 'the positive square root of 49'; ^{3}√8 means 'the cube root of 8'
• Use linear number patterns to solve problems	
COUNTING AND COMPARING	Positive number/ Negative number
• Place a set of negative numbers in order	Integer
• Place a set of mixed positive and negative numbers in order	Numerator/ Denominator
• Identify a common denominator that can be used to order a set of fractions	**Notation**
• Order fractions where the denominators are not multiples of each other	The 'equals' sign: =
• Order a set of numbers including a mixture of fractions, decimals and negative numbers	The 'not equal' sign: ≠
• Use inequality symbols to compare numbers	The inequality symbols: < (less than), > (greater than), ≤ (less than or equal to), ≥ (more than or equal
• Make correct use of the symbols = and ≠	
CALCULATING	Improper fraction (top-heavy fraction)
• Use knowledge of place value to multiply with decimals	Mixed number
• Use knowledge of place value to divide a decimal	Operation
• Use knowledge of place value to divide by a decimal	Inverse
• Use knowledge of inverse operations when dividing with decimals	Long multiplication
	Remainder
	Approximate (noun and verb)
	Round

- Be fluent at multiplying a three-digit or a two-digit number by a two-digit number
- Be fluent when using the method of short division
- Know the order of operations for the four operations
- Use brackets in problem involving the order of operations

CHECKING, APPROXIMATING AND ESTIMATING
- Approximate by rounding to any number of decimal places
- Know how to identify the first significant figure in any number
- Approximate by rounding to the first significant figure in any number
- Use estimation to predict the size of the solution to a (decimal) calculation
- Estimate calculations by rounding numbers to one significant figure
- Use cancellation to simplify calculations
- Use inverse operations to check solutions to calculations

INVESTIGATING PROPERTIES OF SHAPES
- Know the vocabulary of 3D shapes
- Know the connection between faces, edges and vertices in 3D shapes
- Visualise a 3D shape from its net
- Recall the names and shapes of special triangles and quadrilaterals
- Know the meaning of a diagonal of a polygon
- Know the properties of the special quadrilaterals (including diagonals)
- Apply the properties of triangles to solve problems
- Apply the properties of quadrilaterals to solve problems

Decimal place
Check
Solution
Answer
Estimate (noun and verb)
Order of magnitude
Accurate, Accuracy
Significant figure
Cancel
Inverse
Operation

Notation
The approximately equal symbol ($\approx$)
Significant figure is abbreviated to 's.f.' or 'sig fig'

Face, Edge, Vertex (Vertices)
Cube, Cuboid, Prism, Cylinder, Pyramid, Cone, Sphere
Quadrilateral
Square, Rectangle, Parallelogram, (Isosceles)
Trapezium, Kite, Rhombus
Delta, Arrowhead
Diagonal
Perpendicular
Parallel
Scalene, Right-angled, Isosceles, Equilateral

Notation
Dash notation to represent equal lengths in shapes and geometric diagrams

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Suggested reading or support/ challenge available

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

www.hegartymaths.com
Go to student login at the top… find your school, enter your details and then set up your password…

Pixl Maths App

login: PY2415

username: surname followed by first initial

password: first name

www.corbettmaths.com

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vle.mathswatch.com/vle/

login: school username followed by **@penryn-college**

password: **Penryn2016**

www.justmaths.co.uk/online

login: PenrynStudent

password: Penryn

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Cross curricular
SMSC:
1.1 Exploring, understanding and respecting cultural diversity e.g. exploration of different methods of calculation.
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 –Estimation. Round whole numbers and decimals. Order, add and subtract negative numbers. Use significant figures. Use standard form. Use formulae involving negative numbers. Use a calculator efficiently. Substitution into Scientific formulae, Rearrange formulae.
Business – Use formulae involving negative numbers.
MFL – Mental and written calculations with whole numbers and decimals. Use a calculator efficiently.
R.E. - Estimation.
P.E. - Round whole numbers and decimals.
Geography -. Estimation. Round whole numbers and decimals. Use a calculator efficiently.
Creative Arts - Estimation. Round whole numbers and decimals. Use a calculator efficiently.

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

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