

# RATIO AND PROPORTION

## Prior learning:

- Calculations involving division (YEAR 3-7 AUT1)
- Understand fractions and what they represent. (YEAR 7 AUT 1)
- Equivalence of fractions, decimals and percentages (YEAR 8 AUT1)


## YEAR 8 AUT1: Introduction to ratio:

Factors and HCF.  **27,32**

Understand what a ratio is.  **328**

Find equivalent ratios and simplify ratios.


 **329**

State a unit ratio  
1:n or n:1.  **331**

Share in a ratio, including 'more than' questions.  **332-334**

Convert between ratios and fractions.

 **330**

 **335** Solve problems involving fractions, percentages and ratios.

## Next steps: YEAR 9 SU2

- Direct and inverse proportion.
- Problems involving recipes.
- Develop understanding of unit ratio problems.

## Prior learning:

- Find equivalent ratios (year 8 SPR1)
- Divide a total in a given ratio (YEAR 8 SPR1)
- Convert between ratios and fractions (YEAR 8 SPR1)

# YEAR 8 AUT 2: Proportion

Recap the concept of a unit ratio.  
Write ratios in the form 1:n or n:1.  **331**

Combine two or more ratios by finding common multiples.

Use unitary method for solving simple proportion problems.


 **339,340**

Apply ratio to be able to solve problems involving scales and maps.

 **864-871**

Apply ratio to be able to solve recipe problems.  **839-842**

Apply ratio to be able to solve problems involving exchange rates.

 **707,708**

## Next steps:


- To understand direct proportion and solve problems.
- To understand inverse proportion and use to solve problems.

# YEAR 9 SPR1: MULTIPLICATIVE REASONING 1

## Prior learning:

- Division and multiplication methods (YEAR 7 AUT2)
- Identifying common factors (YEAR 7 AUT2)
- Simplifying and equivalent fractions (YEAR 7 SPR1)

Simplify and compare ratios and write ratios as fractions.

 **328-330**

Share a quantity into a given ratio.

 **332-334**

Solve problems using a unitary method.

 **339**


Write ratios in the form  $1:n$  and  $n:1$

 **331**

Express a multiplicative relationship between two quantities.

 **330**


Calculate the best value between products.

 **763-772**

Use proportion with recipes.

 **739-742**

Understand direct and inverse proportion

 **341-342**

Understand currency conversion, rates of pay.

 **707-708, 763-702**


## Next steps: YEAR 9 SUMMER 2

- Direct and inverse proportion (graphically).
- Compound measures
- Growth and Decay

# YEAR 9 SUMMER 1: Multiplicative reasoning 2


## Prior learning:

- Applications of fractions, decimals, percentages (YEAR 7 SPR 1 , YEAR 8 AUT 1)
- Ratio, including 1:n and n:1 (YEAR 8 SU1 and YEAR 9 SPR1)
- Linear graphs, including conversion and tariff graphs (YEAR 8 AUT2)

Understand and Interpret direct and indirect proportion.  **342**


Calculate using direct and inverse proportion.

Understand graphical representation of direct and indirect proportion  **348**

Calculate percentage profit and loss.  **759-762**

Calculations using repeated percentage change.  **91-92**

Solve worded problems involving direct and indirect proportion.  **343-347**

Understand and use compound measures, including speed, density and pressure.  **691, 724, 730**

