LEARNING INTENTION:

I can engage with others and represent numbers visually in a variety of ways.

Math Concepts:

➢ Once you build flexible number sense with number below one hundred you can do the same with bigger numbers !

➢ Mental math strategies work for all numbers (once numbers get too large we use a trusty calculator)

➢ It's important to know multiples and factors of numbers

Introduction: Project *nrich* Multiplication Square Jigsaw http://nrich.maths.org/5573/index

Exploring the Multiplication Chart: What patterns do you notice?

What do you think of when you see the chart in this way? What do you wonder?

Refer to the learning target.

Students each review a table copy of the colored multiplication table

Co-construct what students already know about multiples and factors.

Lesson: Introduce the story context from The Great Divide: A mathematical Marathon

Turn/talk/listen to other ideas when we divide and multiply in our daily lives.

Pause when the racers become 5 –predict how the pattern changes here.

Demonstrate the part/part/whole bar model to represent the pattern as you read the story.

This is one model. There are a variety of ways

Introduce 3 **models** to show part/part/whole thinking: Array

Groups of/sharing models

Singapore Bar

Invite students to choose a particular number from the multiplication chart, stand up at a vertical non-permanent surface & concretely represent their number. Combine stickies with a learning partner to choose a number to represent 18, 24, 28, 35, 36. What will you do if your number is prime? With dry erase marker show groups of and Singapore Bar visual model to represent models of a number (part/part/whole)

90		
45		45
30	30	30
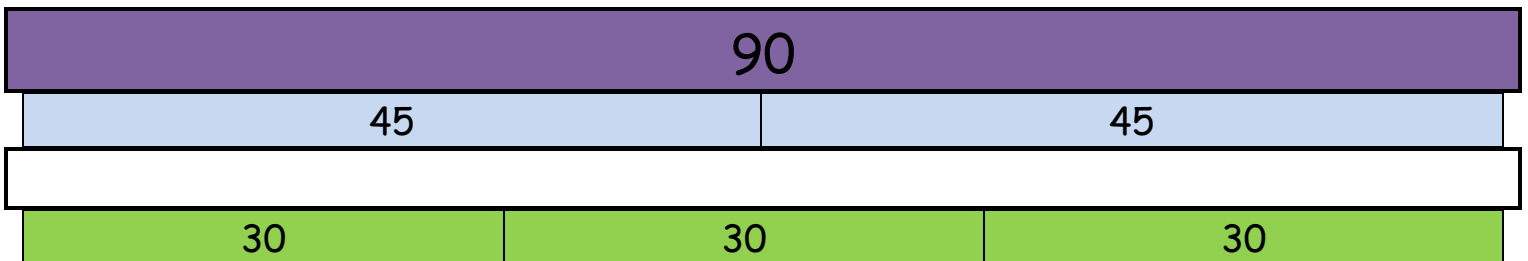
Reflection: put a sticky on the model that most clearly represents your understanding of number visually today? Fill in thoughts about math learning (see reflection sheet)

Closure: Demonstrate/model - **Thinking Blocks.org**

http://www.thinkingblocks.com/tb_multiplication/multiplication.html

LRC kit available: *Math Strategies that Multiply*

Name: _____

Strengths:	Stretches:

When I stand up with others and represent my learning………
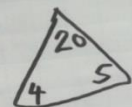
Strengths	Stretches

