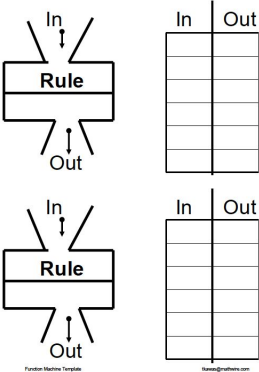


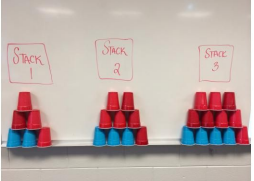
UNIT	BIG IDEA	QFOCUS	EXPECTED QUESTIONS	POSSIBLE PRODUCTS
Math Practice Standards see below for expanded plan	Logical reasoning, addition	Bucky Badger--to practice norms for discussion and group work, Math Practice Standards http://mrmeyer.com/threeracts/buckytheadger/	How many push-ups does Bucky do? How many touchdowns did the team score? How many field goals?	-Small group and whole group discussion throughout -Demonstrate process and solution with poster, Explain Everything, journal/log, etc.
Unit 1	Addition/ Subtraction	Sugar and Calories per Fountain Drink http://www.101qs.com/index.php	What is the difference in calories between size of fountain drink?	Small group/ whole group discussion. Create poster.
Unit 2 see below for expanded plan	Patterns	Cup Stacking http://www.101qs.com/2718-cup-stacking Building Stairs http://www.101qs.com/2602-bulding-stairs-	How many red cups in the next shape? Blue cups? Can you write a rule? Can you make new numbers to fit, or continue the pattern?	-Extend patterns, create new pattern -Create number patterns -Write a formula to apply to the pattern
Unit 2	Patterns	Function Machine http://www.101qs.com/1748-the-function-machine	What happens to the numbers? Can you write a rule? Can you prove your rule true? Can you make new numbers to fit the rule?	-Create own function machines - input/output tables. http://www.mathwire.com/templates/functionmachinemplate.pdf  -Measurement Conversions input/ output table

<p>Unit 2 Multiplication</p>	<p>Developing Understanding with multi-digit multiplication and division</p> <p>Factors and multiples</p>	<p>Hot Dogs & Buns (robertkaplinsky.com) http://robertkaplinsky.com/work/how-many-hot-dogs-and-buns-should-he-buy/</p> <p>Extension: what if you need to serve 100 people? How many packages of hot dogs and buns?</p>	<p>How many hot dogs come in a package?</p> <p>How many hot dog buns come in a package?</p> <p>What might happen if you buy one package of hot dogs and one package of hot dog buns?</p> <p>How might that make someone feel?</p> <p>What is a guess that is too low?</p> <p>What is a guess that is too high?</p> <p>What is your best guess?</p>	<p>Extensions can come from questions students created, especially if they diverge from your focus topic (time).</p>
<p>Unit 4 Multiplication</p> <p>QFT shared in Drive</p>	<p>Developing Understanding with multi-digit multiplication and division</p> <p><i>This would be good for introducing multi-digit multiplication</i></p>	<p>Polar Bear Soda Cans http://www.101qs.com/3299-polar-bear-soda-display</p> <p>Supporting questions--what is a number that is too high? Too low?</p>	<p>How many packages of soda are there?</p> <p>How many cans of soda?</p> <p>How much does all of this cost?</p>	<p>See extension activities below.</p>

Unit 4 Multiplication	Multiplying 2-digit numbers (supports or extends Polar Bear Soda Cans)	Bester-Egg-Tower http://www.101qs.com/3306-bester-egg-tower	How many eggs? How many cartons? How many chickens laid the eggs? How many levels can you build with x eggs?	Similar to Polar Bear extensions; create a new display (new food/package?) and determine total #, cost, etc.
Unit 4 Multiplication	Developing Understanding with multi-digit multiplication and division <i>arrays, area and perimeter</i>	How Many Donuts? http://www.yummymath.com/2015/how-many-donuts-is-that/	How many donuts fit in the box? How many donuts per layer? How many calories one donut? How many calories total? How many hours to make?	Rearrange the donuts into a new array. Create several word problems using the same information Have a partner solve.
Unit 4 Multiplication	multiplying by 25, number sense, organizing thinking	Coin Counting http://www.101qs.com/3199-coin-counting Watch Act 1, notice which coins are going in. Discuss what questions students have, and what they might try to figure out. After students have had time to grapple, give them the 2 facts from Act 2, and have students organize their thinking and solve. Act 3 gives the answer.	How much money is there? How many pennies, dimes, nickles, quarters?	Different dollar amounts, and figuring out the breakdown
Unit 5 Division	Understanding Division	Passing Out Skittles http://www.101qs.com/3493-passing-out-the-skittles	How many skittles does each child get? How many total skittles?	See extension activities below.

QFT shared in Drive	<i>starts with fair-sharing, with a large number of skittles</i>	Just the Green Ones Please http://www.101qs.com/3492-just-the-green-skittles-please		
Unit 10 Fractions QFT shared in Drive		Apples for All http://www.101qs.com/3167-apples-for-all	How many apples needed to feed all the people?	See extension activities below.
Unit 10 Fractions	Fractions This is a game.	Refraction Game http://play.centerforgamescience.org/refraction/site/ http://play.centerforgamescience.org/refraction/site/		Challenge Fraction Game - dividing fractions/equivalence
Unit 10 Fractions	Fractions <i>determining equivalent fractions, fractions on a number line</i>	Butter Fractions http://robertkaplinsky.com/work/how-much-is-one-third-of-a-cup-of-butter/ http://robertkaplinsky.com/work/how-much-is-one-third-of-a-cup-of-butter/	What is the difference between $\frac{1}{3}$ and $\frac{1}{4}$?	Cooking fractions--doubling and halving recipes
Unit 10 Fractions and Their Uses	Fractions equivalence	Popcorn Fractions http://www.101qs.com/3390-popcorn-percentages	What fraction of the popcorn is buttered? caramel? plain?	
Unit 10 Fractions and Their Uses	Fractions <i>Fractions of a set, identifying fractions of a whole</i>	Cupcake Fractions http://www.101qs.com/2927-cupcake-s- and Paper Cuts http://www.101qs.com/1223-paper-cuts	What fractions of the cupcakes are blue? red? How many cupcakes fill $\frac{1}{4}$ of the box?	

