KS1

Fractions

TEACHING PACK

- 29 supporting resources
- Introductory activities, main teaching points, plenaries, assessment opportunities, extension ideas and home learning tasks
- Creative and practical teaching ideas

Teachit sample

Contents

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Finding your way around the curriculum pack

This pack is intended to develop children's understanding of fractions at Key Stage 1. It is presented in six sections each supported by teaching ideas and resources. It can be used as a structured sequence of lessons or as a collection of ideas and resources for the teacher to dip into as and when appropriate. Within each section you will find ideas and resources for both securing key concepts and extension ideas.

There are 6 key areas covered in this pack:

- **Fractions you already know** – establishing prior knowledge
- **Why do we need fractions?** – using fractions to describe parts of a whole
- **Finding fractions of shapes** – recognising and creating parts of shapes and describing them as fractions
- **Working out fractions of amounts** – dividing by sharing and grouping
- **Using fractions to describe routes and angles** – using full, half and quarter turns
- **Recognising equivalent fractions** – for both shapes and amounts.

Sections comprise:

- **Starters and light bites** – quick and easy appetisers for when you want a quick 5/10 minute activity
- **Mains** – longer activities to sustain you for 30 minutes or more
- **Puddings (plenaries)** – for when you still have room for more
- **Extra portions** – extension ideas
- **Doggie bag** – home-learning opportunities.

All resources are included in the pack, but we've included links to each separate resource so that you can access the resources directly on www.teachitprimary.co.uk. We've also included the file number for each original resource – just pop this into Teachit Primary's search engine. Please log in first in order to access any of these resources on Teachit Primary.

We hope you enjoy using this pack. If you have any questions, please get in touch: email ,support@teachit.co.uk or call us on 01225 788851. Alternatively, you might like to give some feedback for other Teachit Primary members – you can do this by adding a comment on the Creative approaches – Fractions KS1 page on Teachit Primary (please log in to access this).

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Curriculum coverage and mapping

Activities in this teaching pack meet the following requirements in the 2014 National Curriculum. For the purposes of referencing within the pack the strands have been numbered.

Year 1:

Number statutory requirements

Pupils should be taught to:

1. recognise, find and name a half as one of two equal parts of an object, shape or quantity
2. recognise, find and name a quarter as one of four equal parts of an object, shape or quantity.

Notes and guidance (Non-statutory)

Pupils are taught half and quarter as 'fractions of' discrete and continuous quantities by solving problems using shapes, objects and quantities. For example, they could recognise and find half a length, quantity, set of objects or shape. Pupils connect halves and quarters to the equal sharing and grouping of sets of objects and to measures, as well as recognising and combining halves and quarters as parts of a whole.

Measurement statutory requirements

Pupils should be taught to:

3. compare, describe and solve practical problems for:
   - lengths and heights (for example, long/short, longer/shorter, tall/short, double/*half*)
   - capacity and volume (for example, full/empty, more than, less than, *half, half full, quarter*)
4. tell the time to the hour and *half past the hour* and draw the hands on a clock face to show these times.

Notes and guidance (Non-statutory)

Pupils use the language of time, including telling the time throughout the day, first using o'clock and then *half past*.

Geometry – position and direction statutory requirements

Pupils should be taught to:

5. describe position, direction and movement, including whole, half, quarter and three-quarter turns.

Notes and guidance (Non-statutory)

Pupils make whole, half, quarter and three-quarter turns in both directions and connect turning clockwise with movement on a clock face.

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Year 2:

Number statutory requirements

Pupils should be taught to:

6. recognise, find, name and write fractions 1/3, ¼, 2/4, ¾ of a length, shape, set of objects or quantity
7. write simple fractions for example, ½ of 6 = 3 and recognise the equivalence of 2/4 and ½.

Notes and guidance (Non-statutory)

Pupils use fractions as 'fractions of' discrete and continuous quantities by solving problems using shapes, objects and quantities. They connect unit fractions to equal sharing and grouping, to numbers when they can be calculated, and to measures, finding fractions of lengths, quantities, sets of objects or shapes. They meet ¾ as the first example of a non-unit fraction.
Pupils should count in fractions up to 10, starting from any number and using the ½ and 2/4 equivalence on the number line (for example, 1¼, 1 2/4 (or 1½), 1¾, 2). This reinforces the concept of fractions as numbers and that they can add up to more than one.

