TOP

The Power and Joy of Hands-on Numeracy
www.toptenmaths.com

Fractions Unit 3

Recommended for Year 3 and Year 4

Equivalence

Real-Life Numeracy Years 3-6

Planning Package

Sequential units with hands-on, real-life numeracy for Year 3, Year 4, Year 5 and Year 6 students

Ten years of development time in Australian classrooms.

Genuinely high engagement and conceptual understanding in middle to upper primary numeracy.

Comprehensive differentiation for wide ranges: Pre-planned and workable enabling and extending prompts for every lesson.

High-impact, high-relevance professional learning on a daily basis to support planning.

Comprehensive diagnostic and formative assessments to target each sequential point-of-need.

Please note: It is not intended for teachers to attempt to deliver every lesson in this sequence, nor read the unit in full.

Units are designed as **a menu of options**, depending on the points-of-need for each class, with enabling and extending prompts included for every lesson.

Please choose lesson options based on assessed points-of-need (units are directly linked to the assessments), using either Top Ten's or other **strategy-focused diagnostic pre-assessments.** We recommend avoiding multiple-choice/click-the-answer tests, as numeracy as a discipline grows students' reasoning and thinking skills, ability to explain and show strategies, as well as deep conceptual understanding – answers alone are not the ultimate goal, or a worthy aspiration without student reasoning.

Please also select lessons that best suit students' interests and your own creativity and passion. Units are designed to share the wisdom of practice, while respecting and safeguarding the professional role of the teacher as the ultimate best judge of what students need.

Adjust how many lessons you deliver based on student progress throughout the unit, which can be tracked using the formative assessment folder.

Fractions Unit for Year 3 and Year 4
Unit 3   Equivalent Fractions
Hyperlinked Table of Contents

Warm-up Games: Race to 3 Wholes, Chocolate Bar Fractions, 12 Pack, Equivalence Snap, Equivalence Bingo, Fair or Unfair Game

Lesson Sequence   Underlined lessons are highly recommended

**Every year
Lesson 1 –
Part A**
Construct
your own
Fraction
Wall
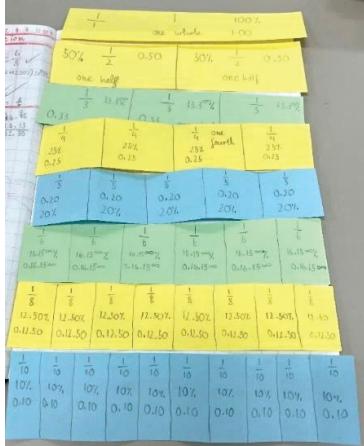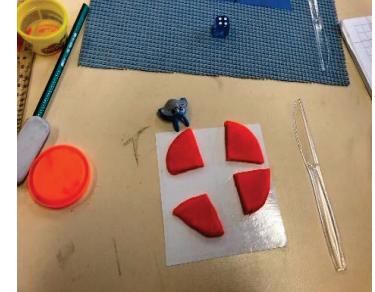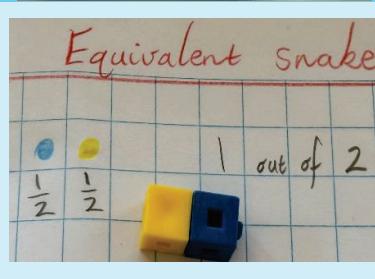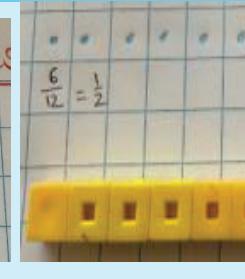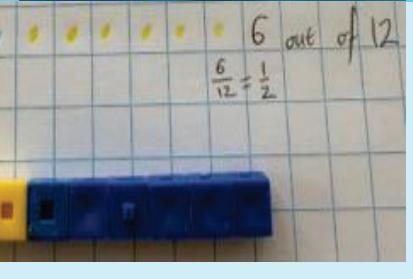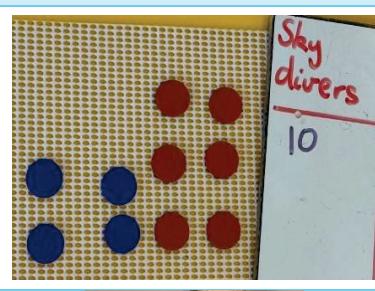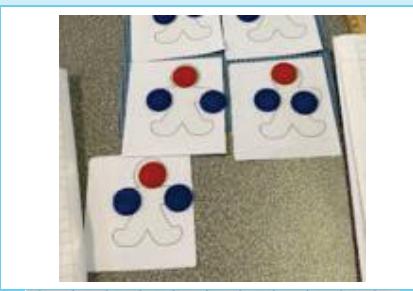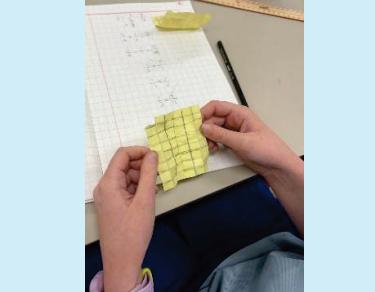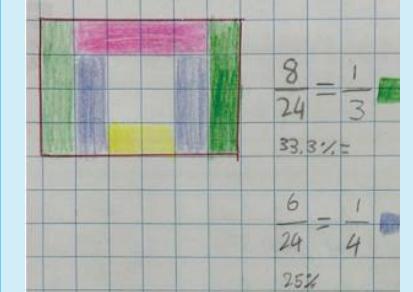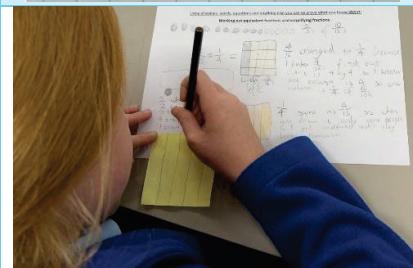
**Lesson 1 –
Part B**
Notice
Equivalence
within your
Fraction
Wall
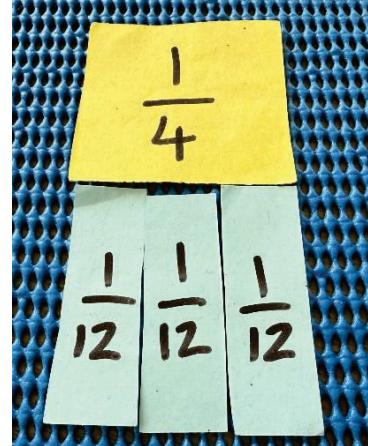
Lesson 1 – Part C

