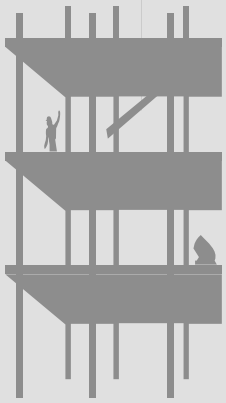


LEARNING PLANS

LEARNING AND ASSESSMENT FRAMEWORK ZONE 2

INTRODUCING TARGETED INTERVENTIONS

LIST OF TARGETED INTERVENTIONS

LOTSA LIDS

PAINT SPILL

MULTIPLICATION TOSS

EXPLORING FACTS

A CUP CAKE COLLECTION

PAINTING PROPORTIONS

FOLDING FRACTIONS

A TALE OF TWO SPREADS

LOTSA LIDS

Specific Teaching Focus:

To introduce **more efficient strategies for counting groups** by developing place-value based strategies.

Materials/Resources Required:

- An increasingly large collection (in the hundreds) of juice and milk bottle lids (collected over time)

How to Implement:

1. Ask students to bring in juice and milk bottle lids throughout the year.

2. Each month, after estimating the number in the collection, ask students to count the collection. Each time, before counting discuss suitable methods to use, and after counting, review the suitability and efficiency of the method used.

3. Discuss with students that efficient ways to count large collections, that is, by using countable units of 10. Eg. stacks or piles of ten counted by 2s, 5s, or 10s. The count of ten being the countable unit.

Follow up suggestions:

- For a given number of tops. Eg. 40, ask students what would the length be if the 40 tops are placed in a line, edge to edge, without gaps between?

- For a given number of tops, Eg. 50, what would the height of 50 bottle tops be if stacked on top of each other?

- How could we work out the length and height from the two previous investigations if we had only one bottle top?

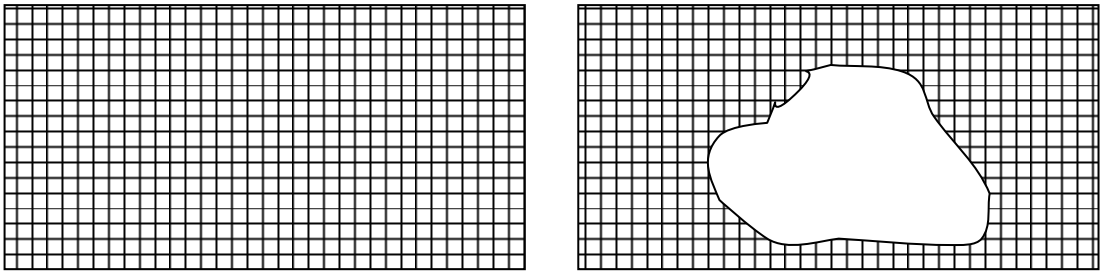
PAINT SPILL

Specific Teaching Focus:

To introduce **efficient strategies for solving problems where arrays and regions only partially visible.**

Materials/Resources Required:

- A3 size blank grid paper and irregular shaped paper cut-outs to act as a paint spill (see below)



How to Implement:

1. Use a blank A3 size grid paper (see above) to model a tiled floor.
2. Have a piece of paper to "throw" onto the grid to represent a paint spill on the tiles (see above).
3. Tell students, *"The paint has stained the tiles and these will need to be replaced. How many tiles do we need to buy?"*
4. Encourage students to look for arrays within the paint-spill area and use strategies other than counting by ones to determine the total.

MULTIPLICATION TOSS

Specific Teaching Focus:

To introduce **using arrays and regions (communicative principle)** by developing the relationship between 3 fours and 4 threes.

Materials/Resources Required:

- 1cm square grid paper
- Square counters or coloured pencils/textas

- Two 6 or 10 sided dice

How to Implement:

1. Teacher models the roll of two dice for the class. Eg. A 3 and a 6 are thrown, this can be used to construct 3 sixes or 6 threes (3 rows of 6 or 6 rows of 3).

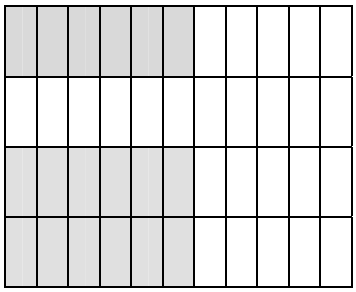
2. Using the counters or colouring in, the teacher places (or draws) an array on a grid to show this. Teacher explains that students will take turns to roll the 2 dice and construct (or record) arrays accordingly, progressively filling up the grid paper.

3. Students then take turns rolling the dice for themselves and record their rolls on their own grid, trying to cover their grid. Eventually the space on the grid paper will decrease, eg, What if it won't fit as 3 sixes? Can it be placed as 6 threes?

4. After a time limit has expired, see who has managed to cover the most of their array grid.

Follow up suggestions:

- Students can split a turn if this strategy will be more useful. Eg. 3 sixes can be placed on the grid as 1 six and 2 sixes (see below). This will help fill in some of the smaller gaps.



