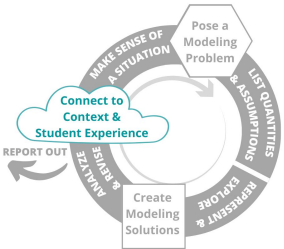


# Sharing Snacks

*Building up from small packs  
[Insert snack image]*



# Notes for Teachers

Hello!

This is a planning template for a ***Building Up: Snack Sharing*** modeling task.

We've provided information to help you think through the MODELING CYCLE and the CRMT framework as you plan and enact your lesson.

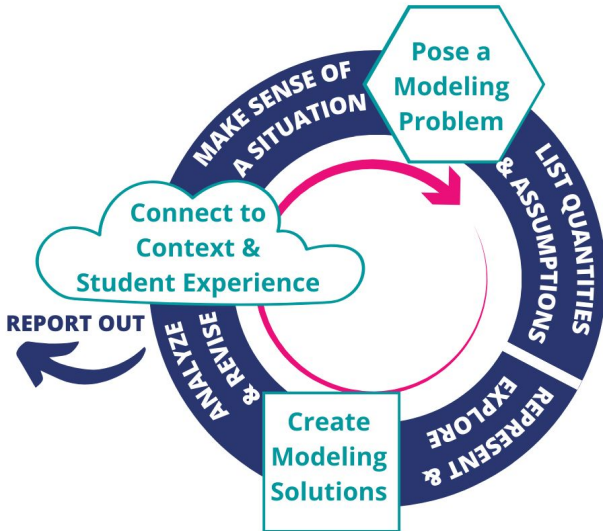
We've grouped the CRMT strands, TEACHING TIPS & CHOICES, and highlighted MODELING CYCLE component to help you plan each slide.

When you are ready, you can click and delete the grouped information.

# CULTURALLY RESPONSIVE MATH TEACHING FRAMEWORK

Zavala & Aguirre (2023)

## MODELING CYCLE



### Knowledges & Identities

#### Centering Cultural & Community Funds of Knowledge

Helping students connect mathematics with relevant/authentic issues or situations in their lives

#### (Re) Humanizing Mathematics

Supporting creativity, broadening what counts as mathematical knowledge, and affirming positive math identities for all students

#### Honoring Student Thinking and Ideas

Creating opportunities to elicit, express, and build on student mathematical thinking in multiple ways (e.g., through gesture, pictures, words, symbols)

### Rigor & Support

#### Sustaining Cognitive Demand

Enabling students to closely explore and analyze math concepts(s), procedure(s), and problem-solving/reasoning strategies

#### Scaffolding Up

Maintaining high rigor with high support for all students

#### Affirming Multilingualism

Making space for multilingual learners (MLL) to be central participants in mathematics activities

### Power & Participation

#### Distributing Intellectual Authority

Distributing mathematics authority and make space for multiple forms of knowledge and communication

#### Disrupting Status and Power

Disrupt status differences, entrenched stereotypes and inequitable power relationships present in all mathematics classrooms

#### Analyzing and Taking Action

Supporting student use of mathematics to analyze, critique, and address power relationships and injustice in their lives

## Knowledges & Identities

### Centering Cultural and Community Funds of Knowledge

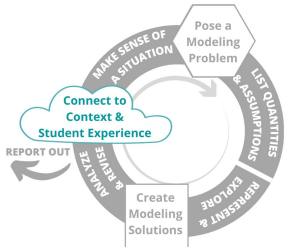
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# Sharing Snacks

*[Building up from small packs]*



## TEACHING TIPS & CHOICES

### What snack items will you use?

*Consider:*

- School norms and regulations
- Student experience with sharing snack items
- Mathematical opportunities in the item(s) and its packaging

## Knowledges & Identities

### Centering Cultural and Community Funds of Knowledge

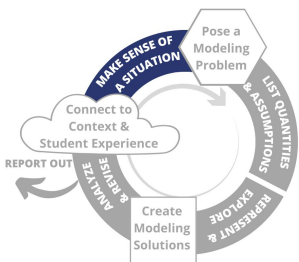
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*[Insert picture of snack]* for our class to share.

What do you notice?  
What do you wonder?



## TEACHING TIPS & CHOICES

How will students connect to their experiences with sharing snacks?

*Consider:*

- Bringing the snack item to class and passing it around
- Asking students how or when they like to eat snack
- Asking students what fair sharing means to them

# [sample snack pictures]



## Knowledges & Identities

### Centering Cultural and Community Funds of Knowledge

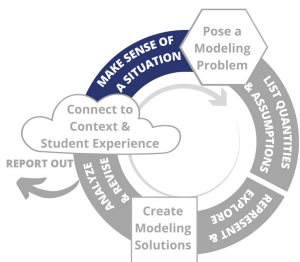
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We Notice...

These are math questions ....



## TEACHING TIPS & CHOICES

### Asking MODELING Questions

*Consider:*

Even if you already know the modeling question you will pursue, engage your students in the practice of asking MODELING questions! Remind them that math questions often start with phrases like:

- How much?
- How many?
- How long?

We Wonder...