UNIT	BIG IDEAS	Q-FOCUS or Prompt	GROUPING (small/whole)	PRODUCT
Beginning of the Year	<p>Math Practice Standards: introducing the Standards, esp. persevering, modeling, seeing structure and generalizing, constructing logical arguments and critiquing logic of others</p> <p>Addition, multiplication (within basic facts), subtraction.</p>	<p>Bucky the Badger http://mrmeyer.com/threeacts/buckythebadger/</p>	<p>As a whole group, show the first Bucky the Badger video (Act 1). Ask: What are you wondering? What other information do you need?</p> <p>List questions that the students have, and guide students towards finding out how many push-ups Bucky did. Take estimates that you know are too high, and too low. How did you know those would be inaccurate estimates? Justify.</p> <p>Give students a few minutes to start discussing (in groups) how they will solve the problem. What are you noticing? What other info do you need? Go to Act 2, to show the # of touchdowns and field goals, and the order of them.</p> <p>Give groups time to solve the problem. Share solutions, and work together to determine if any are correct, where misconceptions are, etc. To close, watch the solution in Act 3.</p>	<p>Log of work in notebook, discussion/presentation of processes and answers.</p>

<p>Unit 2 Patterns</p>	<p>ATLAS</p> <p>4.OA Generate and analyze patterns.</p> <p>Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself.</p>	<p>Cup Stacking http://www.101qs.com/2718-cup-stacking </p>	<p>Whole Group: Generating questions about/for image</p> <p>Small Group:</p> <ol style="list-style-type: none"> 1. Answer questions. 2. Design new display 	<p>Questions:</p> <p>How many red cups in the next shape? Blue cups?</p> <p>How many cups would the next x number of steps (etc.) include?</p> <p>What is the formula for the pattern?</p> <p>Fraction of...</p> <p>Create another cup pattern of steps display.</p>
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Unit 4
Multiplication

ATLAS:

4.OA Use the four operations with whole numbers to solve problems.

4.NBT Generalize place value understanding for multi-digit whole numbers.

4.NBT Use place value understanding and properties of operations to perform multi-digit arithmetic.

Polar Bear Soda
Cans

Whole Group:

<http://www.101qs.com/3299-polar-bear-soda-display>

QFT SmartNotebook
file shared in Google

Small group:
Extension



Whole Group: Video
Generating
Questions

Small Group:
Extension -

1. Answers group questions
2. American Flag Display
3. Design a new display, create questions, and answer.

Extension Questions:

- How many cans of coke are in the display? Disaggregate how many cans of each kind.
- How much does it all cost?
- How many calories in all?
- What if you need to make the display 3x bigger?
- Can refund in MA is \$.05. How much of a refund can you get for the stripes?
- Fraction of diet coke, coke...

Build a model:



Share: museum walk for whole group

<p>Unit 5 Division</p>	<p>Atlas:</p> <ul style="list-style-type: none"> ● I can use multiplication and division with whole numbers to solve problems. ● I can solve multi-step division problems and can interpret their remainders. ● I can divide 4-digit by 1-digit numbers. 	<p>Prompt or QFT:</p> <p>Passing Out Skittles Video: http://www.101qs.com/3493-passing-out-the-skittles</p> <p>QFT SmartNotebook file in Google Drive.</p>	<p>Guiding questions: How many skittles will each person get? What's an estimate that is too high? Too low?</p> <p>Can you solve this another way? What's the most efficient way? What's the simplest way?</p> <p>How can we show this work on paper, in a model, and/or with numbers?</p> <p>Can you show this with pattern blocks/cubes/base 10 blocks/cuisenaire rods?</p>	<p>Using a bag of skittles: determine the fraction of the bag represented by each color.</p> <p>Create a line plot or bar graph to demonstrate the data.</p> <p>Math codes--students assign each color a number value, and create problems (red x green = blue + yellow; $4(b) + 2(y) = 436 - 217$; etc.)</p>
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Unit 10
Fractions

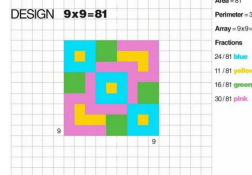
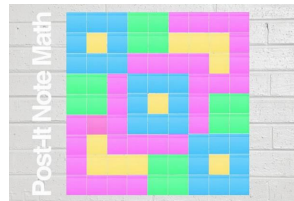
4.NF Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.

3a. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.

Cupcake Fractions
<http://www.101qs.com/2927-cupcakes>



Extension:
Math Art Project
(<http://www.weareteachers.com/blogs/post/2014/10/14/9-creative-art-projects-that-will-make-your-students-love-math>)
(Can use Unifix cubes or graph paper instead of post-its)



Whole Group:
Generating questions about/for image

Answer questions.

Create a new design.

Compare designs.

Questions:
What is the estimate of fractions that make up the specific colors?

What are the actual fractions make up the specific colors?

What is the most efficient way to count the colors in the design?

What if you added more?

What is the Area and Perimeter of the design?
What is the pattern?

Predict the fraction sizes of doubling the design.

Create your own design.
Develop questions, compare designs, fractions.