EXPLORING FACTS

Specific Teaching Focus:

To introduce **informal division strategies** – through organising a collection into different arrays to further understand the relationship between multiplication and division.

Materials/Resources Required:

- Counters
- Stickers

How to Implement:

1. Provide each student with 24 counters. Ask, *"How many different ways can you share these 24 counters evenly with no counters left over?"*
2. Ask students to display their thinking with the counters and record as arrays using stickers on a card or in workbooks. Label the arrays. Eg. 8 threes or 3 eights for 8 rows of 3 or 3 rows of 8 respectively.
3. Repeat with other collections. Eg. 36 and 48.

A CUP CAKE COLLECTION

Specific Teaching Focus:

To introduce **informal division strategies** through sharing collections into a given number of groups and using the think multiplication strategy.

Materials/Resources Required:

- Cup cake worksheet (see below)
- Counters
- Plates or serviettes

How to Implement:

1. Distribute a cup cake worksheet to students and explain they are going to share each tray of cupcakes equally with friends. Counters are used to model each situation (taken in turn). Students having difficulty can be given the appropriate number of 'plates' to put the counters on.

2. There are 12 cupcakes on each tray.

   Share the 1st tray with 4 people. Discuss *"4 whats? are 12."*

   Share the 2nd tray with 3 people. Discuss *"3 whats? are 12."*

   Share the 3rd tray with 2 people. Discuss *"2 whats? are 12."*

   Share the 4th tray with 6 people. Discuss *"6 whats? are 12"*

   Based on sharing with counters, students can show their understanding by cutting and pasting the printed cup cakes into their books, and describe their thinking using as much mathematics as possible. Eg. "*I can share 12 cupcakes with four people and each person gets 3 cakes. I know that 4 threes are 12."*

PAINTING PROPORTIONS

Specific Teaching Focus

To introduce **simple proportion problems** through the use of non-numerical comparisons.

Materials/Resources Required:

- Food dye
- Eye dropper
- 500ml measuring jug
- Cups for students to mix water and dye
- Water
- Paintbrushes
- Paper strips (10cm)

How to Implement:

1. Varying amounts of food dye with a set amount of water is used in order to see how the density of colour changes as more food dye is added. The suggested amount of water is 50ml. Food dye can be added by drops.

   Teacher paints some strips. For example, one strip painted with 50ml of water and 1 drop of dye, and another strip painted with 50ml water and 8 drops of dye. (Note: keep the ingredients secret).

2. Students have 50ml of water to which they add food dye drop by drop. They paint strips each time they add a drop and try to match the density of colour on the strips to those the teacher has provided. Recording for each trial, how many drops were added.

3. Students write about and illustrate what they did, what they noticed and which two proportions best match the teacher's example and why they think this.

Follow up suggestions:

- This activity could also be done using two colours of paint - for example, mixing yellow paint with an increasing proportion of red paint.

FOLDING FRACTIONS

Specific Teaching Focus:

To introduce **practical experience with both continuous and discrete, 'real-world' fraction models.**

Materials/Resources Required:

- Coloured kinder squares
- Play dough
- Icy pole sticks

How to Implement:

1. Supply students with coloured kinder squares.
2. Teacher holds a coloured kinder square and asks students, *"How can this be folded in half?"*
3. Showcase examples with the group. Discuss, number of parts, different shapes and the need for equality. Use this as an opportunity to look for any misconceptions.
4. Repeat this process for quarters. Ask students to explain their strategy for creating quarters. Eg. *"I halved and halved it again."*
5. Using play dough and icy pole sticks, teacher asks, *"If I want to cut my play dough in half, what do I need to do?"* Discuss cutting shapes in two. Cut different shapes, make some unequal to stimulate discussion of the need for equal parts.
6. Allow children to make their own shapes (eg, sausages, cakes) with the play dough and explore partitioning to show half.
7. Repeat this process for quarters.
8. Ask students to write about that they did and what they noticed.

A TALE OF TWO SPREADS

Specific Teaching Focus:

To introduce **practical experience with both continuous and discrete, 'real-world' fraction models.**

Materials/Resources Required:

- Salada biscuits
- Spreads
- Tray of baked slice

How to Implement:

1. Working with a small groups of students, teacher takes a Salada biscuit and spreads one half with Vegemite and asks, What fraction of the biscuit has Vegemite on it?
2. Spread peanut butter on a quarter of it, ask What fraction is left?
3. This activity can also be conducted using a slice of bread which lends itself to thirds.
4. Discuss with the students how these shares can be described. Eg. half, 2 quarters, 1 third. The focus is on the language, recognizing that formal recording comes later.

Follow up suggestions:

- A small group of students can work together to make slice for afternoon tea.
- The slice is then used to support the following scenario: *"Let's look at what happens when we cut this slice, so that we all get a piece."* As the teacher cuts the slice (into progressively smaller parts) encourage students to observe and talk about what they notice.

  (For this activity, it's better to use something like slice in a tray rather than cutting a piece of paper, because each time the paper is cut, each piece looks like one whole).

  This activity will facilitate understanding of the generalization that as the number of parts increases the size of the part decreases or gets smaller.