Geometry – position and direction statutory requirements

Pupils should be taught to:

8. use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between *rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise)*.

Notes and guidance (Non-statutory)

Pupils use *the concept and language of angles to describe 'turn' by applying rotations, including in practical contexts (for example, pupils themselves moving in turns, giving instructions to other pupils to do so, and programming robots using instructions given in right angles)*

Statutory requirements as set out above; where they are addressed in the pack:

	Statutory guidance as numbered above							
	1	2	3	4	5	6	7	8
Section 1: Fractions we already know	■	■						
Section 2: Why do we need fractions?	■	■	■					
Section 3: Finding fractions of shapes	■	■	■	■	■	■		
Section 4: Working out fractions of amounts	■	■				■	■	
Section 5: Using fractions to describe routes				■	■			■
Section 6: Recognising equivalent fractions	■	■				■	■	

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Section 4: Working out fractions of amounts (Statutory requirements covered: 1, 2, 6 & 7)

Purpose: To understand that we can find fractions of a set of objects. To begin to use sharing as a method for dividing.

Starters and light bites

All about us:

- Ask eight children to stand in front of the rest of the class. Ask the children to consider describing the group as a fraction. Begin by asking the children what fraction of the group is boys? Remind the children of how when describing the fraction of a shape covered they first looked at the total number of parts it was shared into. In this case there are eight in the total group so that will give us the denominator. Then the numerator is the number of children who meet the criteria, in this case the number of boys.

- Repeat the activity asking the class to describe the group in different ways for example: What fraction are girls? What fraction has glasses? What fraction has brown hair? What fraction has blonde hair? What fraction is wearing school uniform? Record all fractions on the board and separate children into groups to show the fractions. Record also the fraction of the other group which when added to the separated group makes up the whole.

Sticks and stones:

- Take the children outdoors and ask them to collect four items each. The items could be sticks, stones, leaves etc. Partner up the children and ask them to put their collections together to give them eight objects. Now ask them to sort into similar items and arrange on the ground. Ask each pair to decide what fraction of their group are stones, what fraction are sticks etc. Remind the children that the total group of objects will give them the denominator and the amount of each item they have the numerator.

- Ask the children to look round at each other's collections. Ask the children to find a pair that has the same fraction as them, a larger fraction or a smaller fraction using different items, for example find a pair with a larger fraction of stones than you.

Stand up, sit down:

- Count the number of children in the class and then ask one child to stand up. Explain that we could say this as '1 out of 30' and we can also show this as a fraction e.g. 1/30. Ask the children to describe how many people are sitting down by 'how many out' of and also as a fraction. Repeat with other amounts, making it simpler until you have ½and ¼.

Mains

Empty your RUCSAC:

- Remind children or introduce them to the RUCSAC approach when solving problems:

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Read the problem carefully and identify the important information.

Understand what it is you have to find out.

Choose the right operation and method to solve the problem.

Solve the problem taking care you follow all the steps in your method.

Answer the question!

Check your answer perhaps by working backwards or doing the inverse operation.

- Model the process working through the following problem:

  There are ten biscuits in a packet. Harvey eats half of them. How many are left?

  Ensure that the children are able to identify the whole group and what fraction of the group they are looking for. Encourage the children to use sharing as a method for division.

- Work through several other examples, Resource 23611: Fraction RUCSAC provides several to choose from.

New discoveries:

- Present the children with a set of mini beasts: frogs, ladybirds, butterflies, for example. These can be simple line drawings, doctored photographs, plastic toys or use Resource 23612: Mini-beasts sorting cards which provides some examples. It is important that there are some similarities between the creatures as well as some differences for example size, colour, number of spots or stripes.

- With each of the groups of mini beasts begin by counting the total number in the group and explain that this will form the basis for describing the fractions. For each set ask the children to describe a feature as a fraction of the whole group. For example, if you have a group of five frogs and three are large then this can be described as three fifths of the frogs are large or as three out of the five are large. Ask children to record the fractions as they describe them. Common mistakes are to describe fractions as fourths or fives so it may help to recap on the correct terms.

