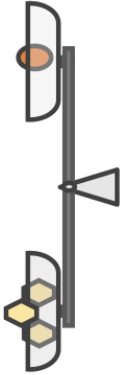
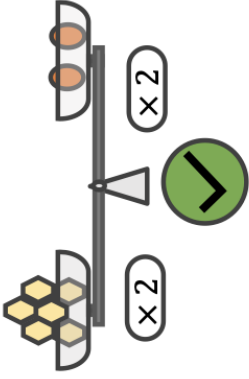


## Year 8 – Maths – Mastery Unit 8 – Direct & Inverse Proportion

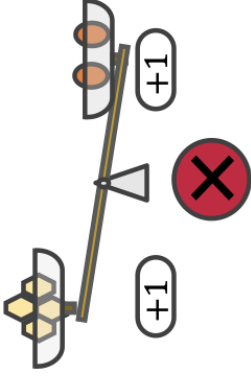
### Proportionality



These two quantities are balanced, therefore they are equal.

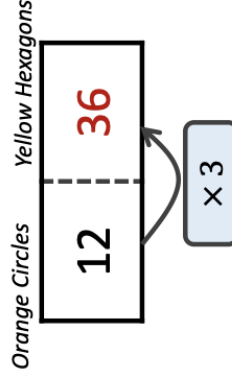
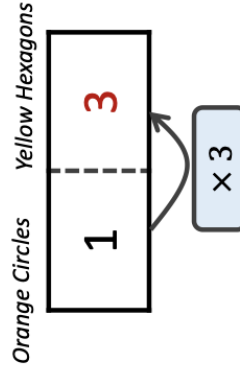
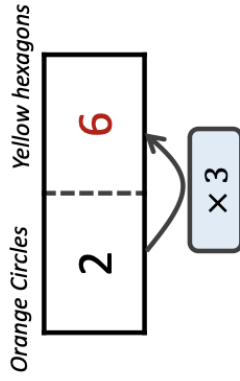


I can find other quantities that are balanced by scaling each quantity.



If I add or subtract each side by the same quantity it is not balanced.

These relationships are called **multiplicative relationships** and the two quantities are **directly proportional**. This means there is a number we can multiply by to convert the measure.



Keyword/Skill	Definition/Tips
Ratio	Shows the relative sizes of two or more values. E.G. 1 boy and 3 girls would be written as 1:3
Inverse	The opposite or the reverse E.g. the inverse of addition is subtraction.
Proportion	Two ratios or fractions that are equal.
Direct Proportion.	Two quantities change in the same way. When one increases or decrease, so does the other one.
Equation	Says that two things are the equal. (1+1=2).
Linear	A graph that has a straight line.
Substitute	Putting values where the letters are.
Constant of Proportionality	A constant value relating to amounts that rise or fall uniformly together.
Scaling	Multiplying or dividing two quantities by the same number
Multiplicative Relationship	A relationship where two quantities can be expressed as a multiple of each other.

Other topics/units this may appear in:

- Fractions
- Percentages
- Best Value
- Exchange Rates
- Proportion Recipes
- Straight Line Graphs
- Direct & Inverse Proportion

## Year 8 – Maths – Mastery Unit 8 – Direct & Inverse Proportion

### Constant of Proportionality

If two quantities are directly proportional, the multiplier between them is called the **constant of proportionality**.  
Example:

lbs	oz
1	16
5	

Pounds (lbs) and ounces (oz) are directly proportional.

lbs	oz
1	16

x 16

lbs	oz
1	16
5	80

x 16

Therefore, 16 is my constant of proportionality.

### Unitary Method

Sometimes the constant of proportionality is more challenging to find. If we scale it down to 1, then it is easy to then scale up to the quantity we need!

Eggs	Cost (£)
8	20
50	?

Eggs	Cost (£)
8	20
1	

÷ 8      x 20

Eggs	Cost (£)
8	20
50	125

÷ 8      x 20

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