Fraction Stackers – one of the highest impact and visually clear representations of fractions that exists

Lesson 2A Equivalence with the Circle Model <u>Pages 79-99</u>		**Lesson 2B** Slice of Bread Challenge <u>Pages 100-105</u>	
<u>**Lesson 3**</u> Equivalent Snakes <u>Pages 106-116</u>			
<u>**Lesson 4A**</u> Fraction Skydivers <u>Pages 117-133</u>		<u>**Lesson 4B**</u> Critical Suit up your Skydiver! <u>Pages 134-145</u>	
Lesson 5 I like to FOLD IT! <u>Pages 146-163</u>		**Lesson 6** Equivalent Fraction Flags <u>Pages 164-175</u>	
Lesson 7 Lego Equivalence <u>Pages 176-182</u>		**Reflection Journals** <u>Pages 183-185</u>	

Fractions Unit for Year 3 and Year 4 Equivalent Fractions – Unit 3

Curriculum Links for the following lessons

This unit is recommended for Year 3 and Year 4 students.

Australian Curriculum V9 AC9M3N02 and Victorian Curriculum Version 2.0 (VC2M3N03)
Number – Level 3: Recognise and represent unit fractions including
1/2, 1/3, 1/4, 1/5 and 1/10 and their multiples in different ways; combine fractions with the same denominator to complete the whole

- recognising that unit fractions represent equal parts of a whole; for example, one-third is one of 3 equal parts of a whole

- representing unit fractions and their multiples in different ways; for example, using a Think Board to represent three-quarters using a diagram, concrete materials, a situation and fraction notation

- cutting objects such as oranges, sandwiches or playdough into halves, quarters or fifths and reassembling them to demonstrate (for example, two-halves make a whole, four-quarters make a whole), counting the fractions as they go

- sharing collections of objects, such as icy pole sticks or counters, between 3, 4 and 5 people and connecting division with fractions; for example, sharing equally between 3 people gives 1/3 of the collection to each and sharing equally between 5 people gives 1/5 of the collection to each

Australian Curriculum V9 AC9M4N03 and Victorian Curriculum Version 2.0 (VC2M4N03)
Number – Level 4: Find equivalent representations of fractions using related denominators and make connections between fractions and decimal notation

- extending fraction families within collections of materials, for example, by seeing 3/4 as 3 in each 4, showing this within related fractions like 6/8 or seeing that 2/5 means 2 in each 5 so it can be shown within 4/10

