Stuart Bathurst Catholic High School

Mathematics Department

Long-term sequencing Year 12 Core Maths

HALF TERM 1:	HALF TERM 2:	HALF TERM 3:
STUDENTS MUST KNOW: • D1 Appreciating the difference between qualitative and quantitative data Appreciating the difference between primary and secondary data Collecting quantitative and qualitative primary and secondary data • D2 Inferring properties of populations or distributions from a sample, whilst knowing the limitations of sampling Appreciating the strengths and limitations of random, cluster, stratified, and quota sampling methods and applying this understanding when designing sampling strategies • D3 Calculating and identifying mean, median, mode, quartiles, percentages, range interquartile range and standard deviation from raw data and diagrams • D4 Constructing and interpreting diagrams for grouped discrete data and continuous data, knowing their appropriate use and reaching conclusions based on these diagrams • F2 Interpreting Percentages and percentage changes as a fraction or a decimal Expressing one quantity as a percentage of another Comparing two quantities using percentages Solving problems involving percentage change • F3 Simple and compound interest Savings and Investments (Annual Equivalent Rate) **HOW THIS WILL BE ASSESSED:** **Low stakes knowledge tests as starters** **End of unit assessments at the end each topic** **Edited past papers**	**STUDENTS MUST KNOW:** • F4 Student loans, mortgages, and Annual Percentage Rate (APR) • F6 Income Tax, National Insurance, and Value Added Tax (VAT) • F7 The effect of inflation Setting up, solving and interpreting the solutions to financial problems Currency exchange rates including commission Budgeting • E1 Representing a situation mathematically, making assumptions and simplifications Interpreting results in the context of a given problem Evaluation methods and solutions including how the may have been affected by assumptions made • E2 Making fast, rough estimates of quantities which are either difficult or impossible to measure directly **HOW THIS WILL BE ASSESSED:** **Low stakes knowledge tests as starters** **End of unit assessments at the end of each topic** **Edited past papers**	**STUDENTS MUST KNOW:** • C1/C2/C3 Criticising the arguments of others Summarising and report writing Comparing results from a model with real data Critical analysis of data quoted in media, political campaigns, marketing etc. • S1 Knowledge that normal distribution is a symmetrical distribution and that the area underneath the normal “bell” shaped curve represents probability • S2 Use the notation $N(\mu, \sigma^2)$ to describe a normal distribution in terms of mean and standard deviation • S3 Using a calculator or tables to find probabilities for normally distributed data with known mean and standard deviation • S4/S5 Understanding what is meant by the term “population” in statistical terms Developing ideas of sampling to include the concept of a simple random sample from a population • S6 Confidence intervals for the mean of a normally distributed population of known variance using $\frac{\sigma^2}{n}$ • S7/S8 Recognising when pairs of data are uncorrelation or correlated Understanding, and calculating, the strength of correlation is given by the PMCC Understanding that PMCC always has a value in the rate from -1 to +1 **HOW THIS WILL BE ASSESSED:** **Low stakes knowledge tests as starters** **End of unit assessments at the end of each topic** **Edited past papers**

Stuart Bathurst Catholic High School

HALF TERM 4: **STUDENTS MUST KNOW:** • S9 Plotting pairs of data on scatter graphs and drawing the line of best fit through the mean point Understanding the concept of a regression line Calculating and plotting a regression line from its equation Using interpolation with regression lines to make predictions Understanding the potential problems of extrapolation • S10 Where raw data is given, use a calculator to calculate the PMCC and the equation of the regression line **HOW THIS WILL BE ASSESSED:** **Low stakes knowledge tests as starters** **End of unit assessments at the end of each topic** **Edited past papers**	**HALF TERM 5:** **STUDENTS MUST KNOW:** Topics adapted based on the current knowledge and skillset of students **HOW THIS WILL BE ASSESSED:** **Low stakes knowledge tests as starters** **End of unit assessments at the end of each topic** **Edited past papers**	**HALF TERM 6:** **STUDENTS MUST KNOW:** Topics adapted based on the current knowledge and skillset of students **HOW THIS WILL BE ASSESSED:** **Low stakes knowledge tests as starters** **End of unit assessments at the end of each topic** **Edited past papers**
Home learning set will consist of a combination of: Weekly worksheets, and research tasks where appropriate		

