

## Y11 Unit 3 Overview- **FDPR and Data Analysis**

Target grade for tests:

You will learn about:

- Fractions, decimals and percentages.
- Ratio.
- Presenting data.
- Interpreting data.

You will be able to:

- Express one quantity as a fraction of another.
- Define percentage as 'number of parts per hundred'.
- Express one quantity as a percentage of another.
- Add, Subtract, Multiply and Divide simple fractions (proper and improper), and mixed numbers.
- Interpret percentages and percentage changes as a fraction or a decimal.
- Compare two quantities using percentages.
- Solve problems involving percentage change, including percentage increase/decrease.
- Use ratio notation, including reduction to simplest form.
- Divide a given quantity into two parts.
- Interpret and construct tables, charts and diagrams, including frequency tables, bar charts, pie charts and pictograms for categorical data, vertical line charts for ungrouped discrete numerical data and know their appropriate use.
- Interpret, analyse and compare data using median, mean and mode and range.



### Lesson Overview

#### EXPLORING FRACTIONS, DECIMALS AND PERCENTAGES

- Write one quantity as a fraction of another where the fraction is less than 1
- Write one quantity as a fraction of another where the fraction is greater than 1
- Write a fraction in its lowest terms by cancelling common factors
- Convert between mixed numbers and top-heavy fractions
- Understand that a percentage means 'number of parts per hundred'
- Write a percentage as a fraction
- Write a quantity as a percentage of another

#### CALCULATING FRACTIONS, DECIMALS AND PERCENTAGES

- Add proper fractions, improper fractions and mixed numbers
- Subtract proper fractions, improper fractions and mixed numbers
- Multiply proper and improper fractions
- Multiply mixed numbers
- Divide a proper fraction by a proper fraction
- Divide improper fractions and mixed numbers
- Use calculators to find a percentage of an amount using multiplicative methods
- Identify the multiplier for a percentage increase or decrease
- Use calculators to increase or decrease an amount by a percentage using multiplicative methods
- Compare two quantities using percentages
- Know that percentage change = actual change  $\div$  original amount
- Calculate the percentage change in a given situation, including percentage increase / decrease

#### PROPORTIONAL REASONING

- Describe a comparison of measurements or objects using the language 'a to b'

### Key Words

#### Refer

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

#### Fraction

Proper fraction, improper fraction, top-heavy fraction, vulgar fraction

Percent, percentage

Proportion

Mixed number

Equivalent fraction

Simplify, cancel, lowest terms

Multiplier

Increase, decrease

#### Notation

Mixed number notation

Ratio

Proportion

Compare, comparison

Part

Simplify

Common factor

Cancel

Lowest terms

Unit

#### Notation

Ratio notation a:b for part:part or part:whole

- Describe a comparison of measurements or objects using ratio notation a:b
- Use ratio notation to describe a comparison of more than two measurements or objects
- Convert between different units of measurement
- State a ratio of measurements in the same units
- Simplify a ratio by cancelling common factors
- Identify when a ratio is written in its lowest terms
- Find the value of a 'unit' in a division in a ratio problem
- Divide a quantity in two parts in a given part:part ratio
- Divide a quantity in two parts in a given part:whole ratio
- Express correctly the solution to a division in a ratio problem

#### PRESENTING DATA

- Know the meaning of categorical data
- Know the meaning of discrete data
- Interpret and construct frequency tables
- Construct and interpret pictograms (bar charts, tables) and know their appropriate use
- Construct and interpret comparative bar charts
- Interpret pie charts and know their appropriate use
- Construct pie charts when the total frequency is not a factor of 360
- Choose appropriate graphs or charts to represent data
- Construct and interpret vertical line charts

#### ANALYSING DATA

- Understand the mode and median as measures of typicality (or location)
- Find the mode of set of data
- Find the median of a set of data
- Find the median of a set of data when there are an even number of numbers in the data set
- Use the mean to find a missing number in a set of data
- Calculate the mean from a frequency table
- Find the mode from a frequency table
- Find the median from a frequency table
- Understand the range as a measure of spread (or consistency)
- Calculate the range of a set of data
- Analyse and compare sets of data
- Appreciate the limitations of different statistics (mean, median, mode, range)

Data, Categorical data, Discrete data  
 Pictogram, Symbol, Key  
 Frequency  
 Table, Frequency table  
 Tally  
 Bar chart  
 Time graph, Time series  
 Bar-line graph, Vertical line chart  
 Scale, Graph  
 Axis, axes  
 Line graph  
 Pie chart  
 Sector  
 Angle  
 Maximum, minimum

#### Notation

When tallying, groups of five are created by striking through each group of four

Average  
 Spread  
 Consistency  
 Mean  
 Median  
 Mode  
 Range  
 Measure  
 Data  
 Statistic  
 Statistics  
 Approximate  
 Round

#### Suggested reading or support/ challenge available

Support is available from a Maths teacher in 'MORALE' in M1 daily from 1:30pm -1:45pm

#### Pixl Maths App

login: PY2415

username: surname followed by first initial

password: first name

#### [www.doddlelearn.co.uk](http://www.doddlelearn.co.uk)

login: your name (capitals for initials no spaces) followed by year of entry eg BenSmith13

password: penryn

#### Cross curricular

##### 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.

##### Literacy:

Verbal communication of understanding using key words in the correct context. Development of written communication of methods and strategies to problem solve.

##### NAC:

Science – Use simple ratio and proportion. Calculate using ratios. Convert one metric unit

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to another. Interpret pictograms. Draw pictograms. Interpret and draw bar graphs. Interpret and draw pie charts. Understand and use the mode, the median and the range of a set of data. Understand and use the mean of a set of data. Use averages and ranges to compare two sets of data.

**English** – Interpret pictograms. Interpret bar graphs. Understand and use the mean of a set of data.

**MFL** – Draw bar graphs.

**Business** – Use simple ratio and proportion. Interpret bar graphs. Draw bar graphs. Draw pie charts.

**Geography** – Use simple ratio and proportion. Interpret pictograms. Draw pictograms. Interpret and draw bar graphs. Interpret and draw pie charts. Understand and use the mode, the median and the range of a set of data. Understand and use the mean of a set of data. Use averages and ranges to compare two sets of data.

**Creative Arts** – Calculate using ratios. Draw pictograms. Interpret bar graphs. Draw pie charts. Understand and use the mean of a set of data.

**Technology** - Use simple ratio and proportion. Calculate using ratios. Convert one metric unit to another. Draw pictograms. Interpret bar graphs. Interpret and draw pie charts.

Understand and use the mean of a set of data.  
**Art** - Use simple ratio and proportion.