

Connections to the Common Core State Standards for Mathematics (CCSSM)

"The Case of Victoria Bill and the Bubble Gum Task"

Standards for Mathematical Content

Domain: Number and Operations – Fractions (NF)

Cluster: *Develop understanding of fractions as numbers.*

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| 3.NF.1 | Understand a fraction $\frac{1}{b}$ as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction $\frac{a}{b}$ as the quantity formed by a parts of size $\frac{1}{b}$. |
| 3.NF.2 | Understand a fraction as a number on the number line; represent fractions on a number line diagram. |
| 3.NF.2a | Represent a fraction $\frac{1}{b}$ on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into b equal parts. Recognize that each part has size $\frac{1}{b}$ and that the endpoint of the part based at 0 locates the number $\frac{1}{b}$ on the number line. |
| 3.NF.2b | Represent a fraction $\frac{a}{b}$ on a number line diagram by marking off a lengths $\frac{1}{b}$ from 0. Recognize that the resulting interval has size $\frac{a}{b}$ and that its endpoint locates the number $\frac{a}{b}$ on the number line. |
| 3.NF.3 | Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. |
| 3.NF.3a | Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line. |

Source: National Governors Association Center for Best Practices and Council of Chief State School Officers. (2014). *Common core state standards for mathematics*. Washington, DC: Authors. Retrieved from <http://www.corestandards.org/Math/Content/3/NF/>

Standards for Mathematical Practice (SMP)

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| 1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics. | 5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning. |
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SMP 3. Construct viable arguments and critique the reasoning of others.

Mathematically proficient students present their arguments in the form of representations, actions on those representations, and explanations in words (oral or written). In the elementary grades, arguments are often a combination of all three. Some of their arguments apply to individual problems, but others are about conjectures based on regularities they have noticed across multiple problems. As they articulate and justify generalizations, students consider to which mathematical objects (numbers or shapes, or example) their generalizations apply... Mathematically proficient students can listen to or read the arguments of others, decide whether they make sense, ask useful questions to clarify or improve the arguments, and build on those arguments. They can communicate their arguments, compare them to others, and reconsider their own arguments in response to the critiques of others.

SMP 5. Use appropriate tools strategically.

Mathematically proficient students at the elementary grades consider the tools that are available when solving a mathematical problem, whether in a real-world or mathematical context. These tools might include physical objects (cubes, geometric shapes, place value manipulatives, fraction bars, etc.), drawings or diagrams (number lines, tally marks, tape diagrams, arrays, tables, graphs, etc.), paper and pencil, rulers and other measuring tools, scissors, tracing paper, grid paper, virtual manipulatives or other available technologies. Proficient students are sufficiently familiar with tools appropriate for their grade and areas of content to make sound decisions about when each of these tools might be helpful, recognizing both the insight to be gained from their use as well as their limitations.

Source: Illustrative Mathematics. (2014, February). Standards for Mathematical Practice: Commentary and Elaborations for K–5. Tucson, AZ. Retrieved from <http://commoncoretools.me/wp-content/uploads/2014/02/Elaborations.pdf>