

# Year 12 AS Maths Term 1

## 1. Algebra and Functions

- Basic algebra, Indices, Surds
- Quadratic functions
- Simultaneous Equations
- Inequalities
- Graphs and transformations

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## 3. Further Algebra

- Algebraic Division
- The factor theorem
- Proof

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## 5. Trigonometry

- Trigonometric ratios – solving problems using
- Graphs of Sine, cosine and tangent
- Transforming trigonometric graphs

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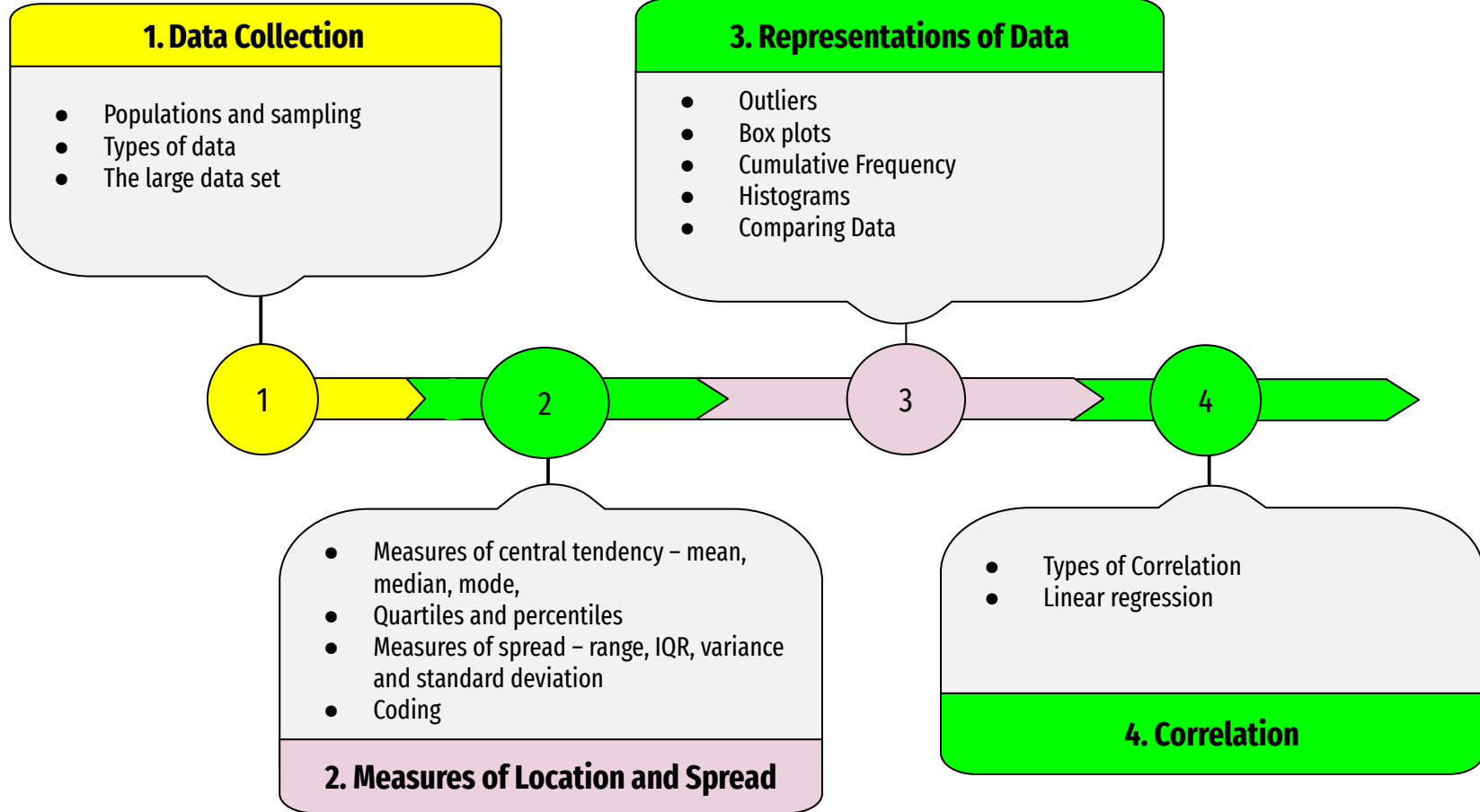
- Straight-line graphs
- Parallel and perpendicular lines
- Length and area problems involving straight lines
- Circles – equation – geometric problems

