Today's Materials

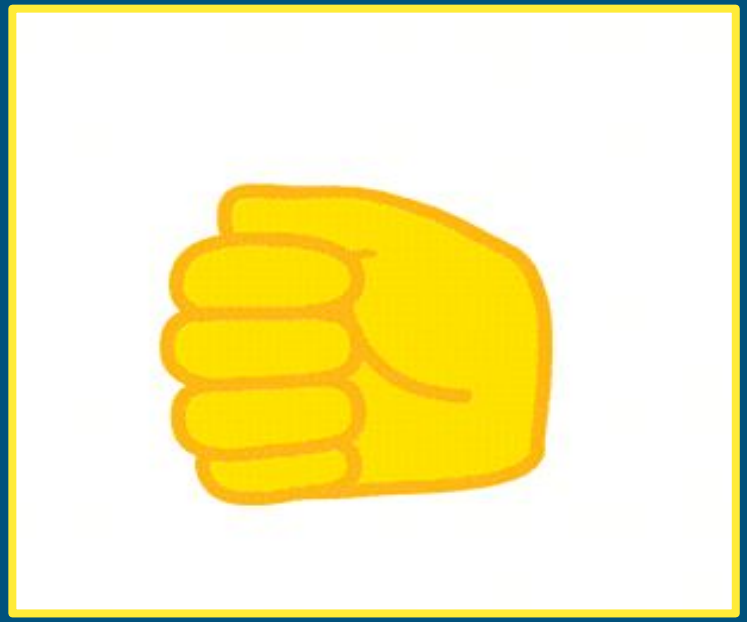
- calculator
- pencil
- notebook
- glue

Relationships between Quantities

Lesson 1

CCSS Standards: Building on	• 7.RP.A.2 • 7.RP.A.2.a
CCSS Standards: Building towards	• 7.EE.B • 7.EE.B.4 • 7.EE.B.4.a

Let’s try to solve some new kinds of problems!



Today's Goal:

- I can think of ways to solve some more complicated word problems.

Pricing Theater Popcorn

Warm Up

Think back to the last time you went to the movies...

What do you know about the popcorn for sale?

What sizes does it come in?

About how much does it cost?

In this activity you will come up with prices for different sizes of popcorn - one set of prices in which the price is in proportion to the size, and another set of prices in which the price is not in proportion to the size, but is still reasonable.

A movie theater sells popcorn in bags of different sizes. The table shows the amount of popcorn and the price of the bag.

Complete 1 column with prices that are at a constant rate, a proportion.

Then complete the other column with realistic example prices where there is not a constant rate.

volume of popcorn (ounces)	price ($) *proportional*	price ($) *not proportional*
10	6	6
20		
35		
48		

Begin with Quiet Work Time. (2 min.)

volume of popcorn (ounces)	price ($) *proportional*	price ($) *not proportional*
10	6	6
20		
35		
48		

What were your prices for the relationship that is not proportional?

Entrance Fees

Activity 1

- Think Pair Share

In our Warm Up, you could make up any numbers for the price of popcorn.

This activity is different...

- ★ There is a relationship where there is a pattern that you need to figure out!
- ★ In this activity, there is an entrance fee to a park, where the fee is based on the number of people in a vehicle.

Please begin working with Quiet Work Time. (2 min.)

Now share your thinking with your partner.

A state park charges an entrance fee based on the number of people in a vehicle.

A car containing 2 people is charged $14,
a car containing 4 people is charged $20,
and a van containing 8 people is charged $32.

What are some ways that you can tell that this relationship is not proportional?

number of people	entrance fee in dollars
2	14
4	20
8	32
30	
	122

A state park charges an entrance fee based on the number of people in a vehicle.

A car containing 2 people is charged $14,
a car containing 4 people is charged $20,
and a van containing 8 people is charged $32.

#1 - How much do you think a bus containing 30 people would be charged?

A state park charges an entrance fee based on the number of people in a vehicle.

