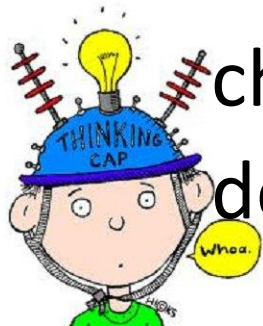




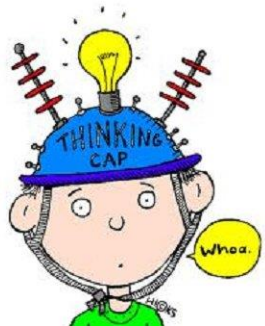
## Fractions

# Aims of this morning:

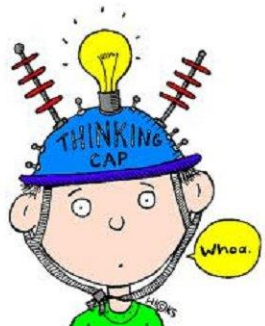
- To share the progression through the development of the key knowledge and understanding in fractions
- Discuss ‘tricky’ things about fractions.
- To explore practical resources and tools used to support learning.
- To discuss ways you can support your children at home in a way that helps to develop understanding.



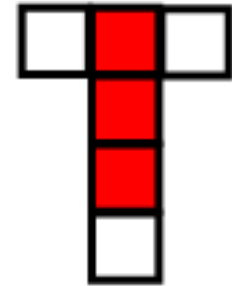
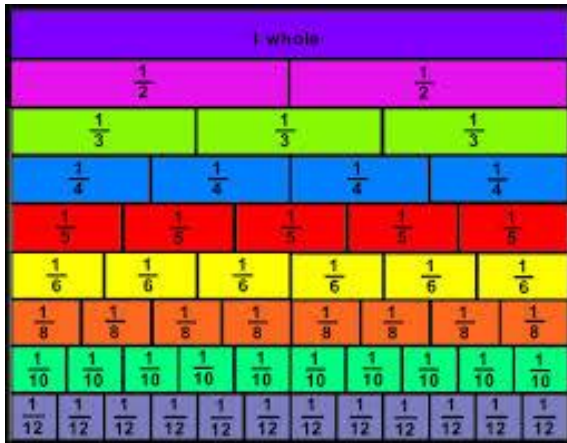
# Why are fractions so tricky?



# Common images of fractions



# Other images...



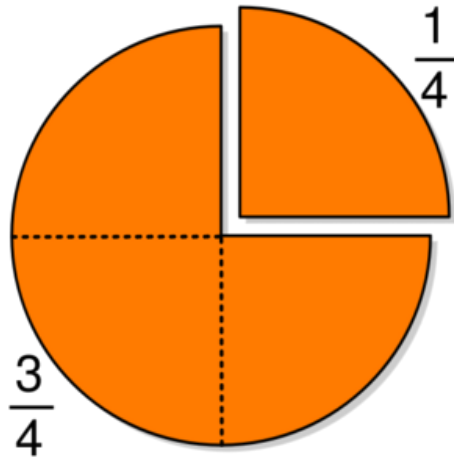
# Progression

1. As with other maths concepts, we start with real, concrete examples and problems.



# Progression

2. We move to pictorial representations.



3. Finally, we introduce the abstract.

$$\frac{3}{4} + \frac{1}{4} = 1$$



# Show me half?



Can you....

Build it?

Draw it?

Write it?

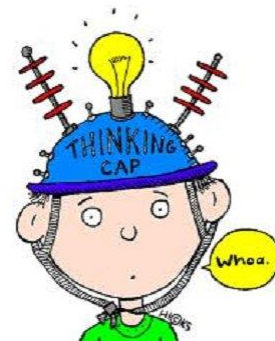
Say it?







So... what is a fraction?

