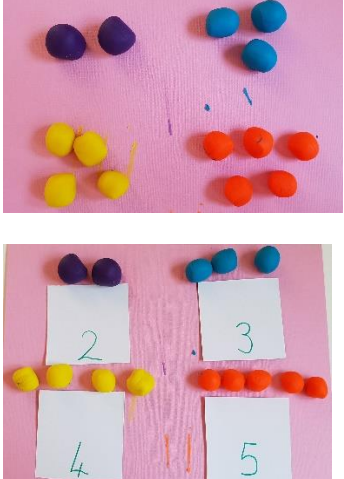|	
Lesson Plan:	Year 3 Fractions, decimals and percentages
Curriculum Links:	**Year 3** We are learning to model and represent unit fractions including $\frac{1}{2}, \frac{1}{3}, \frac{1}{4},$ and $\frac{1}{5}$ and their multiples to complete a whole (ACMNA058)
Lesson Purpose:	To understand the denominator indicates the number of even pieces the whole is cut into so the larger the denominator, the smaller the unit fraction when compared with other unit fractions.
Learning Intention:	We are learning to make, compare and order common unit fractions and explain their order
Success Criteria:	You will: • Create unit fractions with a range of denominators • Write corresponding unit fractions • Order physical representations of unit fractions • Explain the placement of the unit fractions with reference to denominators
Materials:	Play dough (each student needs the same amount of play dough) Play Doh party packs are excellent for this activity as they have a range of colours. Post-it Notes
Teaching Sequence:	

|		
	$\frac{1}{12}, \frac{1}{3}, \frac{1}{8}, \frac{1}{50}$	(A unit fraction is any fraction where the numerator is '1' so $\frac{1}{2}, \frac{1}{3}, \frac{1}{4},$ and $\frac{1}{5}$ are all unit fractions.) Say, "*Today we are going to explore unit fractions, the following fractions are unit fractions.*" Write 4 unit fractions on the board in any order. Ask, "*What do you notice about these fractions? They are all unit fractions. Why do you think they are referred to as unit fractions?*" The responses you are after is that they all have a numerator of '1' Ask, "*Can you write some unit fractions?*" Get students to record some of their unit fractions on the board, checking that they are unit fractions.
		Say, "*Today we're using the physical size of denominators (represented by the play dough) to compare unit fractions.*" • Each student in a group of four is given a container of play dough. The amount of play dough each student has must be the same so the party packs of play doh are ideal. They come in a multitude of colours and it is preferable that each student in the group has a different colour.
		• Ask student to compare the amount of dough they each have; do they agree they have the same amount? **This is important as they will be comparing with each other.** • Students now cut their dough into given fractions; one cuts theirs into halves, the rest into thirds, fourths, or fifths. • Discuss how they are each doing this, what do they need to keep in mind about each share, how they can ensure each fraction is fair. • What does the denominator represent? (*the number of piece the dough was shared into*) • On a post-it note, have each student record the number of pieces they cut their play-doh into.

Lesson Plan: Year 3 Compare and order common unit fractions and their multiples

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- Say "*This is the denominator, which indicates the number of **equal** parts the whole was split into.*"
- Say "*Draw a line above the denominator. This line is called the fraction bar or the division bar. It is also called the vinculum, but we will refer to it as the fraction bar.*"
- Say, "*To begin with, we are concentrating on only one of the equal parts, so write a **1** on the fraction bar. This digit is referred to as the numerator.*"
- Say, "*The fraction you have written is called a **UNIT** fraction. Any fraction that has **1** as its numerator is a unit fraction. When we are discussing a unit fraction we are only look at 1 part of the whole, the size of the part is determined by the size of the whole*"
- Check each student has written their unit fraction correctly.