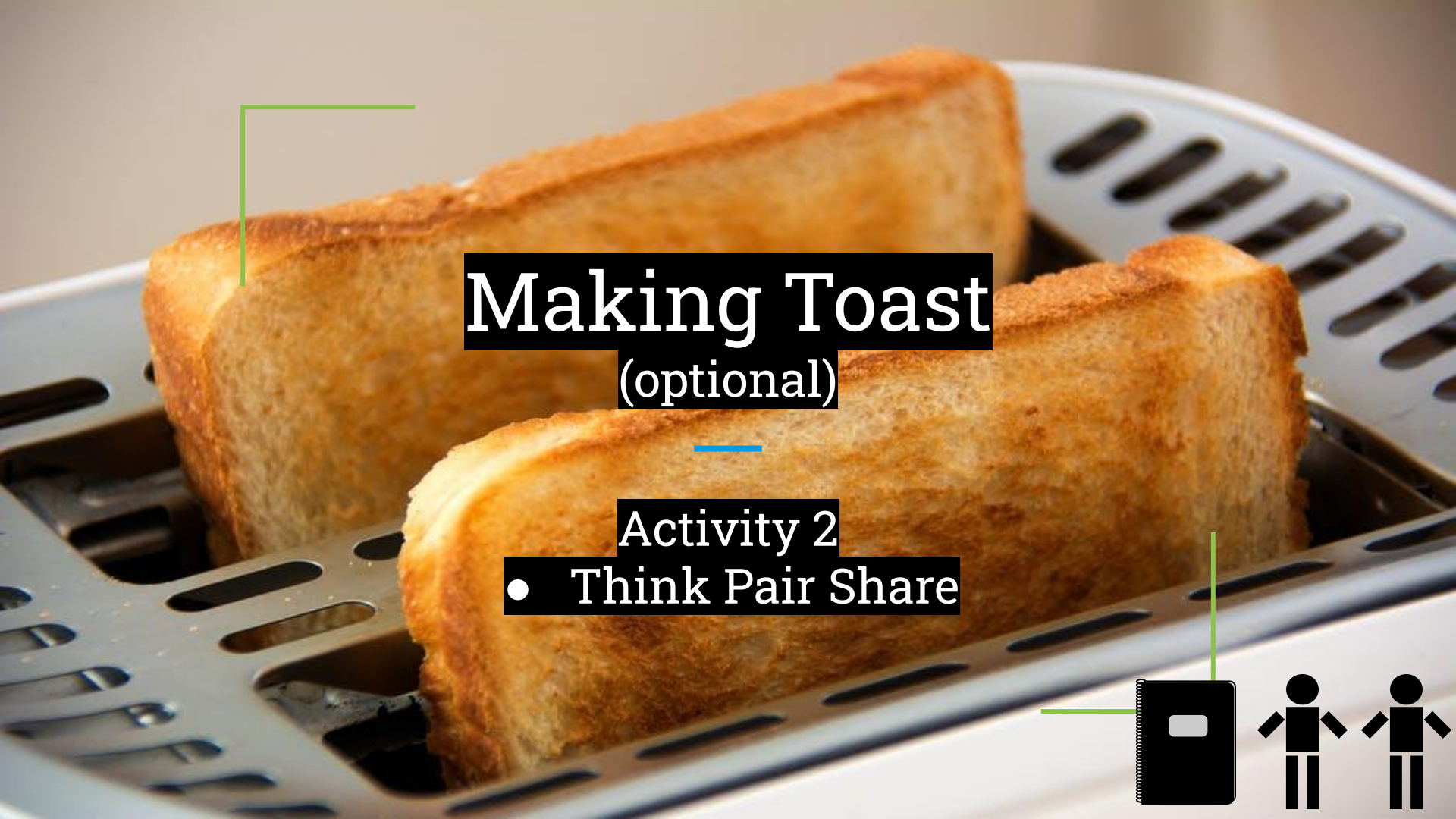
A car containing 2 people is charged $14,
a car containing 4 people is charged $20,
and a van containing 8 people is charged $32.

#2 - If a bus is charged $122, how many people do you think it contains?

A state park charges an entrance fee based on the number of people in a vehicle.