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Mathematics Department

Long-term sequencing Year 13 Core Maths

HALF TERM 1:
STUDENTS MUST KNOW:

- D1

Appreciating the difference between qualitative and quantitative data
Appreciating the difference between primary and secondary data
Collecting quantitative and qualitative primary and secondary data

- D2

Inferring properties of populations or distributions from a sample, whilst knowing the limitations of sampling
Appreciating the strengths and limitations of random, cluster, stratified, and quota sampling methods and applying this understanding when designing sampling strategies

- D3

Calculating and identifying mean, median, mode, quartiles, percentages, range interquartile range and standard deviation from raw data and diagrams

- D4

Constructing and interpreting diagrams for grouped discrete data and continuous data, knowing their appropriate use and reaching conclusions based on these diagrams

- F2

Interpreting Percentages and percentage changes as a fraction or a decimal
Expressing one quantity as a percentage of another
Comparing two quantities using percentages
Solving problems involving percentage change

- F3

Simple and compound interest
Savings and Investments (Annual Equivalent Rate)

- F6

Income Tax, National Insurance, and Value Added Tax (VAT)

- F7

The effect of inflation
Setting up, solving and interpreting the solutions to financial problems
Currency exchange rates including commission
Budgeting

HOW THIS WILL BE ASSESSED:
Low stakes knowledge tests as starters
End of unit assessments at the end each topic
Edited past papers

HALF TERM 2:
STUDENTS MUST KNOW:

- S1

Knowledge that normal distribution is a symmetrical distribution and that the area underneath the normal "bell" shaped curve represents probability

- S2

Use the notation $N(\mu, \sigma^2)$ to describe a normal distribution in terms of mean and standard deviation

- S3

Using a calculator or tables to find probabilities for normally distributed data with known mean and standard deviation

- S7/S8

Recognising when pairs of data are uncorrelation or correlated
Understanding, and calculating, the strength of correlation is given by the PMCC
Understanding that PMCC always has a value in the rate from -1 to +1

- S9

Plotting pairs of data on scatter graphs and drawing the line of best fit through the mean point
Understanding the concept of a regression line
Calculating and plotting a regression line from its equation
Using interpolation with regression lines to make predictions
Understanding the potential problems of extrapolation

- S10

Where raw data is given, use a calculator to calculate the PMCC and the equation of the regression line

HOW THIS WILL BE ASSESSED:
Low stakes knowledge tests as starters
End of unit assessments at the end of each topic
Edited past papers

HALF TERM 3:
STUDENTS MUST KNOW:

- S4/S5

Understanding what is meant by the term "population" in statistical terms
Developing ideas of sampling to include the concept of a simple random sample from a population

- S6

Confidence intervals for the mean of a normally distributed population of known variance using $\frac{\sigma^2}{n}$

- S3

Using a calculator or tables to find probabilities for normally distributed data with known mean and standard deviation

- C1/C2/C3

Criticising the arguments of others
Summarising and report writing
Comparing results from a model with real data
Critical analysis of data quoted in media, political campaigns, marketing etc.

HOW THIS WILL BE ASSESSED:
Low stakes knowledge tests as starters
End of unit assessments at the end of each topic
Edited past papers

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HALF TERM 4: **STUDENTS MUST KNOW:** Topics adapted based on the current knowledge and skillset of students **HOW THIS WILL BE ASSESSED:** **Low stakes knowledge tests as starters** **End of unit assessments at the end of each topic** **Edited past papers**	**HALF TERM 5:** **STUDENTS MUST KNOW:** Topics adapted based on the current knowledge and skillset of students **HOW THIS WILL BE ASSESSED:** **Low stakes knowledge tests as starters** **End of unit assessments at the end of each topic** **Edited past papers**	**HALF TERM 6:** **STUDENTS MUST KNOW:** Topics adapted based on the current knowledge and skillset of students **HOW THIS WILL BE ASSESSED:** **Low stakes knowledge tests as starters** **End of unit assessments at the end of each topic** **Edited past papers**
Home learning set will consist of a combination of: Weekly worksheets, and research tasks where appropriate		