Mathematics Knowledge Organiser

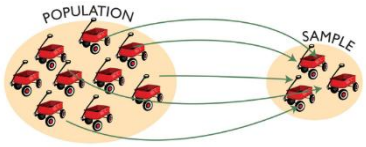
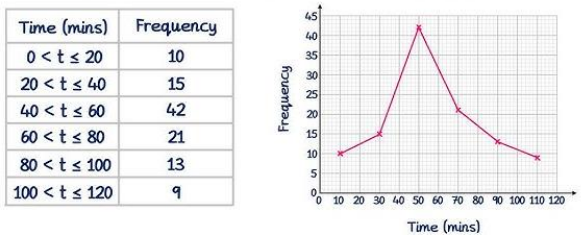
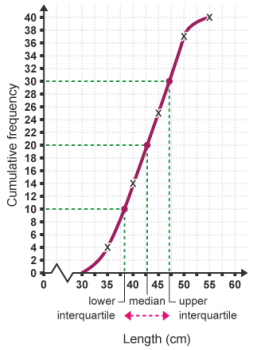
Year 10 – Summer T1

‘Frequency Tables’

The Knowledge for Progression:

- To know how to calculate the averages and range from a frequency tables.
- To know how sampling is used and to know its limitations.
- To know how to create a frequency polygon.
- To know to create a cumulative frequency graph.
- To know how to create a box plot.

Speak Like a Mathematician

Key Word	Dual Coding	Definition
Sampling		Selecting a group of people from the population.
Frequency Polygon		A graph that shows the frequencies of grouped data.
Cumulative Frequency (H)		A graph that shows a running total of the frequencies.
Box Plot (H)		A box plot shows the median and quartiles of a data set.

Mathematics Knowledge Organiser

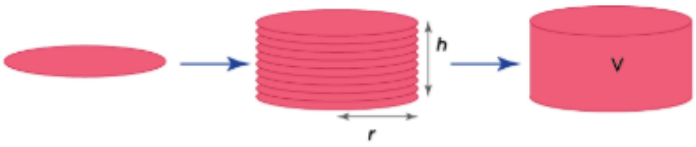
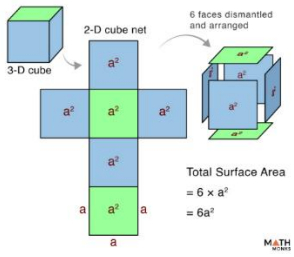
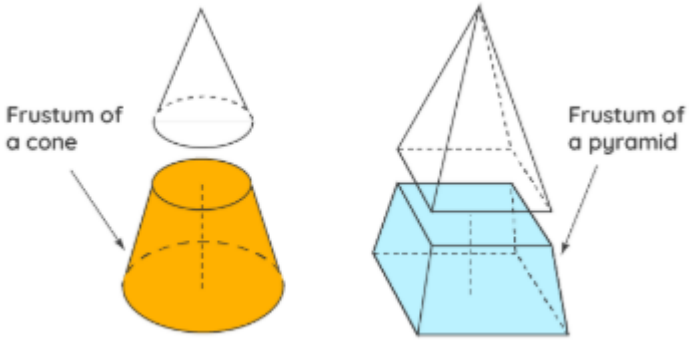
Year 10 – Autumn T2

‘Volume and Surface Area’

The Knowledge for Progression:

- To know how to calculate the volume of a sphere.
- To know how to calculate the surface area of a sphere.
- To know how to calculate the volume of a cone.
- To know how to calculate the total surface area of a cone.
- To know how to calculate the volume of a frustum.

Speak Like a Mathematician

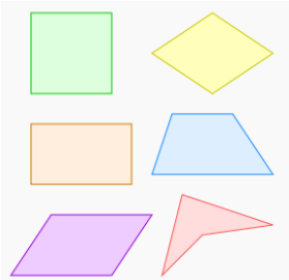
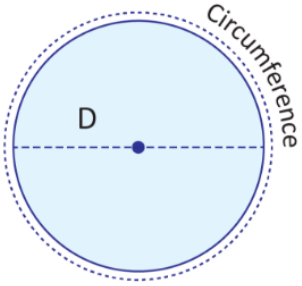
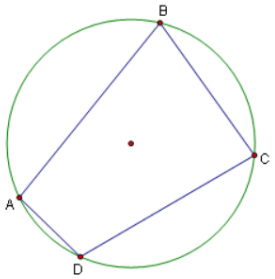
Key Word	Dual Coding	Definition
Volume		The amount of space in a 3D shape.
Surface area		Total area of faces on a 3D shape.
Frustum (H)		A 3D shape made from cutting the top of a cone or pyramid. The top and bottom bases of the frustum are parallel to each other.

‘Circle geometry’ (H)

The Knowledge for Progression:

- To know that angles in triangles sum to 180 degrees.
- To know that angles in quadrilaterals sum to 360 degrees.
- To know that the angle created at the circumference given the diameter is always 90 degrees.
- To know that the angle at the centre is twice the angle at the circumference.
- To know that a quadrilateral with all 4 vertices touching the circumference of a circle is called a *cyclic quadrilateral*.
- To know that opposite angles in a cyclic quadrilateral sum to 180 degrees.

Speak Like a Mathematician

Key Word	Dual Coding	Definition
Quadrilateral		A 2D shape with 4 vertices and side lengths.
Circumference		The length of a circle.
Diameter		A straight line with both ends touching the circumference and passing through the centre.
Cyclic quadrilateral		A quadrilateral with all 4 vertices toughing the circumference of a circle.