- creating models of equivalent fractions by subdividing capacity measures into smaller fractions; for example, half a cup of flour could be shown as two-quarters or four-eighths of a cup of flour

- folding paper to show equivalence between different fractions; for example, folding A4 paper in half and half again, repeating to form eighths and demonstrating that 4/8=2/4=1/2 ; or folding paper strips into fifths and tenths, and recording as both fractions and decimals

- identifying and using the connection between fractions of metres and decimals; for example, finding 1/4 of a metre and connecting this to 0.25 metres or 25 centimetres, or finding 1/10 of a metre and connecting this with 0.10 metres or 10 centimetres
- using array diagrams to show the relationship between fractions and division and multiplication of natural numbers, for example, 3 × 4 = 12, 12 ÷ 4 = 3, 1/4 of 12 is 3, 1/3 of 12 is 4

Australian Curriculum V9 AC9M4N04 and Victorian Curriculum Version 2.0 (VC2M4N04)
Number – Level 4: Count by multiples of quarters, halves and thirds, including mixed numerals; locate and represent these fractions as numbers on number lines

- cutting objects such as oranges or sandwiches into quarters and counting by quarters to find the total number, and saying the counting sequence 'one-quarter, two-quarters, three-quarters, four-quarters or one-whole, five-quarters or one-and-one-quarter, six-quarters or one-and-two-quarters … eight-quarters or two-wholes ...'

- subdividing the sections between whole numbers on parallel number lines so that one shows halves, another shows quarters and one other shows thirds; and counting the fractions by jumping along the number lines, and noticing when the count is at the same position on the parallel lines

- converting mixed numerals into improper fractions and vice versa, and representing mixed numerals on a number line

- using a number line to represent and count in tenths, recognising that 10 tenths is equivalent to one

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New WA Curriculum – Number and Algebra – Understanding Number – Year 3: Recognise, represent and describe unit fractions $\frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \frac{1}{5}$, and $\frac{1}{10}$. Combine unit fractions with the same denominator to create a complete whole.

New WA Curriculum – Number and Algebra – Understanding Number – Year 4: Explore and represent common equivalent fractions and make connections to their decimal representation.

NSW Maths Syllabus – Stage 2 – Partitioned Fractions B

Partitioned fractions B

Model equivalent fractions as lengths
- Represent the equivalence of fractions with related denominators as lengths, using concrete materials, diagrams and number lines
- Recognise the need to have equal wholes to compare partitioned fractions (Reasoning about relations)
- Represent fractions with the same-size whole to make valid comparisons (denominators of 2, 4 and 8; 3 and 6; 5 and 10)

Represent fractional quantities equal to and greater than one
- Rename 2 halves, 3 thirds, 4 quarters, 5 fifths, 6 sixths, 8 eighths and 10 tenths as one whole
- Regroup fractional parts beyond one
- Represent totals of halves, thirds, quarters and fifths that extend beyond one
- Determine the relative location of one-quarter and one-half when a number line extends beyond one

Formative Assessment

A formative assessment cross-check is available in this unit's folder, including progressive learning goals and success criteria to keep track of growth for each unit.

This includes a grid template or a notes template, whichever the teacher prefers.

Students	'out of' language L2-L4 3-6 UNIT 1	Halves, quarters eighths L2 EARLY YEARS UNIT 2	See and name in real-life L3 3-6 UNIT 2	Count by fractions L4 UNIT 2	Place on number lines L4 UNIT 2	Equivalence to one whole L3 UNIT 3	Equiva lence to half L4 UNIT 3	Improper to mixed, mixed to improper L4 UNIT 4	Connect fractions to division L5 UNIT 5	Comparing fractions strategies L5 L6 L7 UNIT 5	+ and - same denom L5 UNIT 6	+ and - related denom L5 UNIT 6	Connect fractions to decimals and % L5 and L6 UNIT 7	Fraction of a quantity L6 UNIT 8	Common discounts (50%, 25%, 10%) L6 UNIT 8	Any % discount or increase L7 UNIT 8	x L7 U9	÷ L7 U10

Formative Assessment – Ongoing Cross-Check – Years 3-6 Fractions Units 1-10

| Focus: Visualising, explaining and making sense of fractions	Term __ Weeks ____	CODES: Record these codes when you see a student applying this skill: **OUT OF:** 'Out of' language **NUMLINE:** Placing on number line **COUNT BY:** Counting by fractions, including above one whole **= 1** Equivalence to one whole **= ½** Equivalence to half **MIX/IMPROP:** Convert improper fractions and mixed numbers **COMPARE:** Visualises, uses benchmarks (½), reasoning to compare **+/- SAME DENOM** **+/- REL DENOM:** Add related denominators **CONVERT TO % AND DECIMALS:** Think $1 strategy **FRAC QUANT:** Calculate a fraction of a quantity **% discounts** **x** Multiply fractions **÷** Divide fractions
Student	Student	Student ... Student ... Student
Student	Student	Student ... Student ... Student

Reflection Journals

A fractions reflection journal set of templates is also available, although we most highly recommend students using their **own maths reflection journals on an ongoing basis**.

