

Number and Operations - Fractions: Grade 4

Stage 1 Desired Results

ESTABLISHED GOALS:

Competencies:

- **Students will demonstrate the ability to apply number sense by comparing rational numbers in various forms.**
- **Students will demonstrate the ability to solve arithmetic and algebraic problems by utilizing effective strategies and applying properties of operations to multi-digit whole integers and to fractions.**

Content Standards:

- 4.NF.1 Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.
- 4.NF.2 Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as $1/2$. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model.
- 4.NF.3 Understand a fraction a/b with $a > 1$ as a sum of fractions $1/b$.
- 4.NF.4 Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.
- 4.NF.5 Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100.2 For example, express $3/10$ as $30/100$, and add $3/10 + 4/100 = 34/100$.
- 4.NF.6 Use decimal notation for fractions with denominators 10 or 100. For example, rewrite 0.62 as $62/100$; describe a length as 0.62 meters; locate 0.62 on a number line diagram.
- 4.NF.7 Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual model.
- MP2 Reason abstractly and quantitatively.
- MP3 Construct viable arguments and critique the reasoning of others.
- MP6 Attend to precision.

Transfer

*Students will be able to independently use their learning to **express quantities, measurements, and number relations in different ways, with precision.***

Meaning

ENDURING UNDERSTANDINGS

Students will understand that...

- fractions and decimals allow for quantities to be expressed with greater precision than with just whole numbers.
- attending to precise detail increases reliability of mathematical results and minimizes miscommunication of mathematical explanations.

ESSENTIAL QUESTIONS

- ***Would life be different without fractions and decimals?***

Acquisition

Students will know...

- that fractions and decimals allow us to make sense of situations that involve numbers that are not whole.
- that fractions and decimals allow for quantities to be expressed with greater precision than with just whole numbers.
- that there is relationship between a fraction and the decimal.

vocabulary:

fraction, numerator, denominator, common denominator, benchmark fraction, unit fraction, mixed number, equivalent fraction, multiple, decimal, decomposing, composing, like denominator, unlike denominator

Students will be skilled at...

- recognizing equivalent fractions by identifying common factors.
- generating equivalent fractions by multiplying the numerator and denominator of a fraction by the same number.
- explaining why two fractions are equivalent by relating visual fraction models to multiplying the numerator and denominator of a fraction by the same number.
- finding a common denominator of two fractions.
- comparing two fractions with different numerators and denominators using standard symbols, and justifying the comparison.
- decomposing a fraction into a sum of fractions with the same denominator in more than one way.
- adding or subtracting fractions with like denominators.
- adding or subtracting mixed numbers with like denominators.
- multiplying a fraction by a whole number.
- rewriting an expression involving multiplication of a fraction and a whole number.

- MP7 Look for and make use of structure. - MP8 Look for and express regularity in repeated reasoning.		- converting a fraction in tenths to an equivalent fraction in hundredths. - adding two fractions with unlike denominators of 10 and 100 using equivalent fractions. - expressing a fraction with a denominator of 10 or 100 as a decimal. - comparing two decimals through the hundredths using standard symbols, and justifying the comparison.
Content Area Literacy Standards		21st Century Skills
not applicable		<i>solve problems</i> <i>reasoning effectively</i>

Stage 2 - Evidence

Evaluative Criteria	Assessment Evidence
	PERFORMANCE TASK(S):
	OTHER EVIDENCE:

Stage 3 – Learning Plan

Summary of Key Learning Events and Instruction

Language Arts Integration	Mathematics Integration
1.OA.1 Use	not applicable
Technology Integration	District Materials
1.OA.1 Use	

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