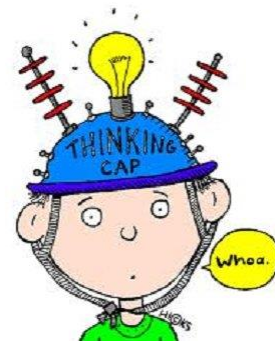


# So... what is a fraction?

A fraction is a quantity that is within and compared proportionally to another quantity, which we call the whole.

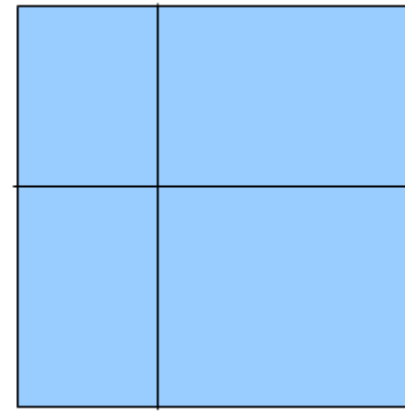
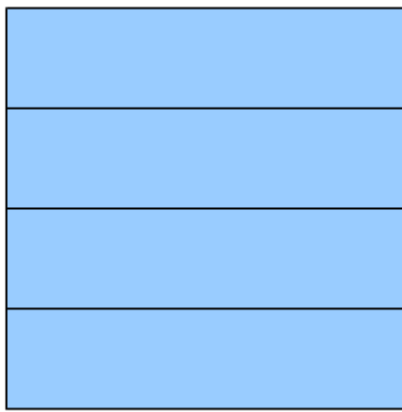
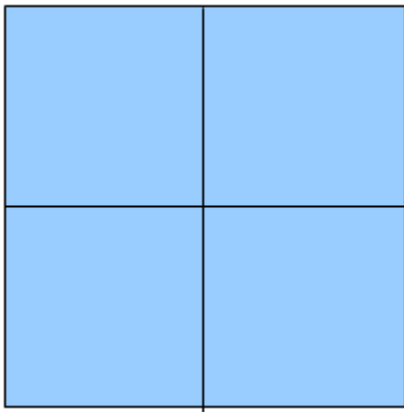
What is a whole?

- Single unit
- A number of things viewed as a “set”

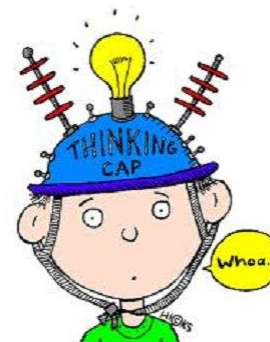


# So... what is a fraction?

Key concepts/ vocabulary  
equal parts



Which image does not show quarters?



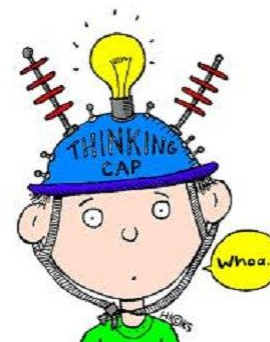
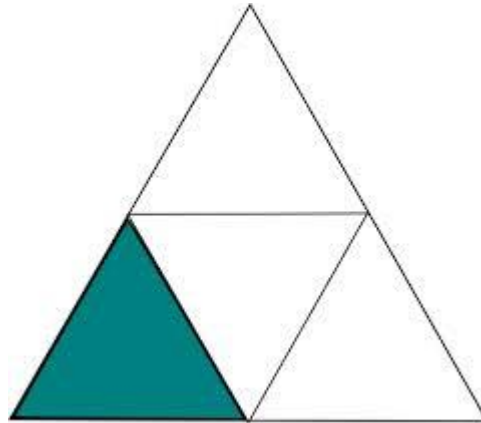
# Common misconceptions

- Fractions are parts of shapes or quantities, not numbers in their own right
- Fractions are always parts of one, never bigger than one
- The bigger the denominator, the bigger the fraction:  $1/12$  is bigger than  $1/3$