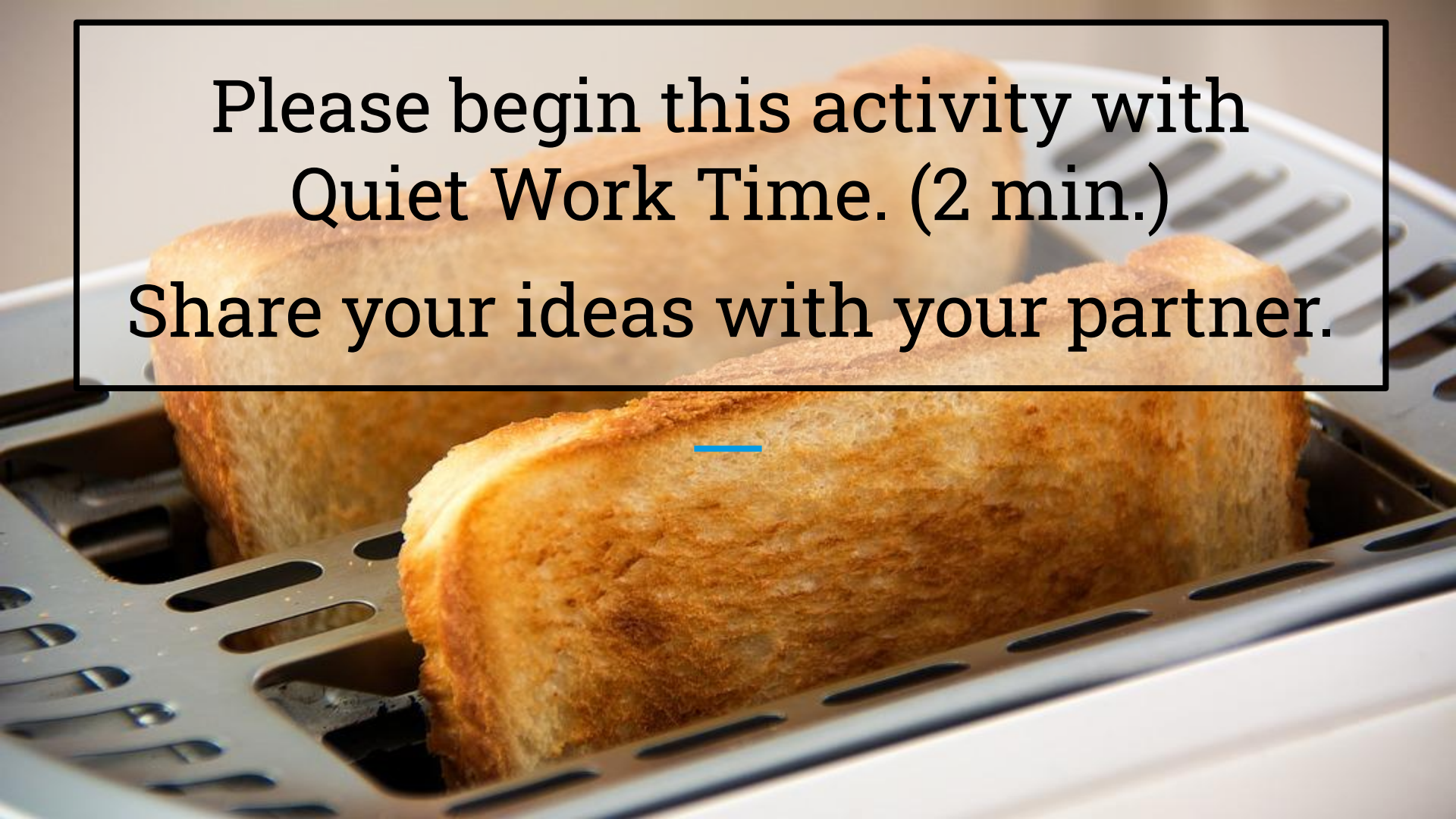
A car containing 2 people is charged $14,
a car containing 4 people is charged $20,
and a van containing 8 people is charged $32.