- Ensuring the dough is rolled into balls, ask the group to now order the balls from smallest to biggest.
- Ask "*What do you notice?*" "*Is $\frac{1}{5}$ or $\frac{1}{2}$ bigger?*"
- At this point I can guarantee some students will still say $\frac{1}{5}$.
- Say, "*Look at your row of play-dough. Which one is the smallest? Which one is the biggest?*"
- Ask the group to come up with a reason why the $\frac{1}{5}$ is smaller than the $\frac{1}{2}$. (the play-dough balls were all the same size to begin with but we cut them into different numbers of equal pieces. $\frac{1}{2}$ was only cut into 2 pieces while $\frac{1}{5}$ was cut into 5 pieces therefore $\frac{1}{5}$ is smaller than the $\frac{1}{2}$)

- Ask each student to place their unit fraction under their dough.
- Ask, "*What do you notice about the denominators?*" "*If I gave you the unit fractions $\frac{1}{10}, \frac{1}{8}$ and $\frac{1}{12}$ how would you order them?*"

Guided Practice 1		
		https://nzmaths.co.nz/resource/who-has-more-cake Robyn wants $\frac{1}{5}$ of a cake. Dale wants $\frac{1}{8}$ of a cake. Who will eat more cake?" Give out the fraction pieces and let the students model fifths and eighths. Discuss which fraction is bigger. Record "One-eighth is less than one-fifth," and "One-fifth is greater than one-eighth" on the board or modelling book, and underneath record "$\frac{1}{5} > \frac{1}{8}$".

Lesson Plan: Year 3 Compare and order common unit fractions and their multiples

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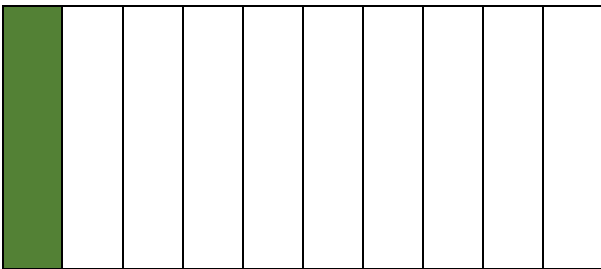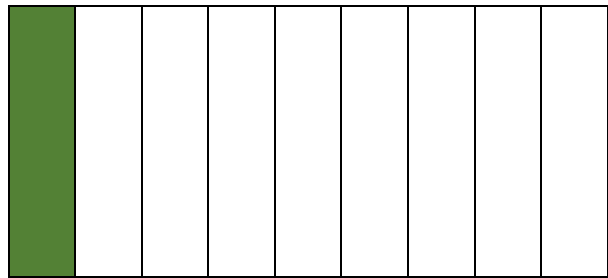| Independent Practice		Worksheet: cut out and laminate. Students arrange cards face down. Student 1: Turn over 3 cards and arrange from smallest to largest. Record unit fractions in order on mini-white board. Student 2: Checks by lining up cards under each other according to the order given by student 1. If there is disagreement, Student 2 explains to Student 1 why they think it is not correct. If they can not agree, teacher decides. When both students agree, turn cards over and student 2 picks 3 cards and repeats.
Possible Misconceptions:		Frequently, students still think of a fraction as 2 whole numbers, one on top of the other. This misconception isn't helped if we talk about the fractions as 1 over 3, which is describe the parts of the fractions, or even 1 out of 3, as even though this is separating out the numerator and denominator into individual units. A fraction is a unit in of itself so try to use the correct fractional name for example: one third. Students who continue to see the numerator and denominator as two separate units will apply their prior knowledge around whole numbers it the fraction, saying for example a fifth is bigger than a half because they are comparing the 5 and 2 not $\frac{1}{5}$ and $\frac{1}{2}$
Reflection		Exit card
Resources		https://nzmaths.co.nz/resource/who-has-more-cake

NAME:_____

Write the unit fractions represented under each of diagram.

Write the unit fractions in order from smallest to largest.
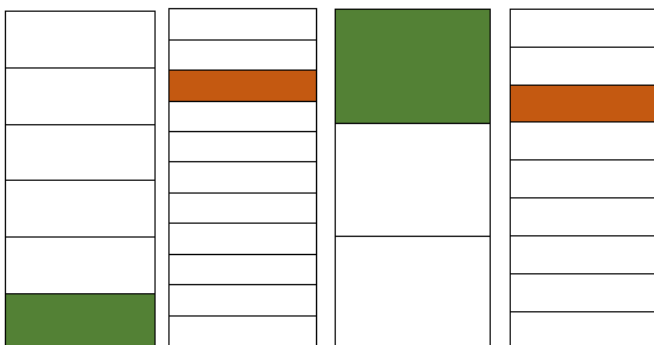
Order smallest to biggest:

_____ , _____ , _____ , _____

Worksheet: cut out and laminate.

