



# Year 8 Knowledge Organiser -

## Ratio and Proportion

### Objectives

- Change freely between compound units
- Use compound units such as speed, rates of pay, unit pricing
- Express divisions of quantities as ratios
- Apply ratios to real contexts e.g. conversions, comparisons, scaling and mixing
- Express a multiplicative relationship between 2 quantities as a ratio or fraction
- Understand and use proportion
- Relate ratios to fractions and linear functions
- Compare lengths, areas and volumes using ratio notation
- Use scale factors, diagrams and maps

### Key Vocabulary

**Ratio** - a statement of how two or more numbers compare

**Equal Parts** - all parts in the same proportion, or a whole shared equally

**Proportion** - a statement that links two ratios

**Order** - to place a number in a determined sequence

**Part** - a section of a whole

**Equivalent** - of equal value

**Factors** - integers that multiply together to get the original value

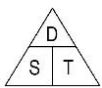
**Scale** - the comparison of something drawn to its actual size.

**Compound units** - measurements that require two different types of unit e.g. speed is a compound unit as it is defined using both distance and time

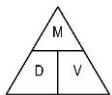
### Compound Units:

Check what units the question is asking for!

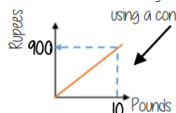
Speed = Distance ÷ Time  
 Typical units are mph (miles per hour), km/s (kilometres per second) or m/s (metres per second).



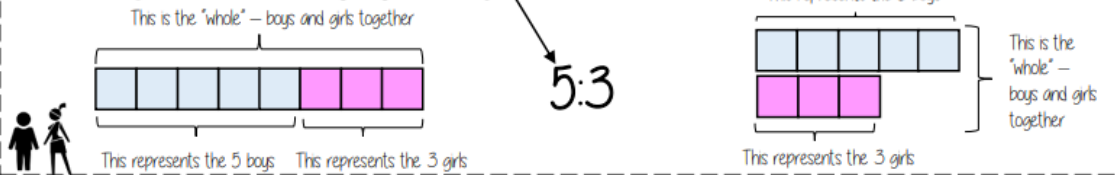
Density = Mass ÷ Volume  
 Typical units are g/cm<sup>3</sup> (grams per cm cubed)



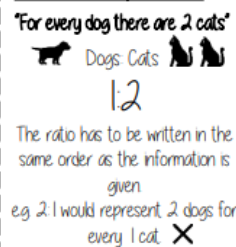
Currency can be converted using a conversion graph



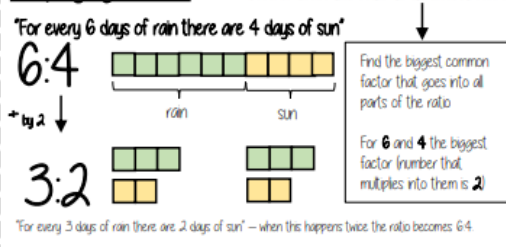
### Representing a ratio



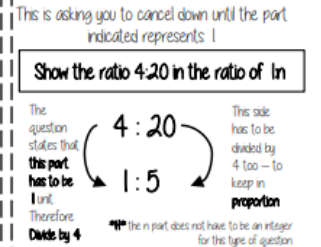
### Order is Important



### Simplifying a ratio



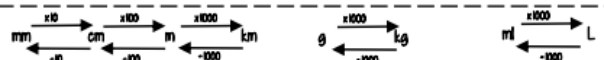
### Ratio In (or n:1)



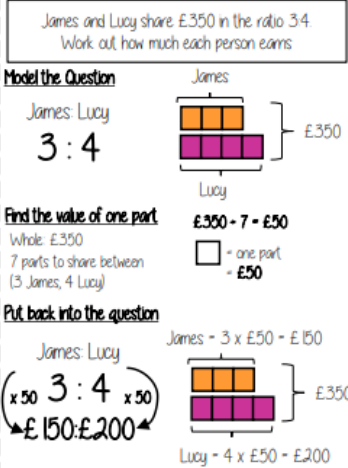
### Units are important:

When using a ratio - all parts should be in the same units

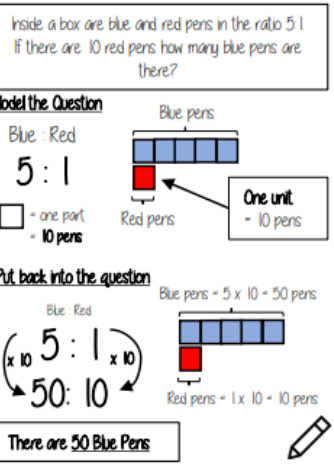
### Useful Conversions



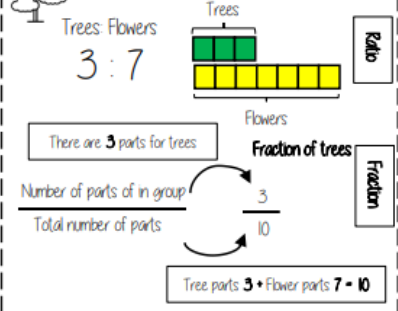
### Sharing a whole into a given ratio



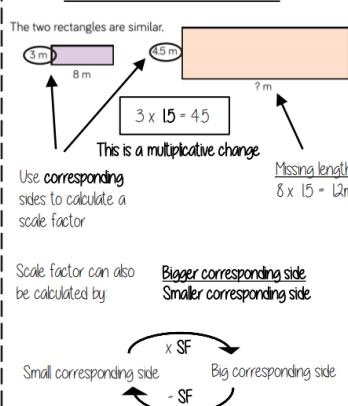
### Finding a value given In (or n:1)



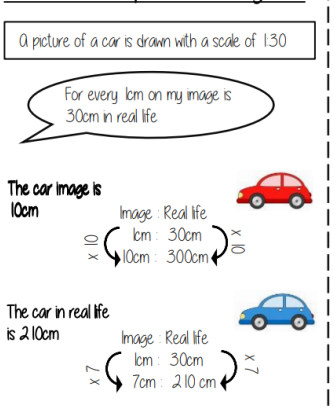
### Ratio as a fraction



### Understand Scale Factor



### Draw and interpret scale diagrams



### Interpret maps with scale factors