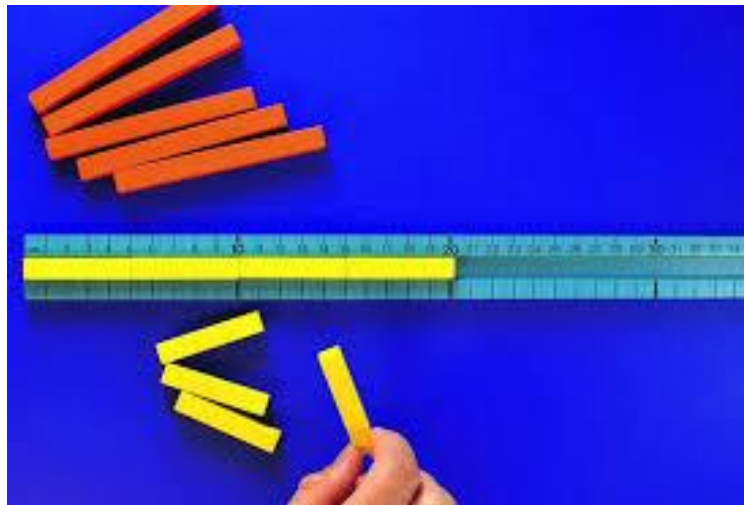


# Four different meanings of fraction notation:

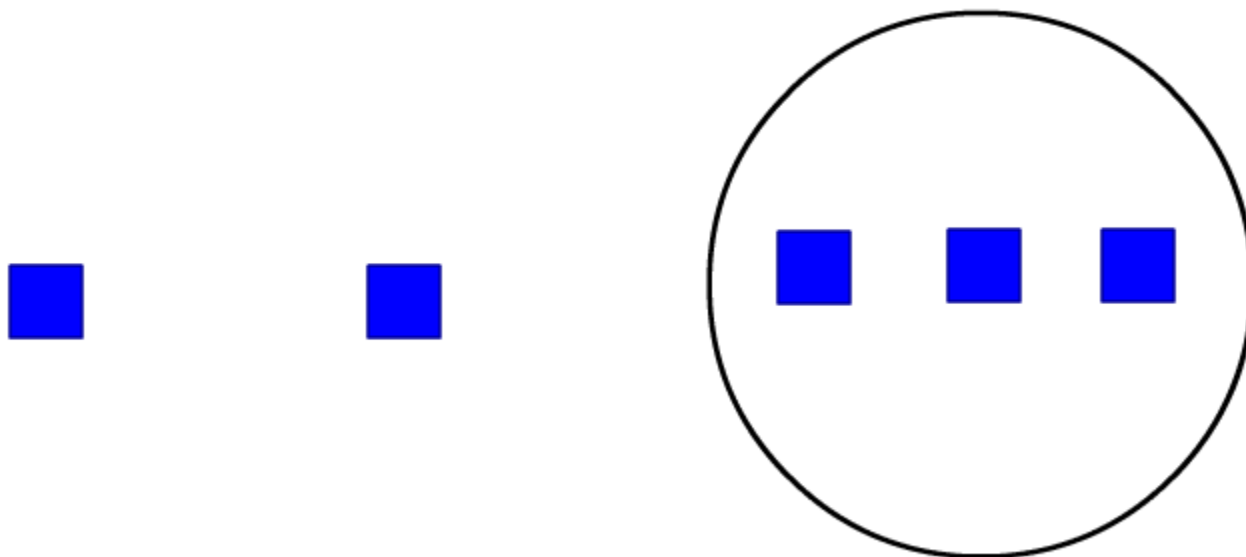
## 1. Part of a whole



