Mathematics: Grade 3

Overview

In grade one, students count up to 120 and read and write numbers within that same range.[1.NS.1] This extends to 1,000 in grade two[2.NS.2] and by grade three students are expected to read and write whole numbers up to 10,000.[3.NS.1] Students in grade four read and write numbers within 1,000,000.[4.NS.1] This progression of counting and writing numbers from kindergarten through grade four supports students' place value understanding and builds access for broad operational fluencies, first additive and then multiplicative. The use of place value in grade three to extend counting structures, round numbers, and build fluency in operations also helps support decimal work in later grades, which extends to hundredths in grade four[4.NS.5-6] and to thousandths in grade five.[5.NS.1]

The grade three *Number Sense* domain also focuses on developing understanding of fractions as numbers, which begins with a focus on unit fractions.[3.NS.2] It also includes representing and comparing fractions and understanding the idea of fraction equivalence.[3.NS.3-5] Grade three fraction standards build on the fractional language which was developed in the *Geometry* and *Measurement* standards of earlier grades and continues in the *Geometry* standards of grade three.[3.G.3] Through models and language, students learn the importance of noting the part in terms of the whole and explaining the meaning of equal parts. By grade four unit fractions are seen as the building blocks of all other fractions. Students who understand the meaning of a fraction beginning in grade three and can utilize various fraction models will have more access to later operational work such as adding and subtracting fractions with like denominators in grade four[4.CA.6-8] and multiplying and dividing fractions in grade five.[5.CA.7-8]

<table>
<tr><th colspan="2">Number Sense</th></tr>
<tr><td>Learning Outcome</td><td>Students represent and round whole numbers up to 10,000. Students model, compare, and generate simple equivalent unit and non-unit fractions.</td></tr>
<tr><td>Standard</td><td>3.NS.4: Use fraction models to represent two simple equivalent fractions with attention to how the number and size of the parts differ even though the quantities are the same. Use this principle to generate simple equivalent fractions (e.g., 1/2 = 2/4, 4/6 = 2/3).</td></tr>
<tr><th>Evidence Statements</th><th>Academic Vocabulary</th></tr>
<tr><td>Use concrete and visual fraction models to explore and represent simple equivalent fractions.
Explore and represent simple equivalent fractions on a number line.
Use concrete and visual fraction models to demonstrate and explain how two fractions are</td><td>Fraction model
Equivalent fraction
Numerator
Denominator
Model
Number line</td></tr>
</table>

equivalent regardless of the differences in size and number of parts. ● Given a simple fraction, use a model to generate an equivalent fraction.	
Clarification Statements	**Common Misconceptions**
● The use of various concrete and visual models such as fraction strips, pattern blocks, number lines, and area models allows students to explore the idea of fraction equivalency. ● Fractions should be limited to those with denominators of 2, 3, 4, 6, and 8. ● Generating equivalent fractions includes simplifying fractions. The use of linear models such as fraction strips and number lines helps students visualize fractions in the simplest terms. Teachers should be cognizant to not use the term “reducing fractions” as the fractions are not being reduced, only an equivalent is being found. ● Grade three Integrated STEM standards 3.AM.1 and 3.AM.2 integrate well with this standard.	● Students may believe that fractions with more parts represent larger quantities; fractions with fewer parts represent smaller quantities.
Looking Back	**Looking Ahead**
This concept is not specifically addressed in the Indiana Academic standards prior to this grade level.	**4.NS.3:** Use fraction models to represent two equivalent fractions with attention to how the number and size of the parts differ even though the fractions themselves are the same size. Use this principle to generate equivalent fractions. [In grade 4, limit denominators of fractions to 2, 3, 4, 5, 6, 8, 10, 25, 100.] (E)

Instructional Resources

- Implementing the Mathematics Process Standards: Grades Three through Five
- Mathematics Grades 2-3 Vertical Articulation Guide
- Mathematics Grades 3-5 Vertical Articulation Guide
- Learning Progressions & Content Supports: Grade 3 through Grade 5
- Illustrative Math-Jon and Charlie’s Run
- Illustrative Math-Snow Day
- Tools for Teachers-Understanding Equivalent Fractions: Halves (Login Instructions)
- Mathigon-Equivalent Fractions with Pattern Blocks
- Open Middle-Equivalent Fractions
- Graham Fletcher-The Progression of Fractions
- Illustrative Mathematics-Equivalent Fractions Video

- Polypad/Amplify-Interactive Fraction Models Tutorials

Universal Supports for All Learners

- 2024 Content Connectors
- Universal Design for Learning Playbook
- UDL Guideline Infographic, from Learning Designed
- UDL Tips from CAST
- Mathematics Learning Recovery Series: Part 2-Addressing the Gaps in Student Learning
- Mathematics Learning Recovery Series: Part 3-Instructional Strategies for All Learners

Instructional Strategies

- What Works Clearinghouse-Concrete-Semi-Concrete-Abstract Video (Print Recommendations)
- What Works Clearinghouse-Clear & Concise Mathematical Language Video (Print Recommendations)
- NYSED-Frayer Vocabulary Model Scaffolding Example & Template
- Magma Math: Math Teaching Practices
- Problem Solving Instructional Support
- WIDA-Doing and Talking Mathematics: A Teachers Guide to Meaning-Making with English Learners
- Virginia Department of Education Students with Disabilities in Mathematics Frequently Asked Questions

Assessment Considerations

- ILEARN Test Blueprint: Mathematics 2025-2026 (Spreadsheet)
- ILEARN Test Blueprint: Mathematics 2025-2026 (PDF)
- IDOE Released Items Repository
- I AM - Indiana's Alternate Measure
- Quality Mathematic Items for Classroom Assessments (Featuring New ILEARN Item Specifications)
- UDL Assessment Strategies

Interdisciplinary Connections

Coming Soon

Disciplinary Literacy

Coming Soon

Contact IDOE's Office of Teaching and Learning with any questions.