Sweet treats:

- Present the children with a set of ten wine gums type sweets. Ask for individuals to come and sort the sweets into colours. For each of the colours describe the amounts as a fraction out of ten. For an extension task look at fractions where it is possible to simplify the fraction further for example five tenths. Here draw attention to the fact that five is half of ten so the simplest way to describe the fraction is as a half.

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- Working in small groups, give each table a pot containing sweets (Refreshers, Smarties or Skittles for example) and enough empty pots for the number of colours of sweets. Ensure that the amounts easily divide into halves and quarters. As a group, ask the children to count up the different colours and place them into the plastic pots labelling each with the fraction of sweets contained within it. Resource 23613: Sweet fractions contains an independent sweet free task.

The X Fraction:

- On the board draw a four by four array of circles. Ask the children to work out how many circles are in the whole group by using their multiplication fact knowledge rather than counting.

- Rub out two of the circles replacing them with X's. Ask the children to tell you the fraction of circles which are missing. Remind them to express the fraction out of the total number of circles that were there initially. Repeat removing and replacing different numbers of circles with X's.

- Repeat the activity using different arrays and each time prompting the children to use their multiplication facts rather than counting to total the starting amount. As an extension, where applicable, demonstrate how fractions can be reduced to their simplest for ½ and ¼. Again link back to multiplication facts.

Puddings

Fraction races:

- Working in small teams of three or four set up races where children have to collect bean bags from hoops. Place twelve bean bags in a hoop a distance away from the starting line, one set for each team. Ask the children to race one at a time to collect the bags. Pose fraction challenges for the number of bags you want them to collect. The first team to get back and sit down with the correct number of bags is the winner.

Fraction people:

- Ask a child to come to the whiteboard and draw a set of ten stick people. Then ask other individuals to come and add items to a given fraction of the drawings. For example: Give half of them hats or 2/10 of them walking sticks.

Extra portions

- Using SATs style question, work through examples, using the RUCSAC approach, where the children are required to work out more than a single fraction. For example:

  You need to organise a school trip. You have three minibuses and a class of twenty nine children and one teacher. Split the class up into three groups. Work out how many people are in each minibus and what fraction of the whole group is in each minibus.
  If two children are away and you now have four minibuses what will the number in each bus now? What fraction is in each minibus?

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If 3/4 of the group need to go to the museum first how many children is that?

Here you will need to demonstrate how first the children need to calculate ¼ and multiply or add to find three.

Doggie bag

- Ask the children to find a collection of objects at home: marbles, fruit in a fruit bowl, biscuits. Challenge them to group the items by colour, size or type and to record the fraction in each group. They could draw a picture or take photographs to show their groupings which can then be added to a fractions display.

Resources contained within Section 4

Teachit sample

Read

Read the problem carefully and identify the important information.

Understand

Understand what it is you have to find out.

Choose

Choose the right operation and method to solve the problem.

Solve

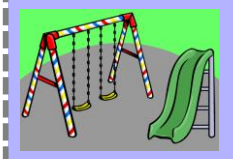
Solve the problem taking care you follow all the steps in your method.

Answer

Answer the question!

Check

Check your answer perhaps by working backwards or doing the inverse operation.



There are 8 children playing in the park. Half of them go home. How many children are left in the park now?

There are 6 pages in my book. If I have read half of my book, how many pages have I read?

Charlie has 12 colouring pencils. He gives ½ of them to his brother. How many did he give away?

There are 20 sweets in a packet. If I eat a quarter of them how many are left in the packet?

If Nicola eats a quarter of the cake and Isabel eats half of the cake how much cake is left?

At a party, ¼ of the guests are in the kitchen and ¼ are in the garden. The number of people in the garden is 6. How many people are at the party altogether?

An orange has 20 segments. If I ate a quarter how many segments did I eat? What fraction is left and how many segments is that?

A small box of apples is 4kg and a large box is 8kg. What fraction of the large box is the small box?