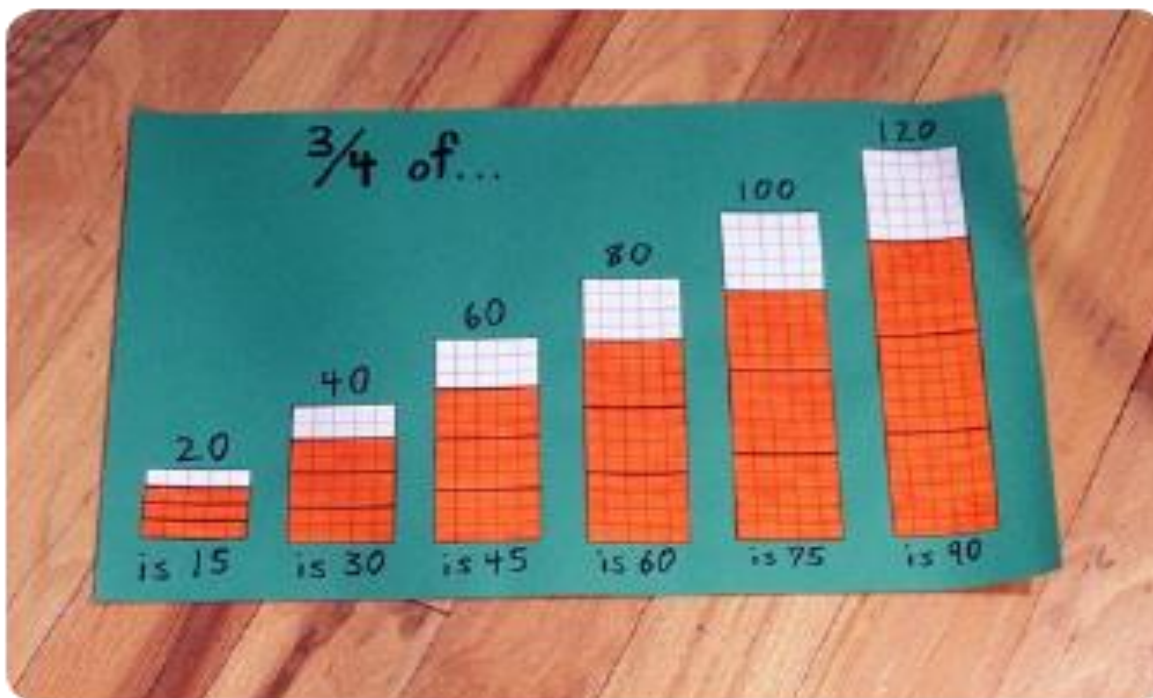
# Progression...



## 2. Part of a set

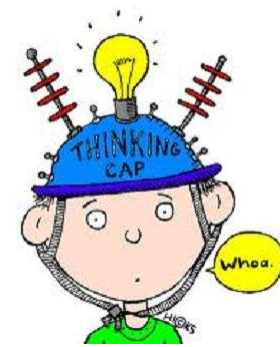
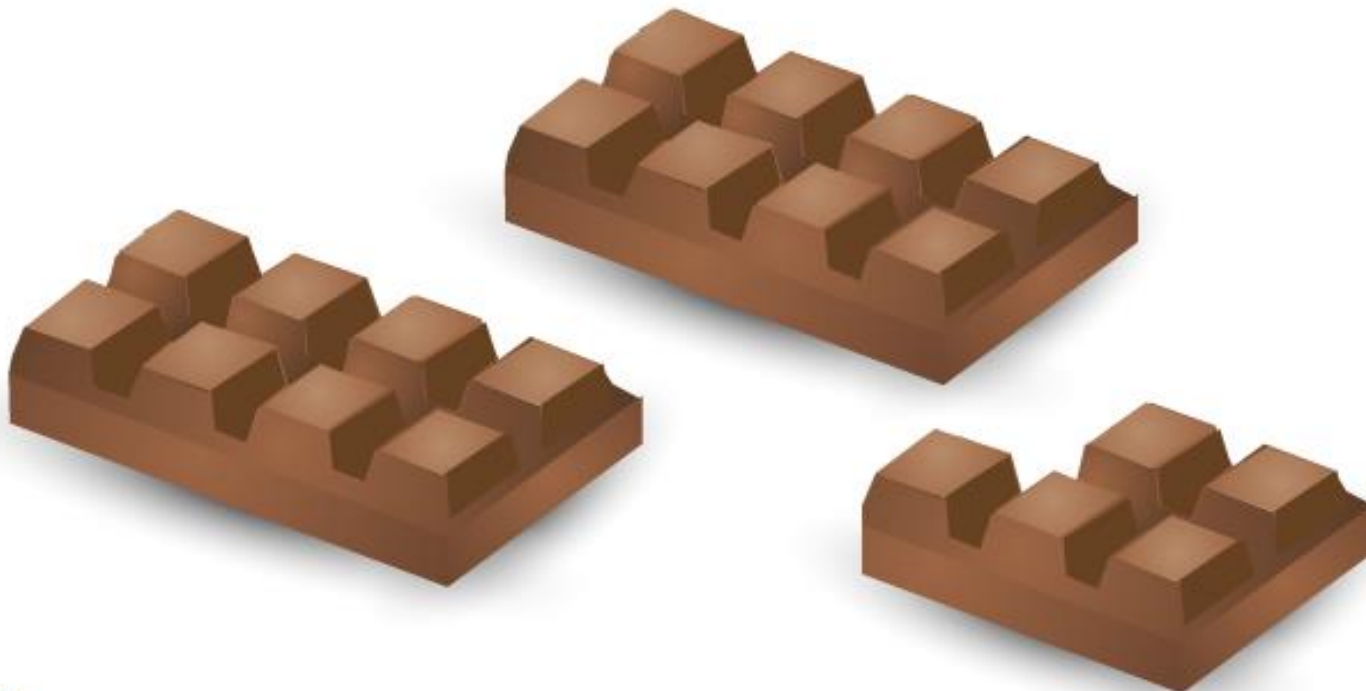


