DOG HOUSE GLYPHS

Developed by:

Laura Wright – 2016 Iditarod Teacher on the Trail™

Discipline / Subject:

Math

Topic:

Data collection/glyphs/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://itcteacheronthetrail.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 answer questions on a glyph chart, then use that data to create a dog house picture that will turn into one large kennel picture. Students will analyze the pictorial data and create a fraction chart.

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

(b) Knowledge and skills.
(1) Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:
(D) Communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate;
(E) Create and use representations to organize, record, and communicate mathematical ideas

(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 × a)/(n × 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 learn about data collection by answering a glyph.
2. The answers will be turned into a kennel picture and then a class bulletin board display.
3. The class will then analyze the data and use fractions to represent it.

Assessment:

1. The teacher will assess if the students filled in the glyph chart correctly and created the appropriate dog house.

Procedural Activities

1. Students will be given the dog house glyph sheet.
2. Students will answer each question choice and as they do, they will color the dog house with the appropriate colors.
3. Students will add their dog house, husky dog, and bowl to a large display.
4. They will put their husky dog and bowl in the appropriate place around the dog house, based upon their answers on the glyph.
5. When completed, the class will find the fractions that represent their pictures.
6. Then the class should reduce the fractions to their simplest form.

   Write fractions on a chart that show:

   Dogs on top of the houses, inside the houses, to the right or left, green or red houses, bowls on the right or left, and red or blue roof color

Materials Students Need:

1. Glyph chart to fill in
2. Markers, crayons, or colored pencils
3. Husky dog and bowl pictures or clip art, or drawing paper for students to create them

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:

I printed off clip art images of husky dogs and bowls for this activity, but students can draw them by hand.

Modifications for Special Learners/ Enrichment Opportunities:

Modified:

The teacher should make one about himself or herself first, to model for the class. Students can work in partners to help each other. The teacher should have the bowl and husky dog prepared and cut out for the student with special needs.

Enrichment:

Students can design their own dog houses first, based upon musher Matt Failor's information in the Teacher on the Trail post:

http://itcteacheronthetrail.com/2016/01/01/doghouse-design-with-musher-matt-failor/