



Fractions - Collections

2.3.6

Word Wall: fractions part parts, group, groupings, evenly, unevenly, divide, share among

Introduction

Students will explore halves, quarters and eighths using collections, comparing number of parts to the size of a fraction.

Resources

- Counters
- Grouping circles
- Plates



Time / Classroom Organisation

Each section of this activity may be introduced in a small group as a 20 minute focussed teaching and learning event. Students will need many opportunities to recognise, describe and split collections into fractions.

Australian Curriculum---Year Two

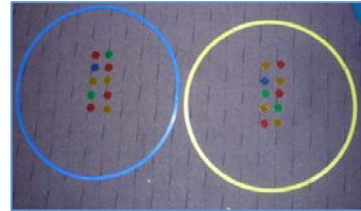
Recognise and interpret common uses of halves, quarters and eighths of shapes and collections ([ACMNA033](#))



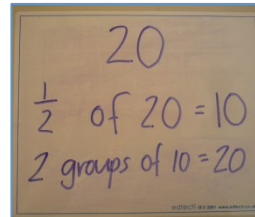
Activity Process--- Collections --- half

1. Provide a pile of 20 counters and 2 grouping circles.
2. Ask students to count the counters.
3. Ask students: *How would we work out how many is half of these counters?*

4. Model with the students the dividing of counters into two grouping circles, thus making half.



5. Record the fraction in written form, explaining where the numbers have come from and if we add the two halves back together they would equal the beginning number.



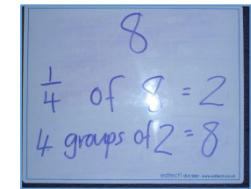
6. Repeat with different numbers of counters.



Activity Process – Collections – quarters

1. Ask students: *What do you know about quarters?*
2. Discuss with students how many sections a whole is divided into when using quarters --- 4
3. Provide students with a collection of equal objects.
4. Provide students with 4 plates to sort the objects into.
5. Divide the shells unevenly between the four plates.
6. Ask students: *Is this correct? Why? Why Not?*
7. Discuss that the shells need to be evenly distributed.

8. Model to the students dividing the collection evenly amongst the 4 plates to divide the collection into quarters.
9. Record this fraction in written form.



10. Repeat with several different numbers of collections.



Activity Process – Collections – eighths

1. Using the students previous knowledge of halves and quarters. Ask students: *How many groups will we need to divide these toys in eighths?*
2. Ask students: *Does anyone know what the answer will be? How will we work it out.* Discuss equal and uneven distribution of the toys.
3. Assist students will dividing the groups of toys into eighths.



4. Record this fraction in written form, explaining where the numbers have come from and that when we add up all the fractions groups they must equal the number of objects that we started with.
5. Repeat activity using different numbers.



Catholic Education
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Learning with Faith and Vision

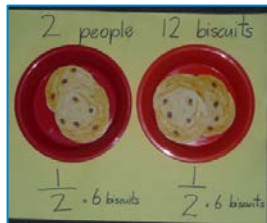
Variations & Extensions

1. The Doorbell Rang

Resources: The Door Bell Rang Picture book, 12 cookies, 12 paper plates

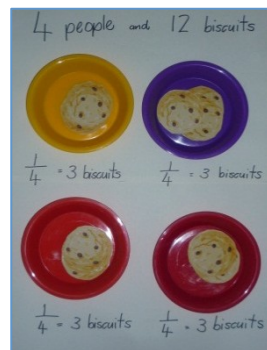
First read the story: "The Doorbell Rang" to the students.

Tell students that this story is about fractions. As each fraction appears in the story – stop and using the cookies and the plates demonstrate the fraction for the students.



Discuss with students the number of cookies and the number of students that they need to be divided between.

Continue to stop and create new fractions as the story progresses.



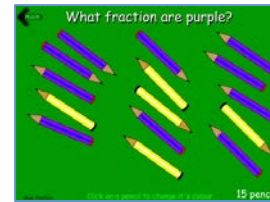
2. Uneven Collection

Resources: Collection of manipulative and bowls
Repeat the focused teaching and learning activities but with uneven numbers and discuss the collection that is left over once divided.

Digital Resources

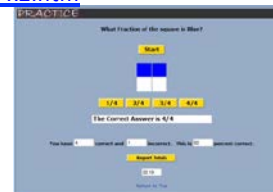
<http://www.topmarks.co.uk/Flash.aspx?f=WhatFractionnv3>

Teaching Resource for the dividing of collections into Fractions.



http://www.aaamath.com/fra16_x2.htm

Students match the area representations to the written fraction.



Contexts for Learning

Play:

Concentration: Play concentration with the Fraction Equivalence Cards

Investigation:

Ask students inquiry based questions such as: *If Joe received 1/4 of the lollies and he was given 6. How many lollies would there be altogether? Or Sam had half of the toy cars. He had 5 cars. How many cars altogether?* Allow students to use hands on materials to solve problems.

Real life experience:

When separating the class into groups for small group activities. Instead of saying – I need four even groups. Ask the students to split the class into quarters.

Routines and Transitions:

Each morning count the number of students that are in attendance and ask student to split themselves into either halves, quarters or eighths. Discuss what is left over.

Assessment

Provide students with a collection of an even number of counters. Ask students to split the counters in half, quarters or eighths.

Achievement Standard: divide collections and shapes into halves, quarters and eighths.

Background Reading

The idea that things can be partitioned or split into parts of equal size underpins the fraction concept. Students need extensive experience in splitting a diverse range of discrete and continuous wholes into equal-size parts. Collections (discrete quantities) can be shared into equal parts by dealing out or distributing, while objects can be shared into equal parts by cutting, folding, drawing, pouring and weighing. ...Students should become flexible in partitioning and develop the following ideas.

Equal parts need not look alike, but they must have the same size or amount of the relevant quantity.

When splitting a whole into equal parts, the whole should be completely used up.

Regardless of how we partition, the whole remains the same amount.

The more shares something is split into, the smaller each share is".

Source: First steps in Mathematics – Number – Understand Fractional Numbers, 2007. Rigby: Port Melbourne. p 104.

Year three NAPLAN Numeracy test links

- Fractions

Links to Related MAGs

- 1.2.5 Fractions – half 1.3.7 Fractions – 2
- 1.4.7 Fractions – 3 2.1.7 Fractions – Area and Linear
- 2.4.1 Division – halving 3.2.7 Fractions – 1
- 3.3.6 Fractions – 2



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