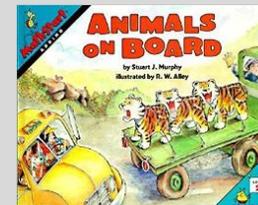


# The BIG Mathematical Idea(s)

*The students will UNDERSTAND*

Number represents and describes quantity: *Quantities can be decomposed into smaller parts. Developing computational fluency comes from a strong sense of number: One-to-one correspondence and a sense of 5 and 10 are essential for working with numbers?*



## Thought provocation:

What math stories can you create?

## Curricular Competencies

*The students will BE ABLE TO:*

### Reasoning and analyzing

- Estimate reasonably
- Develop mental math strategies and abilities to make sense of quantities
- Use reasoning and logic to explore and make connections

### Understanding and solving

- Use multiple strategies to engage in problem solving (e.g., visual, oral, role-play, experimental, written, symbolic)
- Develop, construct, and apply mathematical understanding through role-play, inquiry, and problem solving

### Communicating and representing

- Communicate in many ways (concretely, pictorially, symbolically, and by used spoken or written language to express, describe, explain, and apply mathematical ideas)
- Describe, create, and interpret relationships through concrete, pictorial, and symbolic representations

### Connecting and reflecting

- Visualize and describe mathematical concepts
- Connect mathematical concepts to each other and make mathematical connections to the real world
- Share and reflect upon mathematical thinking

## Mathematical Concepts

*The students will KNOW:*

### Kindergarten and Grade One

- Number Concepts to 10
  - counting
  - quantities can be arranged, ordered and compared
- Ways to make 5 or 10
- Decomposition of numbers to 10
  - opportunities for concrete and pictorial representations of division

## Description of Learning Activity

### *Before*

- Read aloud Animals On Board by Stuart J Murphy. Next, pass out one stuffed animal to each child or if you do have stuffed animals, pass out pictures of animals to the students (one animal per child). Next place two large pieces of coloured construction paper on the floor. Explain to the students that the papers each represent a truck. Ask different student to place their animal on one of the trucks. As a class, together describe the addition equation that would correspond to the concrete representation the students created. The teacher will model how to write the addition equation with the students.
- Depending on your classroom context, you may wish to place students in groups of five and have the students' model different equation stories. See photo below...



### *During*

- Teacher will read aloud the thought provocation. The teacher will provide the problem on an 11 x 17 piece of paper, as well as allow children who may not be ready to represent their thinking pictorially or symbolically, to continue to use concrete items such as stuffed animals or small animal figures.

### *After*

- Students will gather together as a class. Teacher will ask the students to share either their responses. Students will be encouraged to explain the strategies they used. To close the teacher will ask the students how they engaged as mathematicians. Example:  
“I can show my thinking in pictures”.  
“I can show what I know through using materials”.  
“I can explain the strategies I used”.

### Adaptations:

Students who may have difficulty representing their thinking pictorially or symbolically can continue to use concrete animals without the accompanying activity sheet.

### Extension:

Ask the students to show you all the ways they can show 5 or 10 animals.

## **Assessment – Demonstrating Understanding of Content through the Curricular Competencies**

### *Curricular Competencies:*

The students will develop the following curricular competencies to become Mathematical thinkers and problem solvers by:

#### **Reasoning and analyzing**

- Estimate reasonably
- Develop mental math strategies and abilities to make sense of quantities
- Use reasoning and logic to explore and make connections

#### **Understanding and solving**

### *Guiding Questions:*

Teacher will circulate and record anecdotal comments. Choose one or more of the following to assess depending on the context of your class.

#### **Reasoning and analyzing**

- Is the student able to tell a story?
- Are they able to make connections to different strategies they could apply?

#### **Understanding and solving**

- Use multiple strategies to engage in problem solving (e.g., visual, oral, role-play, experimental, written, symbolic)
- Develop, construct, and apply mathematical understanding through role-play, inquiry, and problem solving

**Communicating and representing**

- Communicate in many ways (concretely, pictorially, symbolically, and by used spoken or written language to express, describe, explain, and apply mathematical ideas)
- Describe, create, and interpret relationships through concrete, pictorial, and symbolic representations

**Connecting and reflecting**

- Visualize and describe mathematical concepts
- Connect mathematical concepts to each other and make mathematical connections to the real world
- Share and reflect upon mathematical thinking

- What strategies did the student use?
- How do they construct their understanding? Do they begin using concrete materials and role-play? Or do they immediately begin using numbers and symbols? Or can they use multiple strategies?

