

DOG YARD FRACTIONS

Developed by:

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Discipline / Subject:

Math

Topic:

Fractions

Grade Level:

4th grade – can be adapted to other grade levels

Resources / References / Materials Teacher Needs:

1. Learn about dog house design first:
<http://itteacheronthetrail.com/2016/01/01/doghouse-design-with-musher-matt-failor/>
2. Students can watch Mary Helwig's Iditarod Insider video about her preparation for her rookie Iditarod year. The teacher needs an Insider subscription to be able to view the Iditarod video:
<http://iditarod.com/video/>

Lesson Summary:

Students will color and design a dog yard using directions with fractions.

Standards Addressed:

Common Core State Standards – CCSS

<http://www.corestandards.org/Math/Content/4/NF/>

Extend understanding of fraction equivalence and ordering.

CCSS.MATH.CONTENT.4.NF.A.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.

CCSS.MATH.CONTENT.4.NF.A.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.

Texas State Standards – TEKS

<http://ritter.tea.state.tx.us/rules/tac/chapter111/ch111a.html>

(3) Number and operations. The student applies mathematical process standards to represent and generate fractions to solve problems. The student is expected to:

(A) Represent a fraction a/b as a sum of fractions $1/b$, where a and b are whole numbers and $b > 0$, including when $a > b$;

(B) Decompose a fraction in more than one way into a sum of fractions with the same denominator using concrete and pictorial models and recording results with symbolic representations

Alaska State Standards – Language Arts

https://education.alaska.gov/akstandards/math/akstandards_math_081312.pdf

Number and Operations—Fractions 4.NF (limited in this grade to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100) Extend understanding of fraction equivalence and ordering.

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.

Learning Objectives:

1. Students will color in a dog yard sheet to show fractional representations.

Assessment:

1. The teacher will assess if the students followed the fraction directions correctly.
2. The teacher will assess how students colored the houses, roofs, and where they placed the dogs and bowls to see if they understood the fraction directions.

Procedural Activities

1. Students will review fractions and the teacher can share two web sites as a review:
<http://www.webmath.com/k8if.html>
<http://www.mathsisfun.com/fractions.html>
2. The teacher will hand out the dog yard fraction direction sheet to the students and review the expectations.
3. The teacher will hand out the blank dog yard sheet for students to color and draw on to create their own fraction dog yard.
4. The teacher can give out husky dog clip art, or students can draw their own in the appropriate places.

Materials Students Need:

1. Fraction dog yard direction sheet, and dog yard coloring sheet
2. Markers, crayons, or colored pencils

Technology Utilized to Enhance Learning:

3. Learn about dog house design first:
<http://itcteacheronthetrail.com/2016/01/01/doghouse-design-with-musher-matt-failor/>
4. Students can watch Mary Helwig's Iditarod Insider video about her preparation for her rookie Iditarod year. The teacher needs an Insider subscription to be able to view the Iditarod videos:
<http://iditarod.com/video/>

Other Information:

If students have a difficult time drawing a husky dog, you can print out small clip art pictures of a dog for them to glue down instead.

Modifications for Special Learners/ Enrichment Opportunities:**Modified:**

The teacher should model the first fraction to check for understanding. Students can work in partners to solve and fill in the dog yard sheet.

Enrichment:

For enrichment, students can create their own fraction problems for the dog yard sheet. They can challenge other students in the room to create a dog yard with their fractions. They can also create large fractions that require students to reduce them to their simplest form first.