Set and solve growth and decay problems.  **302**

Solve compound interest and depreciation.  **94-95**

Use kinematics formulae to calculate speed.  **716-723**

## Next steps:

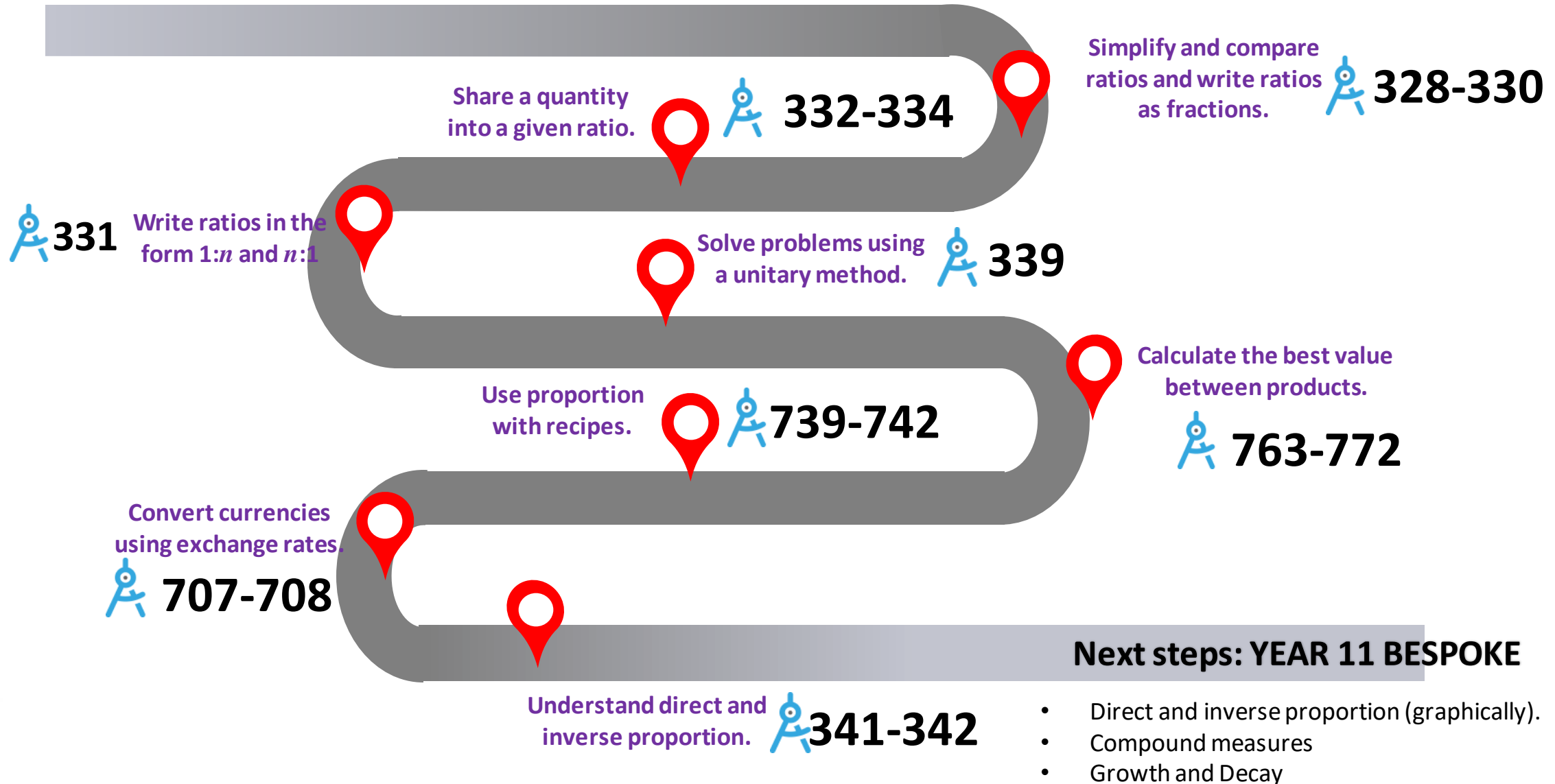
- You will re-visit 'proportionality' again if you intend to take A Level Maths in year 12 and 13.

# YEAR 10 ROUTE A

## Prior learning:

- Division and multiplication methods (YEAR 7 AUT2)
- Identifying common factors (YEAR 7 AUT2)
- Simplifying and equivalent fractions (YEAR 7 SPR1)

# YEAR 10 A SPR1 Ratio and proportion



## Prior learning:


- Applications of fractions, decimals, percentages (Year 8 AUT1)
- Ratio, including 1:n and n:1. (Year 8 AUT 2)
- Linear graphs, including conversion and tariff graphs. (YEAR 8 SUM1)

# YEAR 10 SUM 1

## Multiplicative reasoning

 **736-772** Work out best value problems.


Solve proportion problems using the unitary method.  **339-341**

Express a multiplicative relationship between two quantities.  **330**

Solve compound interest and depreciation problems.  **94-95**

Calculate using direct and inverse proportion.  **691**

Understand and use compound measures, including speed, density and pressure.  **724,730**