Students arrange cards face down from Set A

Student 1: Turn over 3 cards and arrange from smallest to largest. Record unit fractions in order on mini-white board.

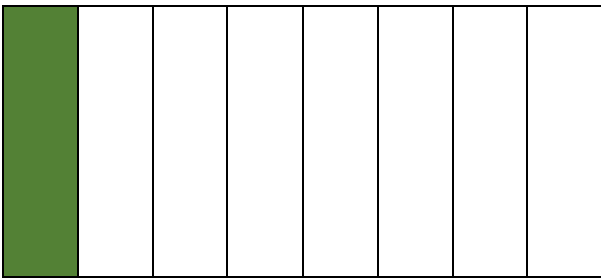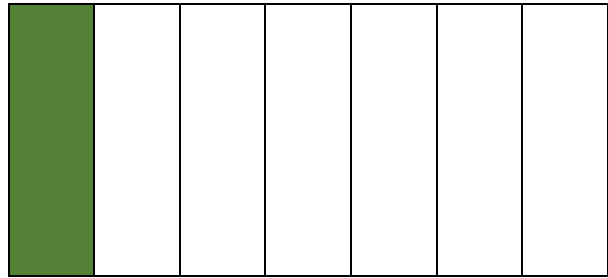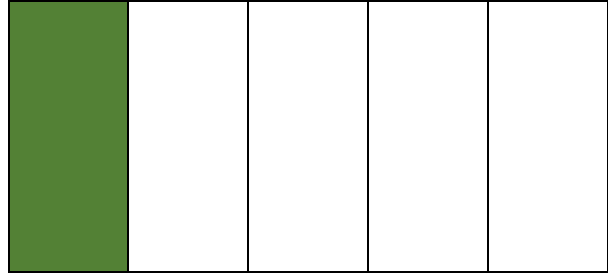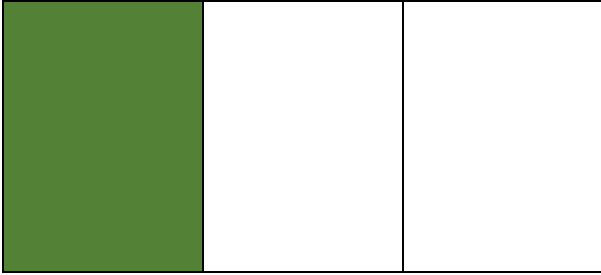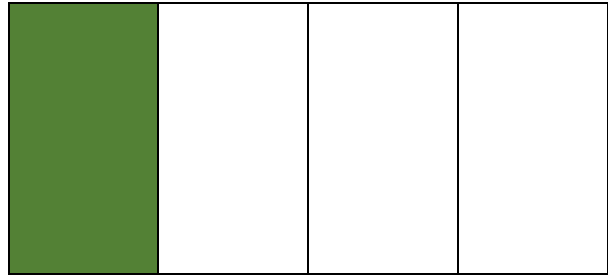Student 2: Checks by lining up cards under each other according to the order given by student 1.
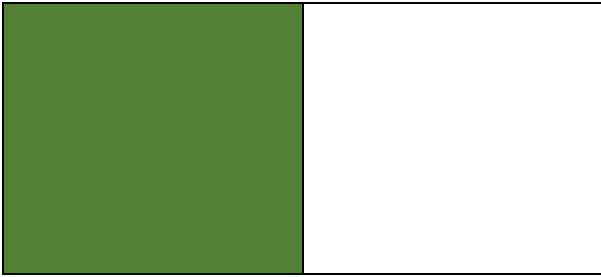
If there is disagreement, Student 2 explains to Student 1 why they think it is not correct.

If they can not agree, teacher decides. When both students agree, turn cards over and student 2 picks 3 cards and repeats.

When confident with Set A, play with Set B

SET A

SET B