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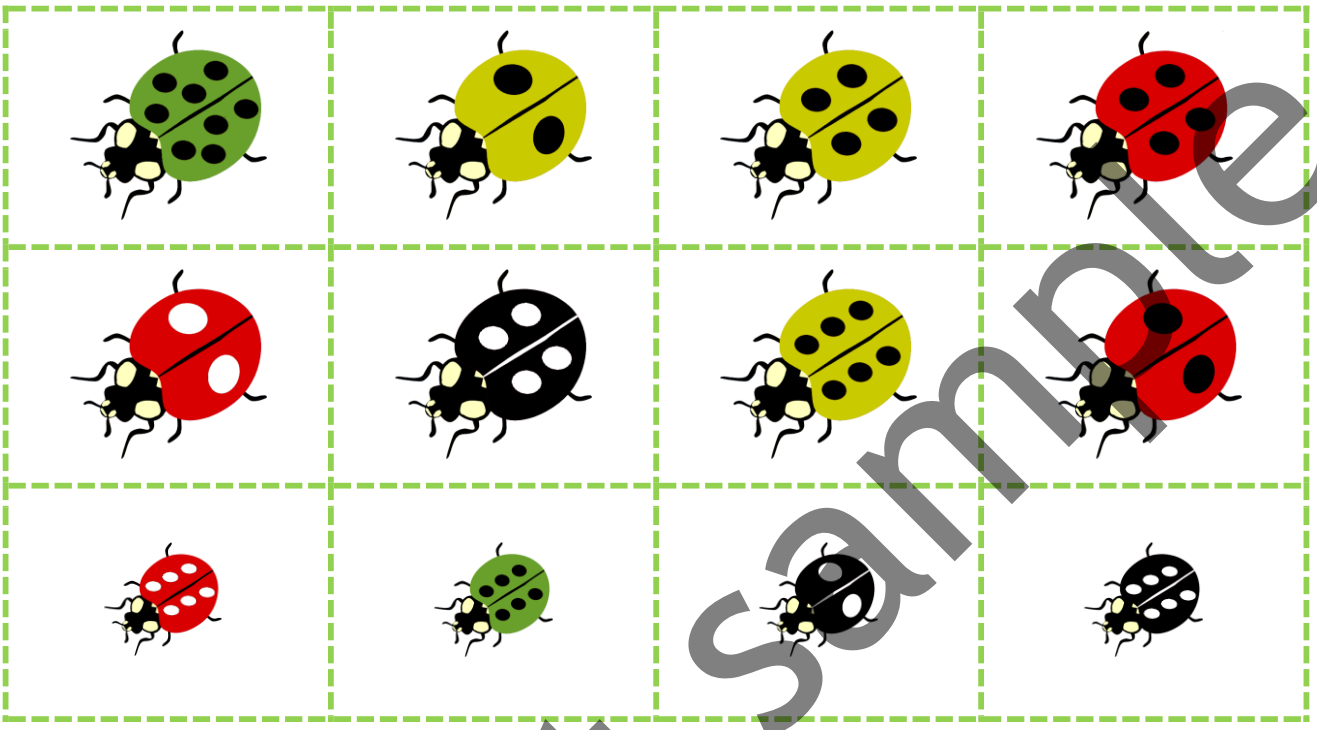
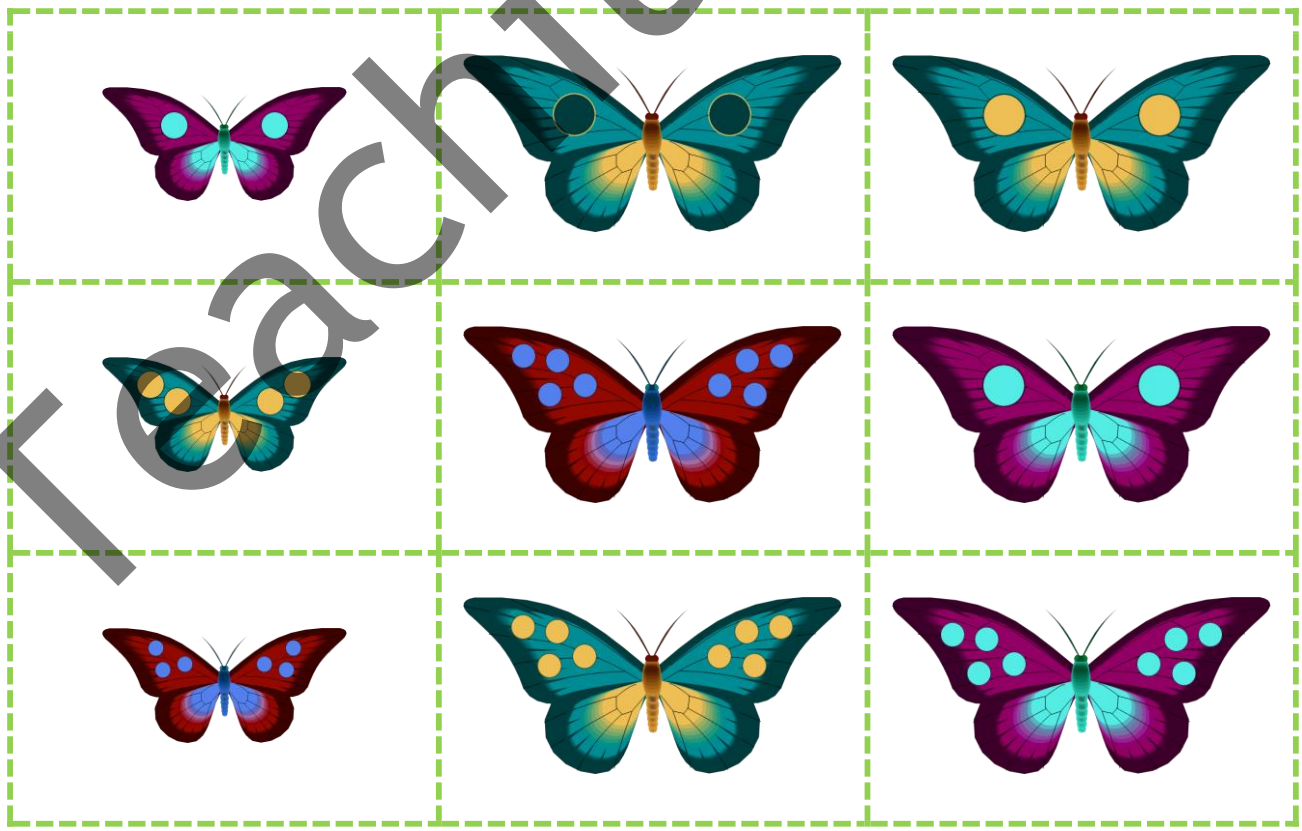
Teaching notes