## 2. Part of a set





There are 8 pieces of chocolate in a whole bar.

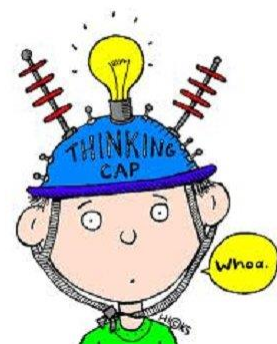


Stefan has a bag that contains 3 blue marbles and 5 red marbles only.

What fraction of the marbles in the bag are blue?

Stefan adds one blue marble and one red marble to the bag.

What fraction of the marbles in the bag are blue now?

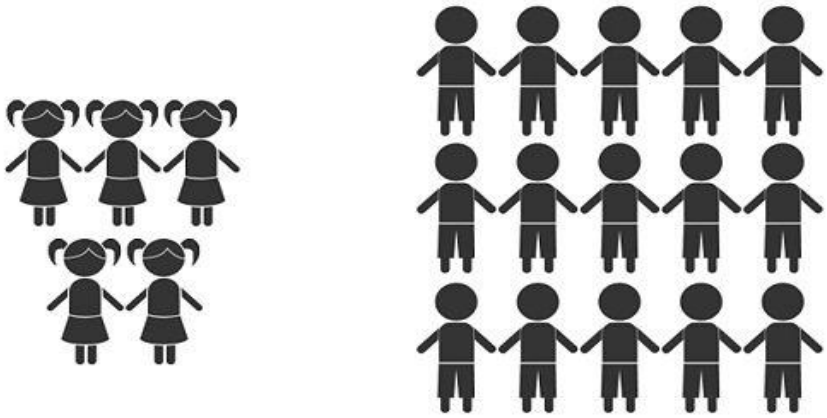


## 3. Division

- $\frac{1}{2} = 1 \div 2 = 0.5$  or  $\frac{1}{2}$
- $\frac{1}{2}$  represents both an instruction to perform an operation and the result of performing it.



