Fractions in Context: Grades 3 to 5
Presented by Stephanie Penniman

MP3 Construct viable arguments and critique the reasoning of others.

“Mathematically proficient students understand and use stated assumptions, definitions, and previously established results in constructing arguments. They make conjectures and build a logical progression of statements to explore the truth of their conjectures. They are able to analyze situations by breaking them into cases, and can recognize and use counterexamples. They justify their conclusions, communicate them to others, and respond to the arguments of others. They reason inductively about data, making plausible arguments that take into account the context from which the data arose. Mathematically proficient students are also able to compare the effectiveness of two plausible arguments, distinguish correct logic or reasoning from that which is flawed, and—if there is a flaw in an argument—explain what it is. Elementary students can construct arguments using concrete referents such as objects, drawings, diagrams, and actions. Such arguments can make sense and be correct, even though they are not generalized or made formal until later grades. Later, students learn to determine domains to which an argument applies. Students at all grades can listen or read the arguments of others, decide whether they make sense, and ask useful questions to clarify or improve the arguments.”

From the Common Core State Standards for Mathematics for California Public Schools, K-12

Activities included in this packet

- **Sharing Cookies** (halves)
- **Geoboard Crazy Cakes** (fourths)
  3.G.2 Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole.

- **The Unusual Baker**
  4.MD.2 Use the four operations to solve word problems involving . . . money, including problems involving simple fractions or decimals.

  5.NF.2 Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem.

- **The Fabric Store**
  4.NF.4c Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem.

  5.NF.6 Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.
Sharing Cookies

Gabriela and Patricio made some very creative cookies and now they both want to taste them. Gabriela knows how much Patricio likes cookies and wants to share the cookies evenly. Cut each cookie in half so the children each get to taste exactly the same amount of each cookie.
Geoboard Crazy Cakes

Toni and Sammy created crazy cakes on their geoboards. Cut each cake into 4 equal parts. Prove your answers by labeling each part.

Toni’s “Prancing Horse” cake

Sammy’s “Happy Birthday, Mom” cake
The Unusual Baker

George is a retired mathematics teacher who makes cakes. He likes to cut the cakes differently each day of the week. On the order board, George lists the fraction of the piece, and next to that, he has the cost of each piece. This week he is selling whole cakes for $10 each.

Determine the fractions of each piece of cake and how much each costs if the whole cake is $10.
The Fabric Store

Fatima and Janessa wanted to make hand puppets, so they went to the fabric store.

“Look,” said Fatima. “Here are the three colors we need: red, blue, and yellow.”

“Yes,” said Janessa. “If we buy $\frac{5}{6}$ of a yard of each color, we will have just the right amount of felt.”

“Hmmm,” asked Fatima. “Then how much money will we pay the cashier if felt is $12$ a yard?”
Geoboard Designs

Name of polygon: _______________
Area = _____________ square units

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Area = _____________ square units