## 2. Coordinate Geometry

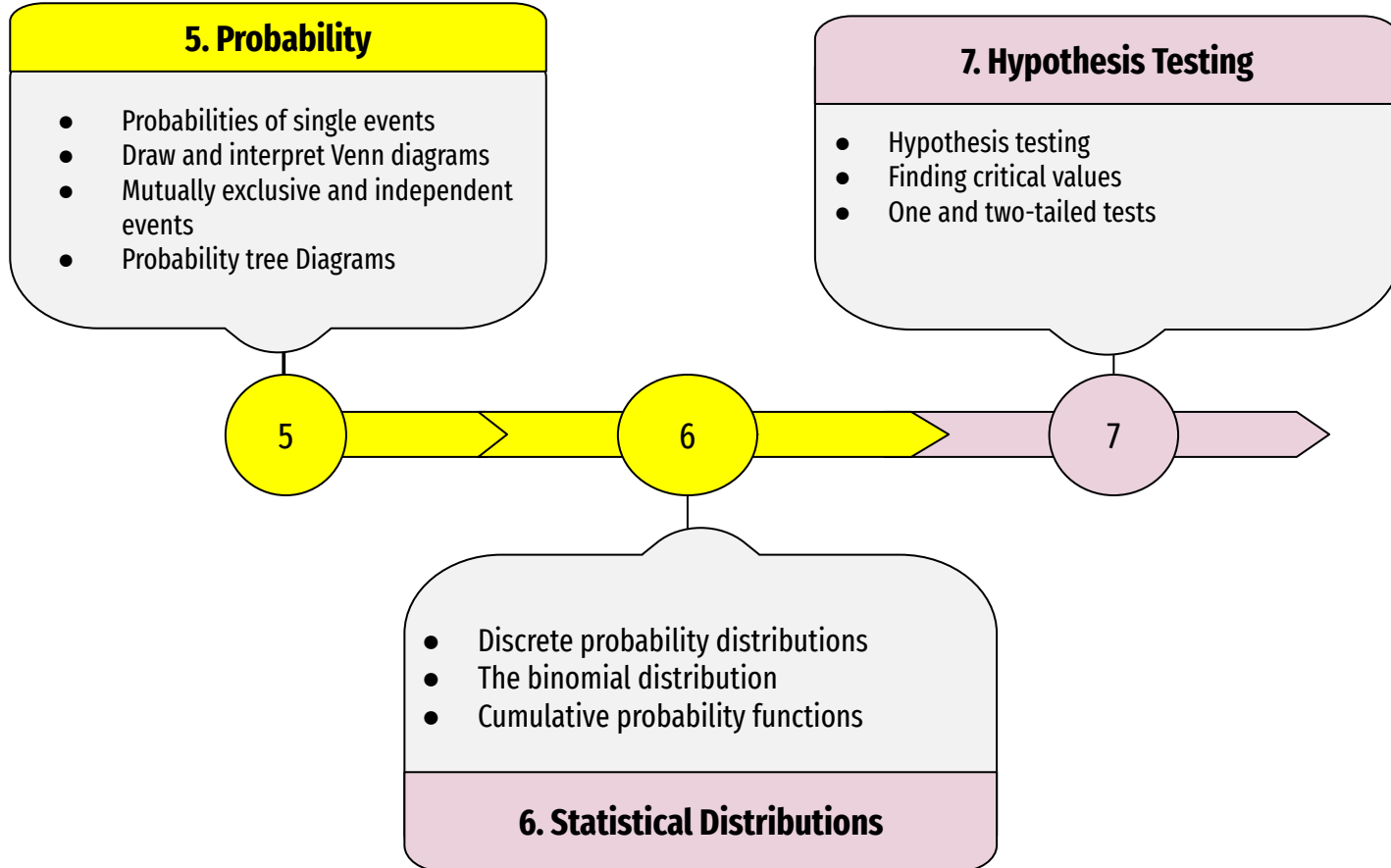
- Pascals Triangle
- Combinations and factorial notation
- Binomial expansion

## 4. The Binomial Expansion

# Year 12 AS Maths Statistics



# Year 12 AS Statistics 1 – Terms 1 and 2



# Year 12 AS Mechanics 1 Term 1 and 2

## 1. Modelling in Mechanics

- Constructing a model
- Modelling assumptions
- Quantities and units
- Vectors

## 3. Forces and Motion

- Force diagrams
- Forces and vectors
- Forces and acceleration
- Motion in 2 dimensions
- Connected particles
- Pulleys

## 5. Correlation

- Types of Correlation
- Linear regression

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- Displacement - time graphs
- Velocity - time graphs
- Constant acceleration formulae
- Vertical motion under gravity

## 2. Constant Acceleration

- Functions of time
- Using differentiation
- Maxima and minima problems
- Using integration
- Constant acceleration formulae

## 4. Variable Acceleration

# Year 12 AS Maths Term 2 and 3

## 1. Differentiation

- Gradients of curves – finding the derivative
- Differentiation from standard results
- Gradients – tangents and normal
- Increasing / decreasing functions
- Second order derivatives and stationary points
- Sketching and modelling

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## 3. Exponentials and Logarithms

- Exponential functions
- Exponential modelling
- Laws of Logarithms
- Solving equations using logs
- Working with natural logs
- Logarithms and non-linear data

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## 5. Vectors

- Representing vectors
- Magnitude and direction
- Position vectors
- Solving geometric problems
- Modelling with vectors

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- Integration and indefinite integrals
- Finding functions
- Definite integrals
- Application of integration to find areas under curves, axis and between curves and lines

## 2. Integration

- Angles in all four quadrants
- Exact trig ratios
- Trigonometric identities
- Solving trigonometric equations
- Equations and identities

## 4. Trigonometric Identities and Equations