**Communicating and representing**

- Is the student able to represent their thinking using concrete materials, orally, with paper?
- Can the student communicate the strategies they used?
- Is the student able to describe any relationships they notice?

**Connecting and reflecting**

- Can the student describe the mathematical concepts involved in the question?
- Is the student able to share any connections?
- Can the student reflect upon his/her thinking?

**Moving Forward:**

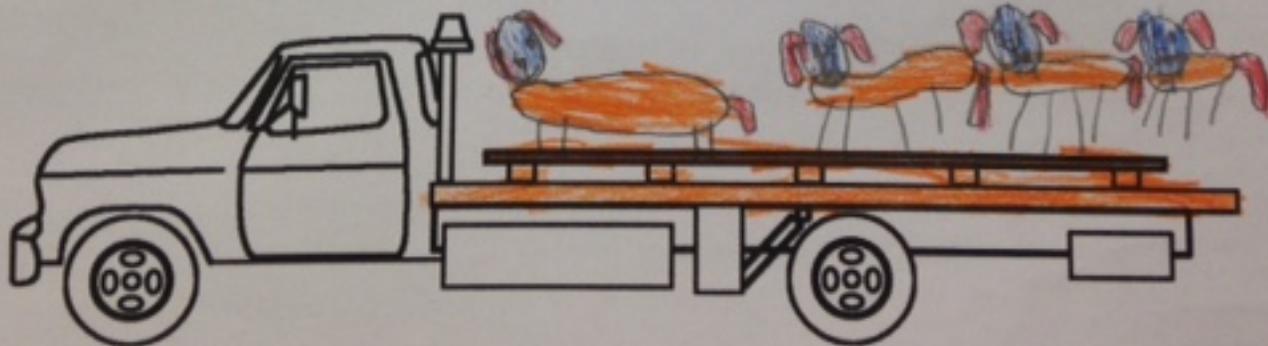
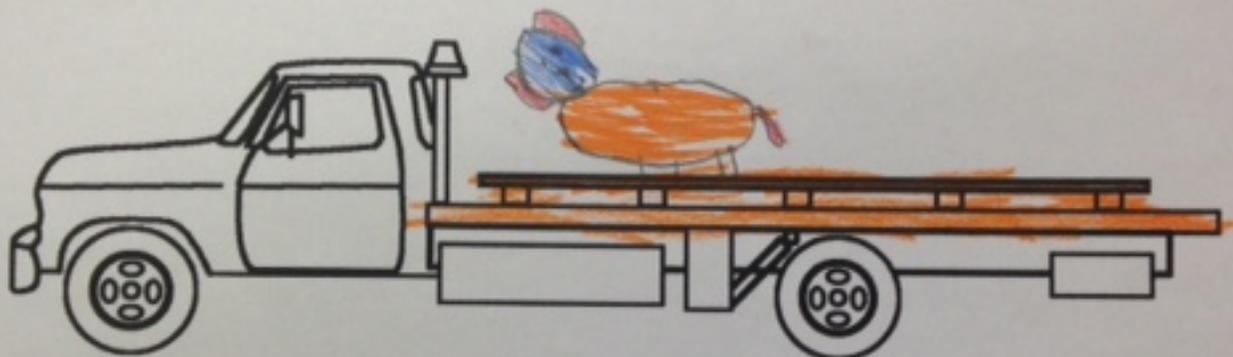
Depending on how well your students were able to represent their thinking, continue to allow the students opportunities to decompose different numbers. A future lesson could include “Shaking and Spilling” two-sided coloured counters. Students could record the number each colour using corresponding coloured bingo daubers. If the student can represent what they shook and spilled, the next step is to ask if they can record how many of each colour and how many in all?

Student Samples:

Animals on Board

LOGAN

$$1 + 4 = 5$$



# Animals on Board

Fraha's

$$1 + 4 = 5$$