Solve worded problems using direct proportion.  **343-345**

Solve worded problems involving indirect proportion.  **346-348**

### Next steps:

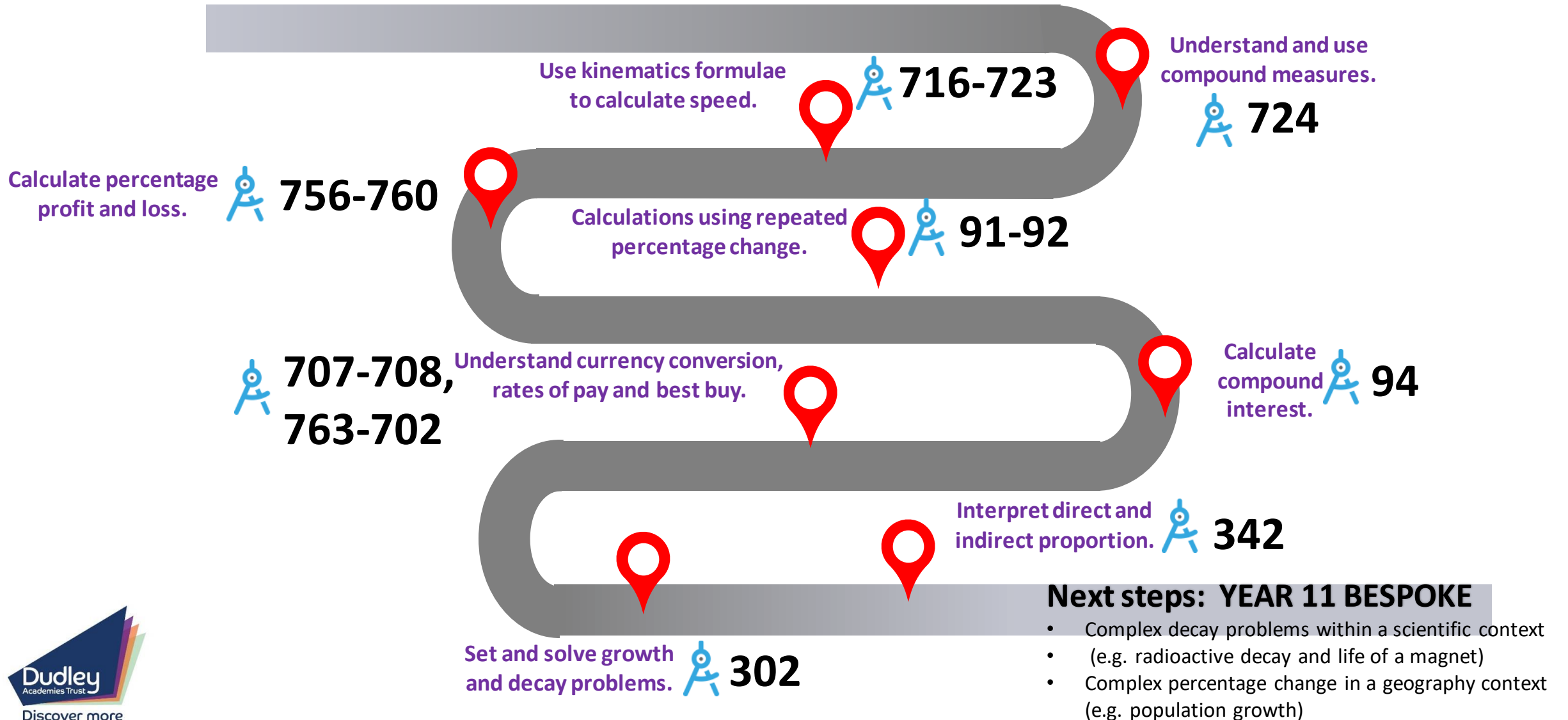
- Use graphs to represent direct and indirect proportion.
- You will re-visit 'proportionality' again if you intend to take A Level Maths in year 12 and 13.



## Prior learning:

- Applications of fractions, decimals, percentages (YEAR 7 SPR 1 , YEAR 8 AUT 1
- Ratio, including 1:n and n:1 (YEAR 8 SU1 and YEAR 9 SPR1)
- Linear graphs, including conversion and tariff graphs (YEAR 8 AUT2)

# YEAR 10 SUM1 Multiplicative reasoning



YEAR 10 route B

YEAR 11 ROUTE B