Use the mini-beast cards to sort the animals using different features such as size, colour or spots. Describe the number of animals showing each feature as a fraction.

Ladybird sorting cards



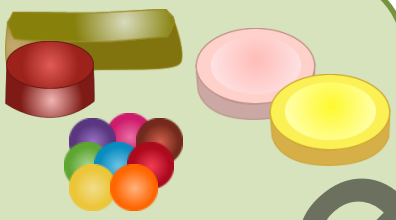
Butterfly sorting cards



Teachit sample

Name: ..... Date: .....

Work out the fraction for each colour of sweets.



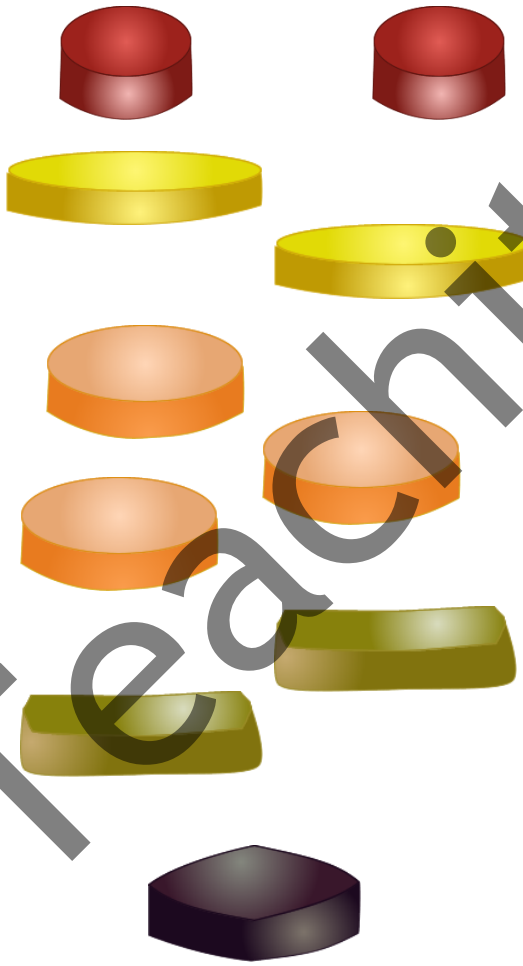
Step 1: Count the total number of sweets.

