SAMPLE LESSON: Simplifying Ratios

Another way of explaining 8 : 10 is to say 80% and 20%.
Explain why this is either true or false.

Fractions and ratios have a lot in common. Consider a pizza that is shared between three friends: Alba, Bushra and Clara. The pizza was cut into 12 equal pieces and Alba ate 4 of them, Bushra ate 6 of them, and Clara ate the remaining 2 pieces.

Fractions are used to describe parts of a whole.

Example: *The amount of pizza each person ate:*
Abla $\frac{4}{12}$, *Bushra* $\frac{6}{12}$ *and Clara* $\frac{2}{12}$
The fractions can be simplified to the equivalent but simpler fractions $\frac{1}{3}, \frac{1}{2}, \frac{1}{6}$

Ratios are used to compare several parts of a whole.

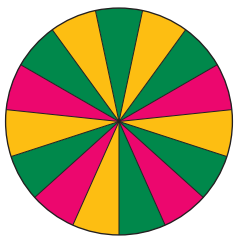
Example: *To compare how much each person ate, the ratio Alba : Bushra : Clara is 4 : 6 : 2*
This ratio can be simplified to the equivalent but simpler ratio 2 : 3 : 1

It is important to note:

- Ratios are always written as whole numbers without any unit of measurement.
- The order a ratio is written in must be consistent. The ratio of cordial to water = 4 : 1 means 4 parts of cordial to 1 part water which is very different to 4 parts cordial and 1 part water!
- You can convert a ratio to a fraction or a fraction to a ratio.

1. Complete the ratios and fractions for each of the coloured diagrams.

a)



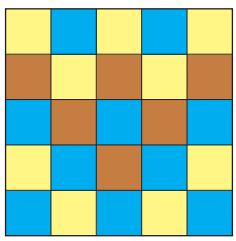
i. red : green : yellow = ... : ..... : .....

ii. What fraction of the diagram is red?

iii. What fraction of the diagram is green?

iv. What fraction of the diagram is yellow?

b)



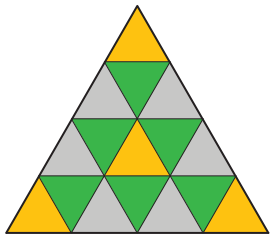
i. blue : yellow : brown = ... : ..... : .....

ii. What fraction of the diagram is blue?

iii. What fraction of the diagram is yellow?

iv. What fraction of the diagram is brown?

c)



i. yellow : grey : green = ... : ..... : .....

ii. What fraction of the diagram is yellow?

iii. What fraction of the diagram is grey?

iv. What fraction of the diagram is green?

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Baby Ratios Activity

Anita the Echidna loves to look at the glow in the dark mobiles hanging above her cot but needs your help to work out the ratio of the weights of the various objects balancing above.

Instructions:
Find the ratio of the weights of each shape in the mobiles so that each section is balanced.

Note: The weights of the string and horizontal bar are negligible.
A symbol can have a different weight from one puzzle to the next.

Solution

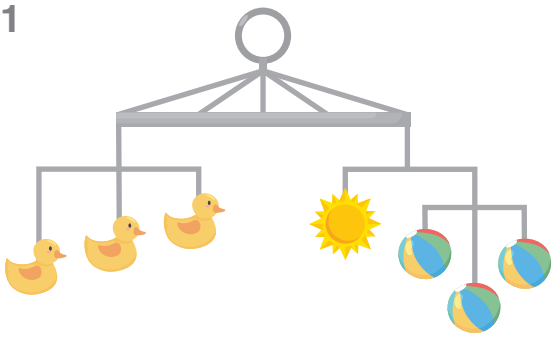
Example:

- *Three stars balance one sun, so the left side of the mobile has a total weight equivalent to six stars.*
- *The rainbow balances the sun and three stars, so the rainbow has a total weight equivalent to six stars.*
- *The ratio* ★ : ☀ : 🌈 *is* 1 : 3 : 6

Hint:

Work out which item weighs the least and give it a value of 1. Now number the other items as in the solution above. If you end up with fractions in your ratio, fix this by multiplying all values by a suitable amount, e.g. double the values in the ratio 1 : 1.5 : 2.5 to make 2 : 3 : 5

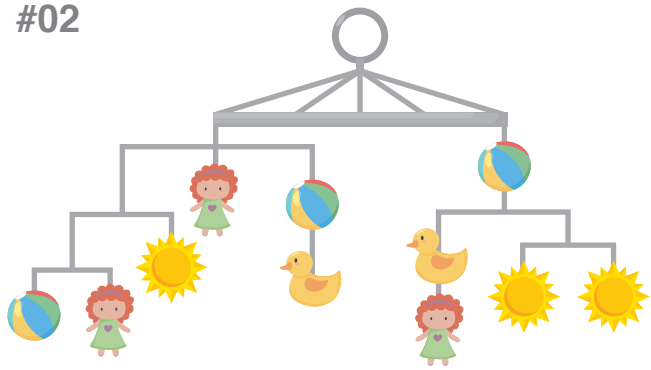
#01



🦆 : 🔵 : ☀

: :

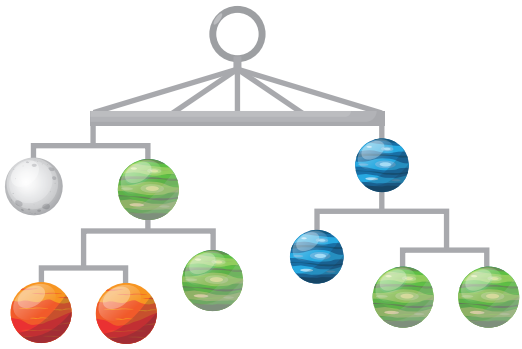
#02



🦆 : 👧 : 🔵 : ☀

: : :

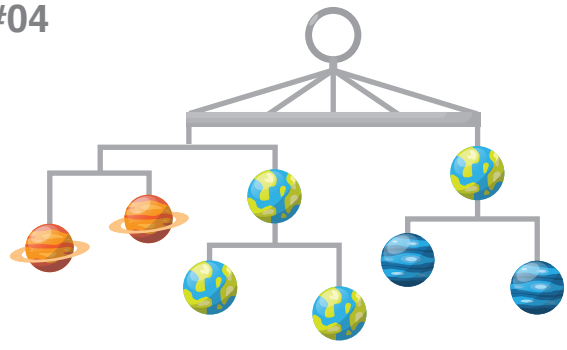
#03



🟢 : 🔴 : ⚪ : 🔵

: : :

#04



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