

Y10 Unit 3 Overview-Sequences, Graphs and Probability:

Test Window: 30th April 2018- 4th May 2018

Target grade for tests:

You will learn about:

- Sequences
- Graphs
- Probability

You will be able to:

- Recognise and use Fibonacci type sequences and quadratic sequences.
- Use the form $y = mx + c$ to identify parallel lines, and interpret gradients and intercepts of linear functions .
- Find the equation of the line through two given points, or through one point with a given gradient.
- Interpret the gradient of a straight line graph as a rate of change.
- Recognise, sketch, plot and interpret graphs of quadratic functions, simple cubic functions and the reciprocal function $y = 1/x$ with $x \neq 0$.
- Plot and interpret graphs of non-standard functions in real contexts, to find approximate solutions to problems such as simple kinematic problems involving distance, speed and acceleration.
- Calculate the probability of independent and dependent combined events, including using tree diagrams and other representations, and know the underlying assumptions.
- Enumerate sets and combinations of sets systematically, using tree diagrams.
- Understand that relative frequency (experimental probability) tends towards theoretical probability as sample size increases.

$$Y = Mx + C$$



Lesson Overview

SEQUENCES

- Recognise Fibonacci numbers
- Recognise the Fibonacci sequence
- Generate Fibonacci type sequences
- Find the next three terms in any Fibonacci type sequence
- Substitute numbers into formulae including terms in x^2
- Generate terms of a quadratic sequence from a written rule
- Generate terms of a quadratic sequence from its n th term
- Identify quadratic sequences
- Establish the first and second differences of a quadratic sequence
- Find the next three terms in any quadratic sequence

GRAPHS

- Use the form $y = mx + c$ to identify parallel lines
- Rearrange an equation into the form $y = mx + c$
- Find the equation of a line through one point with a given gradient
- Find the equation of a line through two given points
- Interpret the gradient of a straight line graph as a rate of change
- Plot graphs of quadratic (cubic, reciprocal) functions
- Recognise and interpret the graphs of quadratic (cubic, reciprocal) functions
- Sketch graphs of quadratic (cubic, reciprocal) functions
- Plot and interpret graphs of non-standard functions in real contexts
- Find approximate solutions to kinematic problems involving distance, speed and acceleration

Key Words

Refer

to <http://studymaths.co.uk/glossary.php> for definitions of the key words

Term

Term-to-term rule

Position-to-term rule

n th term

Generate

Linear

Quadratic

First (second) difference

Fibonacci number

Fibonacci sequence

Notation

$T(n)$ is often used to indicate the ' n th term'

Function, equation

Linear, non-linear

Quadratic, cubic, reciprocal

Parabola, Asymptote

Gradient, y -intercept, x -intercept, root

Rate of change

Sketch, plot

Kinematic

Speed, distance, time

Acceleration, deceleration

Notation

$y = mx + c$

<p>UNDERSTANDING RISK (PROBABILITY AND LIKELIHOOD)</p> <ul style="list-style-type: none"> List outcomes of combined events using a tree diagram Label a tree diagram with probabilities Label a tree diagram with probabilities when events are dependent Know when to add two or more probabilities Know when to multiply two or more probabilities Use a tree diagram to calculate probabilities of independent combined events Use a tree diagram to calculate probabilities of dependent combined events Understand that relative frequency tends towards theoretical probability as sample size increases 	<p>Outcome, equally likely outcomes Event, independent event, dependent event Tree diagrams Theoretical probability Experimental probability Random Bias, unbiased, fair Relative frequency Enumerate Set</p> <p>Notation P(A) for the probability of event A Probabilities are expressed as fractions, decimals or percentage. They should not be expressed as ratios (which represent odds) or as words</p>
<p>Suggested reading or support/ challenge available</p> <p>Support is available from a Maths teacher in 'MORALE' in M1 daily from 1:30pm -1:45pm</p> <p>Pixl Maths App login: PY2415 username: surname followed by first initial password: first name</p> <p>www.doddlelearn.co.uk login: your name (capitals for initials no spaces) followed by year of entry eg BenSmith13 password: penryn</p> <p>www.corbettmaths.com Perfect for revision. Including practice exam questions on specific topics and the "5-a-day"</p> <p>https://vle.mathswatch.com/vle/ (video clips and worksheets) login: school username followed by @penryn-college password: Penryn2016</p> <p>Use your revision guide Use the code in the front of your guide to access your free online revision</p> <p>www.justmaths.co.uk/online login: PenrynStudent password: Penryn</p>	<p>Cross curricular</p> <p>SMSC: 1.1 Exploring, understanding and respecting cultural diversity e.g. exploration of different methods of calculation. 3.1 Developing personal qualities and using social skills (regular paired/ group work communication). 3.2 Participating, cooperating and resolving conflicts (paired/group activities). 4.2 Experiencing fascination, awe and wonder of mathematics. 4.4 Using imagination and creativity in learning.</p> <p>Literacy: Verbal communication of understanding using key words in the correct context. Development of written communication of methods and strategies to problem solve.</p> <p>NAC: Science – Solve problems using intersections or gradients of graphs. Plot graphs of quadratic (cubic, reciprocal) functions. Use relative frequency to estimate probability. Geography – Use relative frequency to estimate probability.</p>