#3 - What rule do you think the state park uses to decide the entrance fee for a vehicle?



Making Toast
(optional)

Activity 2
- Think Pair Share



Please begin this activity with Quiet Work Time. (2 min.)

Share your ideas with your partner.

A toaster has 4 slots for bread. Once the toaster is warmed up, it takes 35 seconds to make 4 slices of toast, 70 seconds to make 8 slices, and 105 seconds to make 10 slices.

#1 - How long do you think it will take to make 20 slices?

A toaster has 4 slots for bread. Once the toaster is warmed up, it takes 35 seconds to make 4 slices of toast, 70 seconds to make 8 slices, and 105 seconds to make 10 slices.

#2 - If someone makes as many slices of toast as possible in 4 minutes and 40 seconds, how many slices do you think they can make?

number of slices	seconds it would take to make that number of slices
1	35
2	35
3	35
4	35
5	70
6	70
7	70
8	70
9	105
10	105
11	105
12	105

“Are you ready for more?”

What is the smallest number that has a remainder of 1, 2, and 3 when divided by 2, 3, and 4, respectively?

Are there more numbers that have this property?

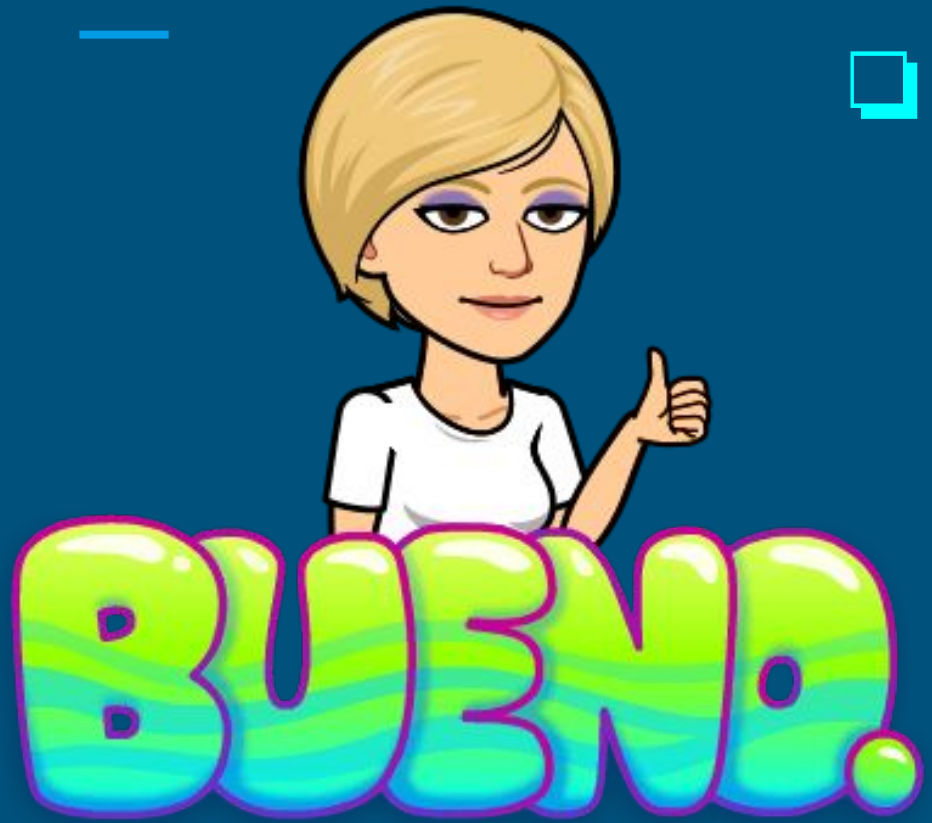
Describe some rules we encountered in this lesson for how one quantity was related to another quantity.

What made these situations more complicated than relationships we've seen in the past?

What were some tools or strategies we used that were particularly helpful?

Today's Goal:

- I can think of ways to solve some more complicated word problems.



Movie Theater Popcorn

Cool Down