



# YEAR 12 FM Spring TERM 1

'An ambitious curriculum that meets the needs of all'

## Medium Term Planning – Decision 1: Ch 5 continued, Core Pure 1: Ch 6 Travelling Salesman (continued), Matrices

## Medium Term Planning – Further Stats 1: Ch 1,2,4 Discrete Random Variables , Poisson Distribution, Hypothesis Testing

### Curriculum Intent

### Core Pure 1: Ch 6 Matrices

#### Skills/Assessment Objective Links

Chapter 6: Matrices: **Chapter 6: Matrices**

FM25 I can understand the concept of a matrix			
FM26 I can define the zero and identity matrices			
FM27 I can add and subtract matrices			
FM28 I can multiply a matrix by a scalar			
FM29 I can multiply matrices			
FM30 I can calculate the determinant of a matrix			
FM31 I can find the inverse of a matrix			
FM32 I can use matrices to solve systems of equations			
FM33 I can interpret simultaneous equations geometrically			

#### Prior knowledge

- Vectors (Pure Y1 Ch11)
- Simultaneous Equations (Pure Y1 Ch3)

#### Learning further developed in the future in:

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### Skills/Assessment Objective Links

### Prior Knowledge

### Current learning to be developed in the future

### Further Stats 1: Ch 1 DRV

#### Skills/Assessment Objective Links

Chapter 1 : Discrete random variables: **Chapter 1 : Discrete random variables**

S1 I can find the expected value of a discrete random variable X			
S2 I can find the expected value of $X^2$			
S3 I can find the variance of a discrete random variable			
S4 I can use the expected value and variance of a function of X			
S5 I can solve problems involving random variables			

#### Prior knowledge

- Binomial Distribution (Applied Y1 Ch6)
- Simultaneous Equations (Pure Y1 Ch3)

#### Learning further developed in the future in:

- Poisson Distributions (Further Stats 1 Ch2)
- Central Limit Theorem (Further Stats 1 Ch5)

## Further Stats 1: Ch 2 Poisson Distribution

### **Skills/Assessment Objective Links**

**Chapter 2: Poisson distributions:** **Chapter 2: Poisson distributions**

S6 I can use the Poisson distribution to model real-world situations			
S7 I can use the additive property of the Poisson distribution			
S8 I can understand and use the mean and variance of the Poisson distribution			
S9 I can understand and use the mean and variance of the binomial distribution			
S10 I can use the Poisson distribution as an approximation to the binomial distribution			

### **Prior knowledge**

- **Binomial Distribution (Applied Y1 Ch6)**
- **DRV (Further Stats 1 Ch1)**

### **Learning further developed in the future in:**

- **Hypothesis Testing (Further Stats 1 Ch4)**
- **Chi-Squared tests (Further Stats 1 Ch6)**
- **Probability Generating Functions (Further Stats 1 Ch7)**

## Further Stats 1: Ch 4 Hypothesis Testing

### **Skills/Assessment Objective Links**

**Chapter 4: Hypothesis testing:** **Chapter 4: Hypothesis testing**

S15 I can use hypothesis tests to test for the mean $\lambda$ of a Poisson distribution			
S16 I can find critical regions of a Poisson distribution using tables			
S17 I can use hypothesis tests to test for the parameter $p$ in a geometric distribution			
S18 I can find critical regions of a geometric distribution			

### **Prior knowledge**

- **Poisson Distributions (Further Stats 1 Ch2)**
- **Hypothesis Testing (Applied Y1 Ch7)**

### **Learning further developed in the future in:**

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**Spiritual, moral,  
social, and cultural  
development**

**SMSC:** Making choices, looking for patterns which may reflect the natural world, supporting and collaborating with each other, realisation that mathematics is an international language and making cultural links as we explore the history of mathematics.

**PSHE/British Values:** Working collaboratively, being respectful during discussion and valuing contributions made by others

**Skills Builder:** Key skills in numeracy used in all topic areas.

**Numeracy**

**Focus on key skills.**

<b>Literacy</b>	<p><b>Vocabulary Tier 2:</b> Command words displayed in the classroom and italicized/bold font used in shared resources/presentations. These are a constant focus in discussion and questioning,</p> <p><b>Vocabulary Tier 3:</b> Title slide in all shared resource presentations show the key vocabulary for each topic.</p> <p><b>Reading:</b> Underlining command words,</p> <p><b>Writing:</b> Modelling solutions</p> <p><b>Oracy:</b> Think, pair, share, discussion, verbal feedback (peer to peer), questioning, student modelling</p>
<b>Becoming future ready</b>	<p><b>Personal Skills:</b> As a Mathematics student you will learn many skills: you will gain opportunities to listen to others supportively and to use questioning to develop your own understanding, you will learn how to cope with challenging questions and how to build up your resilience, you will get the chance to work on your own and with others. You will develop problem solving skills and you will learn how to break a problem down into smaller more manageable steps. You will learn how to collaborate with others when solving problems and you will learn how to articulate your solution to a problem.</p> <p><b>Employability:</b> Mathematical skills are invaluable in the workplace. There are many transferable skills which are much valued by employers. Specific career paths for each topic are discussed at the beginning of each unit of work.</p>
<b>Adaptation</b>	<ul style="list-style-type: none"> <li>• By progressive questioning: exploring pupils' understanding through interactive dialogue.</li> <li>• By outcome: different learners will produce different outcomes.</li> <li>• By resource: worksheets are clearly presented and accessible.</li> <li>• By intervention: by providing different levels of supervision and support.</li> <li>• By offering optional activities: In class or as homework, to extend learning.</li> </ul>
<b>QFT/SEND Provision</b>	
<b>Implementation Curriculum Delivery</b>	See curriculum intent
<b>Learning Outcomes (Knowledge)</b>	
<b>Assessment</b>	Refer to assessment maps for formative and summative assessment opportunities.
<b>Impact</b>	Attainment and Progress – Refer to assessment results / data review documentation.