# 4. Ratio & Proportion

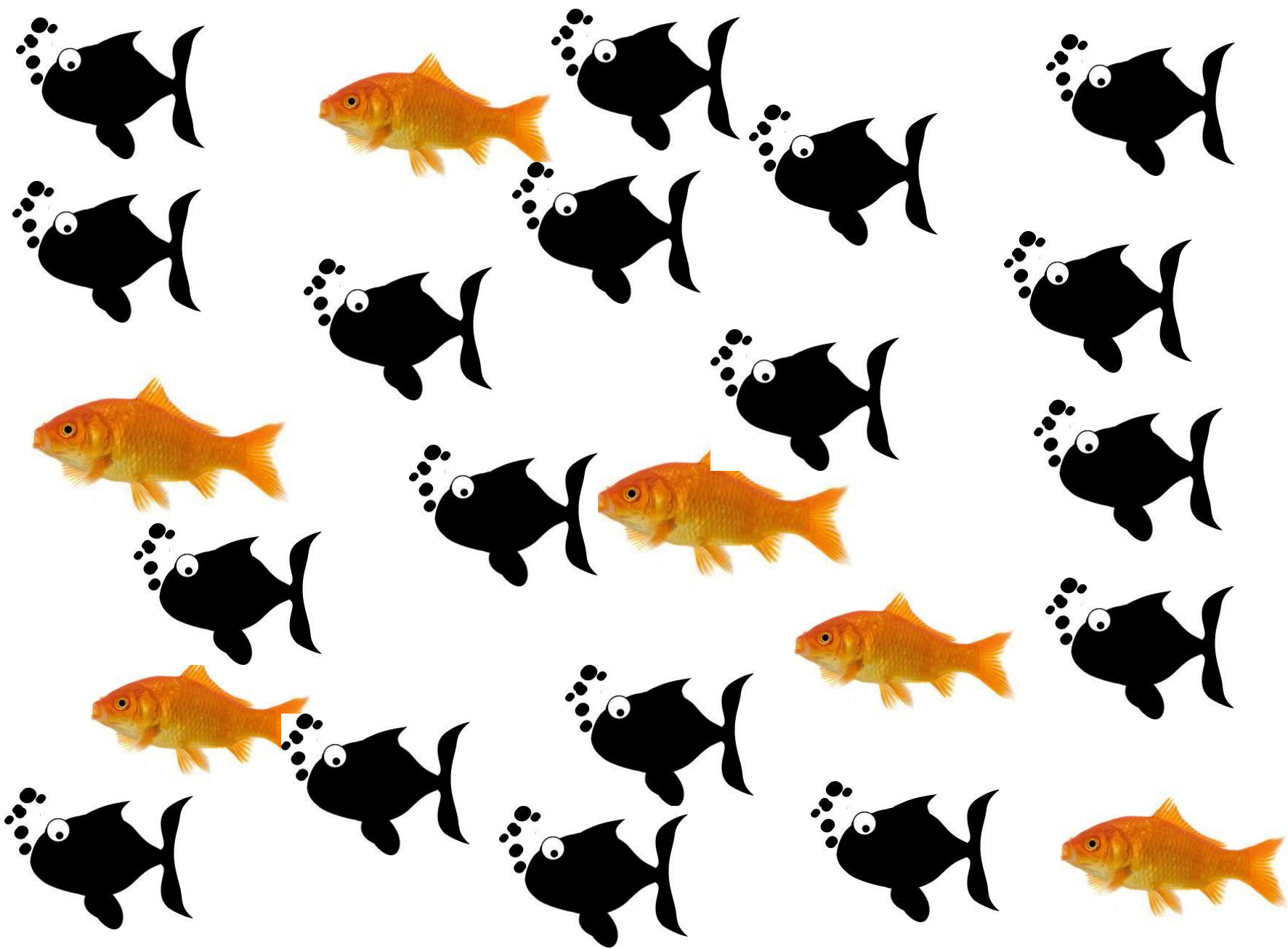


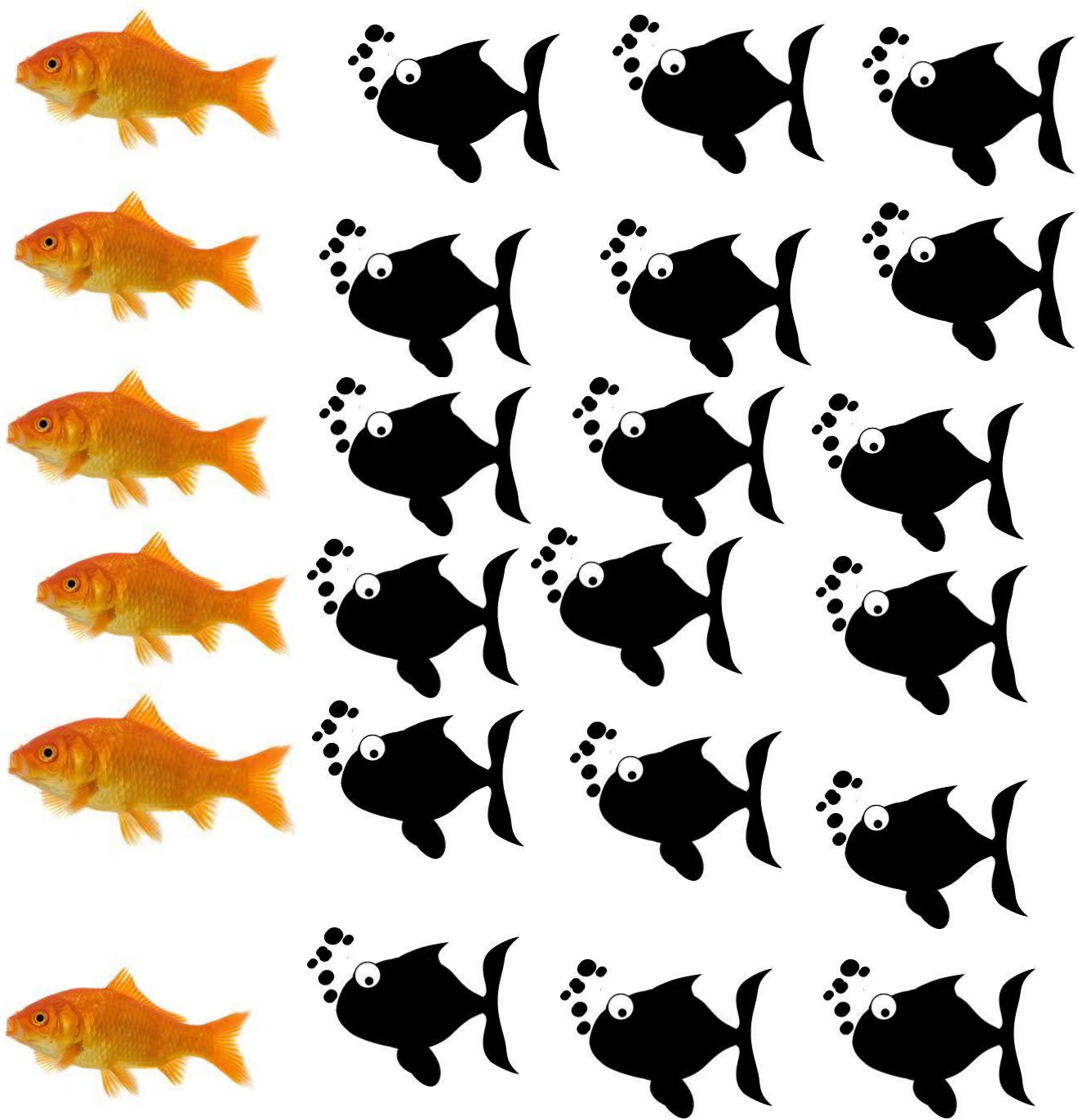
“5 girls to 15 boys”

wikiHow

The illustration shows a notepad with a green cover and a white page. On the left side of the page, there are five girl icons arranged in two rows: three in the top row and two in the bottom row. On the right side, there are fifteen boy icons arranged in three rows of five. Below the icons, the text “5 girls to 15 boys” is written in blue. In the bottom right corner of the notepad page, the word “wikiHow” is written in a small, grey font.