When I stand up with others and represent my learning………

Name: _____

What is division anyway? What do you know so far?
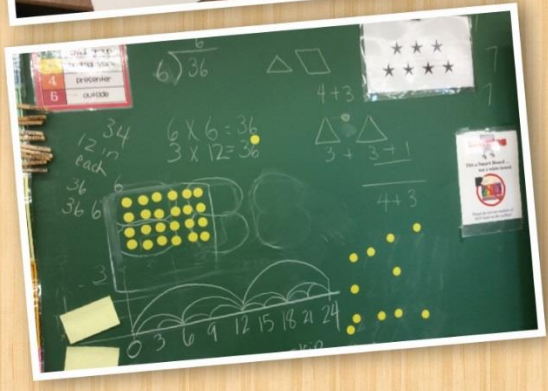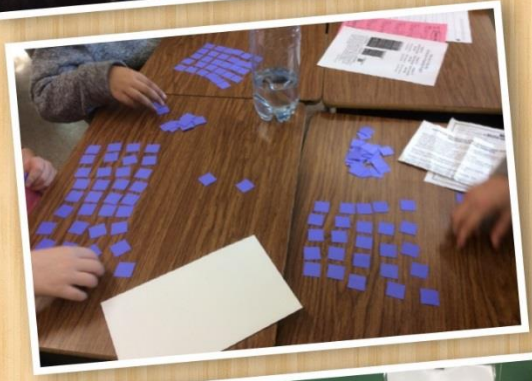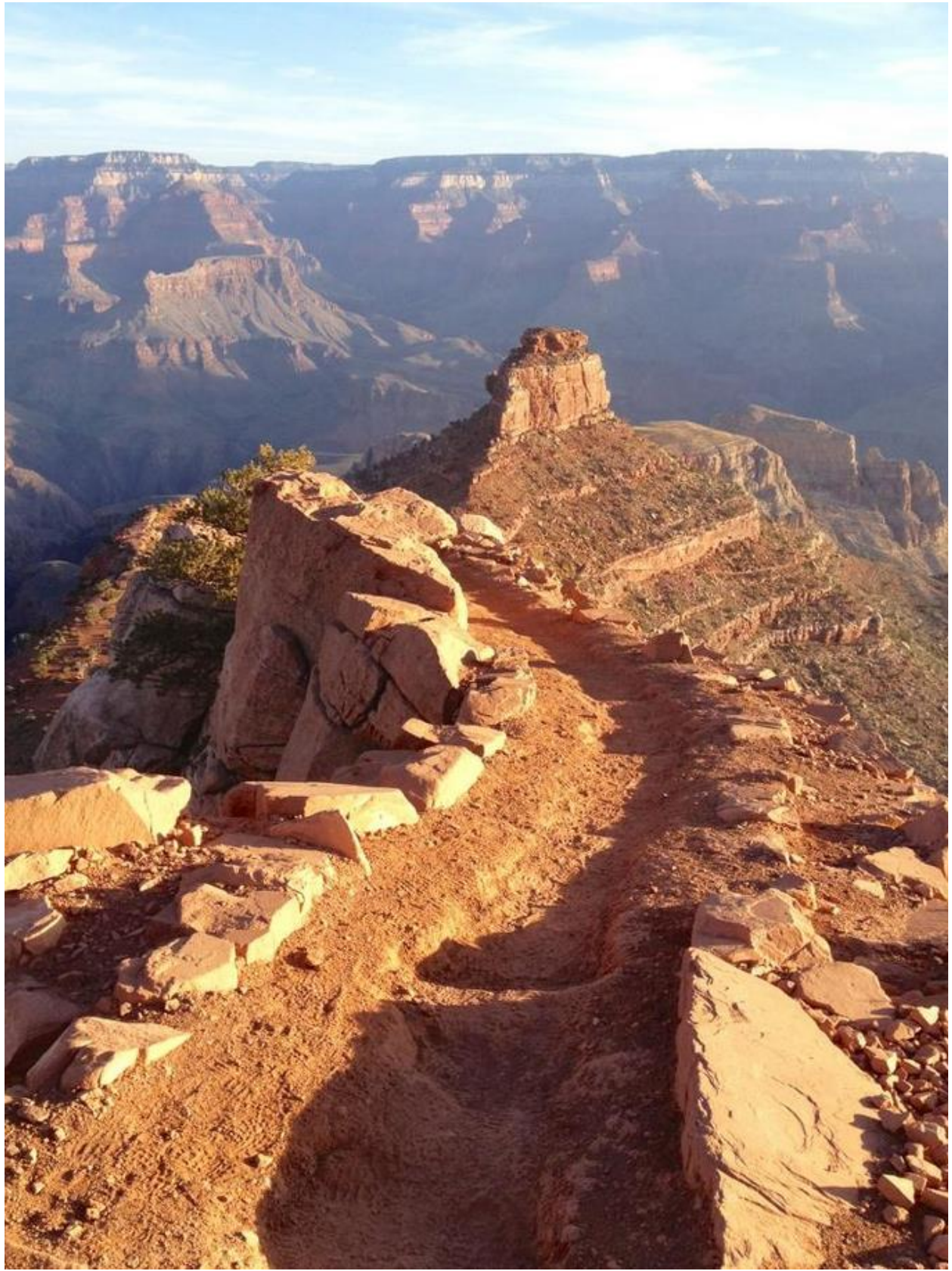When do we divide?

dividing groups of things equally
It gets difficult — sometimes you have "left overs" that can't be shared evenly

$20 \div 4 = 5$

20
4 5

あまり
remainder

$13 \div 3 = 4$ with one left over

sharing candies

dividing one _whole_ thing into _parts_
• sharing a box of drinks
• dividing up a box of donuts,
• sharing balloons evenly

• breaking things apart evenly

• repeated subtraction

Name: _____

Multiplication/Division THINK BOARD

Model	Picture	Multiplication Equation	Division Equation
Array			
Groups of/ sharing			
Singapore Bar Visual Model			

Grade 5/6 Combined
Year at a Glance

PLO's	Unit 3 – Multiplication and Division… How fun is THAT??
5A3 5A4 5A5 5A6 6A3 6A8	**Big Math Ideas:** • When we multiply, we can think about "groups of" or "rows of". • In multiplication situations, the group size or the row length is always the same. • We multiply factors together to get a product. • In a "rows of" situation, the factors describe the dimensions of a rectangle. The product tells the area of that rectangle. • It's important to know the multiples and factors of numbers. They help us to problem solve and calculate more efficiently. • Common multiples are common to 2 or more numbers. That is, we can skip count by 3 or skip count by 4 and we will land on 12 and 24, etc. 12 & 24 are said to be common multiples of 3 & 4. • Some composite numbers share common factors. (For example: 6, 18 & 36 all share the factors 2, 3 and 6) • Mathematicians use mental math strategies to multiply • Mental math strategies work for all numbers. • We can compare to 10 when we multiply by 5 and by 9. • We can use the distributive property when we multiply. • We can use the associative property when we multiply • Every number is made up of factors. • Some numbers have only 2 factors, while others have more. • Mathematicians use this information to classify numbers into groups called **prime** or **composite**. • We can use prime numbers to find all the factors of another. • Every number is made up of factors. • We can use prime numbers to find all the factors of another. • Mathematicians know we can multiply in any order. • When we use the associative property, we can break a number up into its factors to make it easier to multiply. • Mathematicians know we can use the strategy of "half then double" for certain sets of numbers. • The "half then double" strategy uses the associative property to make it easier to multiply. • Division is the act of sharing or the act of grouping. • When we divide, we almost always get a remainder. • What we do with the remainder counts, and depends on the thing we are sharing or whether we are grouping. • When we divide, we can convert the remainder to a fraction or a decimal or leave it alone.