

YEAR 7, STATISTICS – STAGE 6, MATHS

Rationale and Context of Unit:	Core curriculum content:	Tier 2 & Tier 3 vocabulary explicitly taught:
<p><u>Presentation of data</u></p> <p><u>Key Skills:</u></p> <ul style="list-style-type: none"> • Measure and construct angles using a protractor • <u>Interpret and construct a simple line graph</u> <p><u>Measuring data</u></p> <p><u>Key Skills:</u></p> <ul style="list-style-type: none"> • <u>Approximate a number by rounding to a given number of decimal places</u> 	<p><u>Presentation of data</u></p> <p>Pie Charts</p> <ul style="list-style-type: none"> • You will learn to construct and interpret pie charts • Interpret pie charts • Construct a pie chart by measuring angles <p>Line graphs</p> <ul style="list-style-type: none"> • You will solve problems involving graphs and charts • Interpret line graphs <p>Construct line graphs</p> <p><u>Measuring data</u></p> <p>Mean</p> <ul style="list-style-type: none"> • You will understand and use the mean • Understand the meaning of ‘average’ as a typicality (or location) • Calculate the mean of a set of discrete data • Interpret the mean of a set of discrete data 	<ul style="list-style-type: none"> • Data, Scale, Axis, axes, Graph, Frequency, Time graph, Time series, Line graph, Pie chart, Sector, Angle, Protractor, Degrees, <i>Maximum and Minimum</i>. • Average, Mean, Mode, Median, Range, Measure, Data, Statistic, Statistics, Approximate and <i>Round</i>. <p><i>Highlighted words MUST be explicitly taught, defined and recorded in student books as they are first met. Other listed words may be introduced verbally or written in a similar format.</i></p>

Challenge and Support:	World wide learning/ links to 21 st century:	Cultural capital/ Industry/ Enrichment:
<ul style="list-style-type: none"> • Show me a pie chart representing the following information: Blue (25%), Red (over 50%), Yellow (the rest). And another. And another. • Always / Sometimes / Never: Pie charts are constructed in a clockwise direction • Always / Sometimes / Never: The larger the size of the pie chart, the greater the total frequency • <i>Kenny says 'If two pie charts have the same section then the amount of data the section represents is the same in each pie chart.'</i> Do you agree with Kenny? Explain your answer. • Always / Sometimes / Never: The mean is a whole number. • Kenny is working out the mean of 2, 3, 4 and 5. He calculates $2 + 3 + 4 + 5 \div 4 = 10.25$. Do you agree with Kenny? Explain your answer. • <i>The average number of children per family (Married Couples, 2012) is 1.8. Convince me that this statement makes sense</i> 	<p>Use the mean to find a missing number in a set of data</p> <ul style="list-style-type: none"> • <i>Statistics is the branch of mathematics that we use to analyse the things. It keeps us informed about, what is happening in the world around us. For example: weather forecasting, research, business, medicine and politics. Statistics enables students to appreciate how numerical methods are used in areas such as these.</i> 	<ul style="list-style-type: none"> • NRICH provides thousands of free online mathematics resources for ages 3 to 18 - completely free and available to all via their website (nrich.maths.org/). These resources aim to: <ul style="list-style-type: none"> ○ Enrich and enhance the experience of the mathematics curriculum for all learners ○ Develop mathematical thinking and problem-solving skills ○ Offer challenging, inspiring and engaging activities • Functional Skills project • Norwich Castle trip – Averages, Budgeting • <i>Careers Day – Design a play area, interpret financing, area, layout.</i>

Historical, Social, Moral, Spiritual, Cultural context:	Cross curricular links/ literacy/numeracy:	Common misconceptions:
<ul style="list-style-type: none"> We live in an information rich world. Knowing how to construct accurate graphs and how to interpret data is important. Many graphs in newspapers are carefully designed to influence what we think by displaying the data in a particular way. Analysing large sets of data enables financial and insurance companies to make predictions about what might happen in the future. Young drivers have more accidents so their insurance costs more. 	<ul style="list-style-type: none"> Science: science can provide the context for many basic statistics problems such as: calculation of average speed, distance and time; predictions of bacteria growth rates and understanding key factors effecting a healthy population. Geography: statistics on populations in different parts of the world at different periods, given as percentages and represented in a variety of forms (for example: Pie Charts). Literacy: Interpretation of written problems with conversion between these types of problems to pictorial and number representation. <i>Correct use of specialised vocabulary.</i> 	<ul style="list-style-type: none"> Some pupils may think the larger the size of the pie chart, the greater the total frequency Some pupils may think if two pie charts have the same section then the amount of data the section represents is the same in each pie chart.' Some pupils may confuse the fact that the sections of the pie chart total 100% and 360° Some pupils may think that a line graph is appropriate for discrete data Some pupils may think that each square on the grid used represents one unit If using a calculator some pupils may not use the '=' symbol (or brackets) correctly; e.g. working out the mean of 2, 3, 4 and 5 as $2 + 3 + 4 + 5 \div 4 = 10.25$. Some pupils may think the average is always the middle number Some pupils may think that the mean must be a whole number Some pupils may not realise that the mean must lie within the range of the data set.
Assessment timeline:		
<ul style="list-style-type: none"> Topic test assessments (BAM tests) are conducted at the end of each topic. These are roughly after 2 weeks per topic, but this may vary. Pre-checks are conducted at the start of the topic to test student prior knowledge. This informs lesson planning and delivery. Tracking assessments are conducted once a term with end of year formal exams, for reporting and checking cumulative knowledge. Testing data leads to discussions about setting, intervention groups and individual in-class intervention. 		

- **All students have access to a wide range of resources to develop their understanding.**

Home learning

- Homework is set weekly for each group. This will often be via interactive websites with immediate feedback and support.
- Teachers have the autonomy to use whichever resource they wish within the criteria set for the topic.
- *Students have access to lots of resources at home, including: Kerboodle, MyMaths, Mathswatch, PiXL Maths APP, PiXL Times Table App.*

Feedback

Feedback is given after each topic test, tracking assessment and end of year exams. After tracking and end of year exams, this will include “Formative Marking” sheets which give feedback question by question to help support the students with priorities for further work.

Length of unit (duration indicated in lessons)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Unit:																													