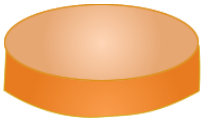
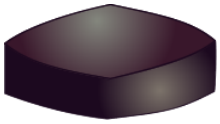
Step 2: Record the number of sweets for each colour.

Step 3: Write the total number of sweets as the denominator (the number on the bottom).

Step 4: Write the number for each colour of sweet as the numerator (the number on the top).

Count the wine gums and record each colour as a fraction.

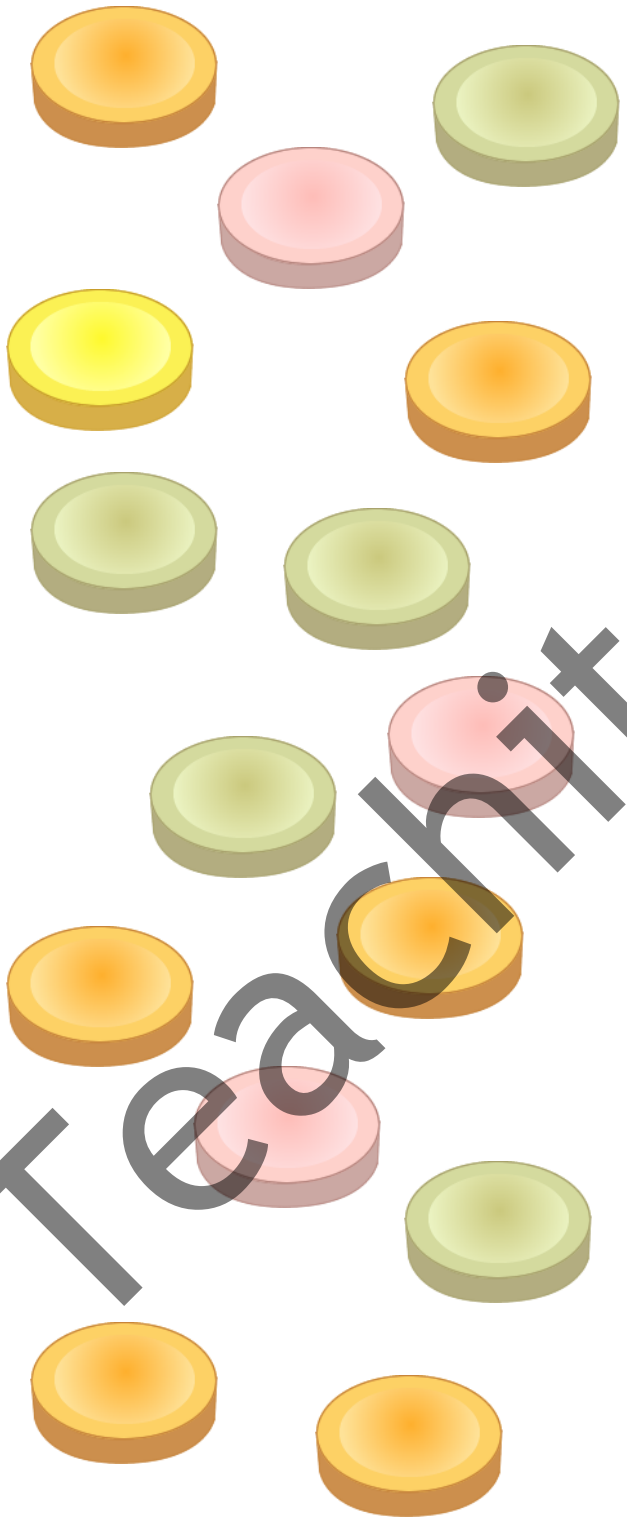


Colour	Number of sweets	Fraction of sweets
red 		
yellow 		
orange 		
green 		
black 		

Teachit sample

Name: ..... Date: .....

Count the Refreshers and record each colour as a fraction.



Colour	Number of sweets	Fraction of sweets
yellow 		
pink 		
orange 		
green 		

Teachit sample

Name: ..... Date: .....

Count the Smarties and record each colour as a fraction.

Colour	Number of sweets	Fraction of sweets
red		
yellow		
orange		
blue		
green		
purple		
brown		
pink		

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