These are used as notes to their future forgetful self during reflections, as well as glossary pages at the start of units.

Ideally, students start their maths journal in a small, plain paper (no lines, no grids) neatly presented notebook in year 3, and carry it along every year (handed over to the next teacher) up to year 6, then graduate with it, taking it across to secondary school.
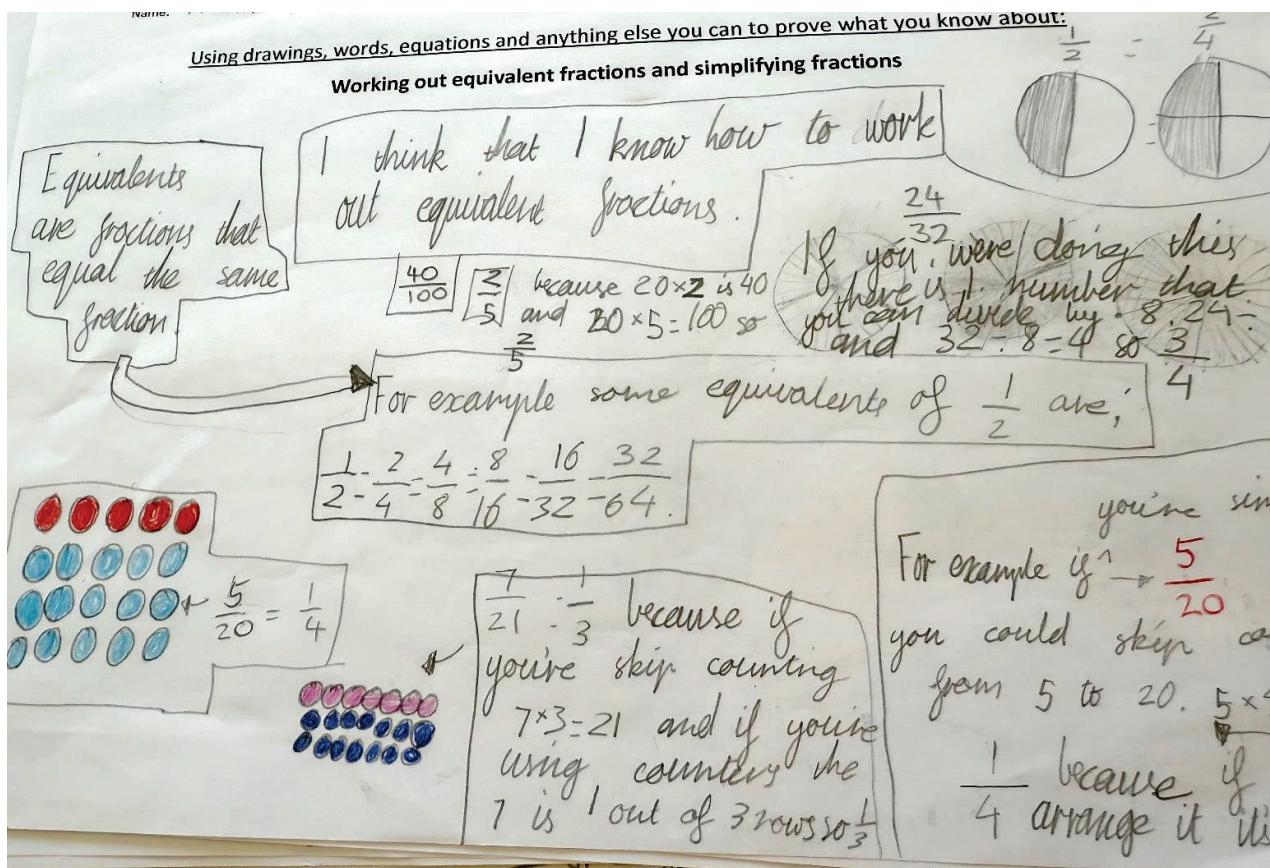
See more examples within the final reflection section of this unit plan.