

# LAMINGTONS

## Lesson 2: Sharing Lamingtons

### Australian Curriculum: Mathematics (Year 5)

**ACMNA102:** Compare and order common unit fractions and locate and represent them on a number line.

**ACMNA103:** Investigate strategies to solve problems involving addition and subtraction of fractions with the same denominator.

### Lesson abstract

Students are presented with the story of four different groups of children sharing different numbers of lamingtons. They are asked to determine if the children in any group received a greater share of lamington than in other groups. Students use unit fractions to compare quantities.

### Mathematical purpose (for students)

We will explore efficient strategies to compare fractional quantities.

### Mathematical purpose (for teachers)

Students learn that unit fractions are fractions with a numerator of one. They use unit fractions to compare fractions. Students apply their knowledge that fractions represent division to determine fair share amounts.

Suggested presentation    One lesson of one hour

Vocabulary encountered

- unit fractions

Lesson materials

- Chart paper and markers

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We value your feedback after this lesson via our website.

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# Introduction

Present students with slide 2 of PowerPoint *2a Sharing Lamingtons*, which tells the story of a class of 24 students participating in the lamington activity from Lesson 1.

This class had three lamingtons on the first table, four lamingtons on the second table, five lamingtons on the third table and six lamingtons on the fourth table. The 24 students came into the room one at a time and chose where to stand. The final result was:

- Five children shared three lamingtons equally
- Five children shared four lamingtons equally
- Six children shared five lamingtons equally
- Eight children shared six lamingtons equally

Pose the problem: *do the students in any one group get the same amount of lamington as the students in another group? Which group of students gets the most lamington each? How do you know?*

## Exploration

Allow students to explore the problem in pairs or groups. Have students create a poster of their reasoning.

### Possible Strategies

#### Strategy 1

- Students divide each lamington into the same number of parts as children. For example, for *five children shared three lamingtons equally*, each lamington is cut into fifths and each child gets  $\frac{1}{5}$  of each lamington. This means each child will get three  $\frac{1}{5}$  of a lamington, or  $\frac{3}{5}$ .

Using this strategy students will see that:

- Five children sharing three lamingtons equally will get  $\frac{3}{5}$  each.
- Five children sharing four lamingtons equally will get  $\frac{4}{5}$  each.
- Six children sharing five lamingtons equally will get  $\frac{5}{6}$  each.
- Eight children sharing six lamingtons equally will get  $\frac{6}{8}$  each.

#### Strategy 2

- Students cut the lamingtons in half and share the halves equally. The students then cut the remaining halves into smaller parts and share these parts. For example, for *4 children shared 3 lamingtons equally*, each lamington is cut in half and each child gets  $\frac{1}{2}$  of a lamington. The final two halves are cut in half again to create four quarters and each child gets  $\frac{1}{4}$  of a lamington. This means each child will get  $\frac{3}{4}$  of a lamington.

Using this strategy students will see that:

- Five children sharing three lamingtons equally will get  $\frac{1}{2} + \frac{1}{10}$  each.
- Five children sharing four lamingtons equally will get  $\frac{1}{2} + \frac{1}{5} + \frac{1}{10}$  each.
- Six children sharing five lamingtons equally will get  $\frac{1}{2} + \frac{1}{3}$  each.
- Eight children sharing six lamingtons equally will get  $\frac{1}{2} + \frac{1}{4}$  each.

Ask students to compare each group to determine which students got the largest share of lamingtons. Students may use a number line to compare the size of unit fractions.

# Class discussion

Select students who used the two different strategies to present their working to the class. Alternatively, use Jef and Zina's strategies in PowerPoint *2a Sharing Lamingtons*.

Discuss:

- **Strategy 1** shows that fractions represent division:

3 shared between 5 is equal to  $\frac{3}{5}$

$$3 \div 5 = \frac{3}{5}$$

- **Strategy 2** breaks the shares down into unit fractions, i.e. fractions with a numerator of 1. Unit fractions make it easy to compare who got the most lamington. Explore the idea that the **larger** the denominator, the **smaller** the piece.

## Teacher Note

- The Ancient Egyptians represented all fractions as the sum of unit fractions. NRICH has a lesson on this, available [here](#).