# Fractions of amounts



## Using the bar model

I have 20 sweets. I gave  $\frac{1}{5}$  to James  
and  $\frac{2}{5}$  to Ella. How many sweets do I have  
left?



# Fractions of amounts

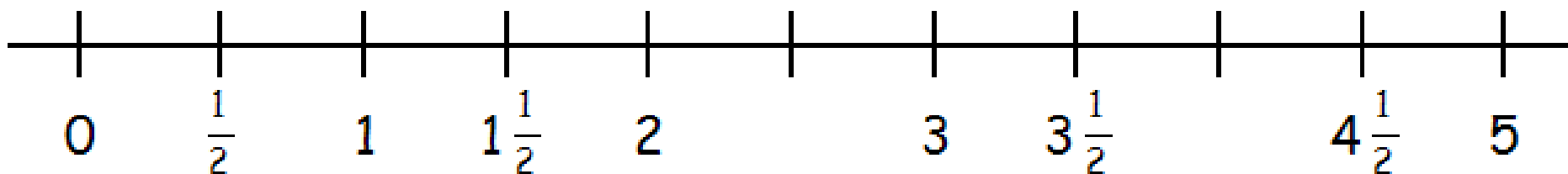
## Using the bar model

I have 20 sweets. I gave  $\frac{1}{5}$  to James  
and  $\frac{2}{5}$  to Ella. How many sweets do I have  
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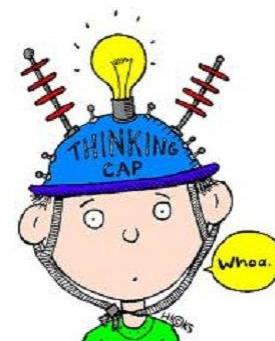




# Fractions on a number line



What's missing?





# Equivalence

The concept of an equivalence is a big idea within mathematics.

What is it?

How is it relevant to fractions?

Paper folding



# Comparison of Fractions

Which is larger ?

$$\frac{3}{8}$$

$$\frac{2}{5}$$

Justify your answer in as many ways as you can!

Build it / Draw it / Write it / Say it!!!!!!!



# Multiplication of Fractions

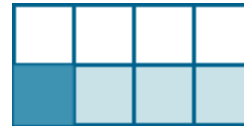
$$\frac{1}{2} \times \frac{1}{4} \quad \text{or} \quad \frac{1}{4} \text{ of } \frac{1}{2}$$

Draw a rectangle.  
Divide it in half  
horizontally.



Shade one half

Now divide the rectangle  
(or each half) into quarters  
vertically, so making an  
array.



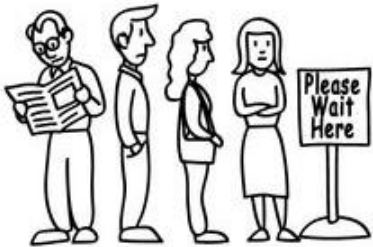
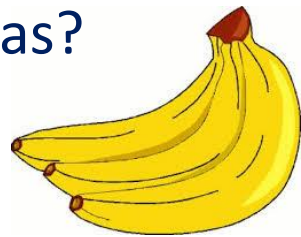
So...  $\frac{1}{4}$  of  $\frac{1}{2}$  is  $\frac{1}{8}$



# How can parents help?

## Find fractions around you

Can you find half of these bananas?



What fraction of the people are wearing trousers?



Cut the pizza into eights.



# Fractions in real life!

16-17 Arts—News & Information;  
Brampton Arts Centre Ltd;  
RAF Brampton Theatre update

15-19 What's On - Weekly & Monthly;  
Diary Dates; Village Show

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	B/W		Colour	
	(1)	(4)	(1)	(4)
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Ads for local groups and entries in What's On are free of charge.

There are four issues per annum—the Parish Council Annual Report (AR) with ads, plus three issues of Brampton Matters (BM).

These will also appear on our website:  
[www.brampton-cambs-pc.gov.uk](http://www.brampton-cambs-pc.gov.uk)

**Planned Issue dates 2014 ( subject to change):**