## Knowledges & Identities

### Centering Cultural and Community Funds of Knowledge

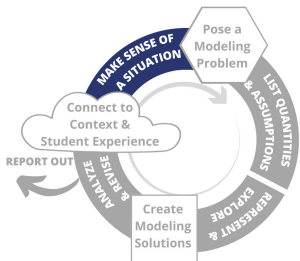
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*[Insert your modeling question here]*



## TEACHING TIPS & CHOICES





*What question will your class answer?*

In snack sharing tasks, students usually respond to one of these four questions:

- How many do we need?
- Do we have enough?
- How long will it last?
- How do we know our plan is fair?



# Building up: Sample Snack Sharing Modeling Questions at Different Grade Levels

Grade	Snack Item	Modeling Question	Standards Connections
Kinder Grade 1 Grade 2	 	<p>This is one package of goldfish bags. How many packages do we need for snack for our class?</p> <p>This is one box of granola bars. How many boxes do we need for snack for our class?</p> <p>How many boxes of hot chocolate do we need for our winter party?</p>	<p>K.OA.1 Represent addition and subtraction with objects, fingers, mental images, drawings etc.</p> <p>K.OA. 2 Solve addition and subtraction word problems by using objects or drawings to represent the problem.</p> <p>1.OA.1 Use addition and subtraction within 20 to solve word problems .. using objects drawings, and equations.</p> <p>1.OA.2 Solve word problems that call for addition of 3 whole numbers with sum less than 20 using objects, drawings, equations.</p> <p>1.NBT.4 Add within 100, adding a 2-digit number and a 1 digit number using models or drawings.</p>
3rd or 4th		<p>This is one box of cheeto bags and one box of goldfish bags. How many boxes of each do we need so that our class can have snack this week?</p>	<p>3.OA.3 Use multiplication and division to solve word problems in situations involving equal groups by using drawings and equations.</p> <p>4.OA.3 Solve multistep word problems using whole numbers using four operations, including where remainder must be interpreted.</p>
4th, 5th, or 6th		<p>How many boxes of hot chocolate and how many bags of marshmallows do we need for 4th grade winter party?</p>	<p>4.OA.3 Solve multistep word problems using whole numbers using four operations, including where remainder must be interpreted.</p> <p>4.NBT.4 Fluently add and subtract multi-digit whole numbers using the standard algorithm.</p> <p>4.NBT.5 Multiply a whole number of up to 4 digits by a 1 digit number using strategies based on place value.</p> <p>5.NBT.6 Find whole number quotients up to 4-digit dividend and 2-digit divisors using strategies based on place value.</p> <p>6.EE.B.7 Solve real world and mathematical problems by writing and solving equations</p>

## Rigor & Support

### Sustaining High Cognitive Demand

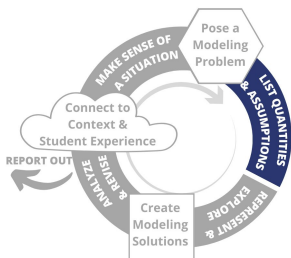
Enable all my students to closely explore and analyze math concept(s), procedure(s), and problem solving/reasoning strategies

### Scaffolding Up

Maintaining high rigor with high support for all students.

### Affirming Multilingualism

Making space for multilingual learners (MLL) to be central participants in mathematics activities



*[Insert your modeling question here]*

We know...

We need to know...

We can assume...



## TEACHING TIPS & CHOICES

### Identifying Quantities & Making Assumptions

- Help students focus on the facts they know or need to find out in order to answer the modeling questions.
- Remind students to draw upon what they know about the situation to help make assumptions.
- Modeling tasks also involve making assumptions. Assumptions are decisions we make when we either can't know the quantity we need or we want to make a complex situation simpler. Students might make assumptions about:
  - Who will eat snack (Teachers? Do students bring snack from home?)
  - The size of the snack (Single Packet? Single servings?)
  - When (how often) they eat snack?
  - How long do we want snack to last? (For questions about "how long will the snack last")

*We suggest that you anticipate the kinds of assumptions students should consider, but let them make assumptions in small groups. It is okay (even good!) if different groups make different assumptions.*

## Rigor & Support

### Sustaining High Cognitive Demand

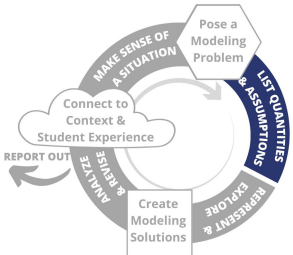
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*[Insert your modeling question here]*

## Some useful information:

*[If students have not identified necessary information or do not have access to some information, insert it here.]*

*[Useful information can also come in the form of images. Insert a picture of the package or nutrition information label here.]*



## TEACHING TIPS & CHOICES

### *Optional Slide:*

This slide should support, not replace, your students' opportunities to come up with important information on their own.

## Power & Participation

### Distributing Intellectual Authority

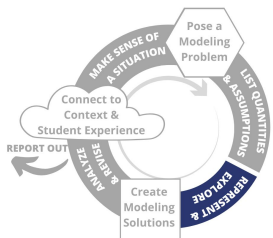
Distributing mathematics authority and make space for multiple forms of knowledge and communication

### Disrupting Status and Power

Disrupt status differences, entrenched stereotypes, and inequitable power relationships present in all mathematics classrooms

### Analyzing and Taking Action

Supporting student use of mathematics to analyze, critique, and address power relationships and injustice in their lives



## Let's Make a Plan!

*[insert your modeling question here]*



## TEACHING TIPS & CHOICES

### Organizing Students

- Group work is central to modeling (teams of 2-4).
- Review group norms (e.g., listen to understand, everyone participates, everyone stays together; agree on a question and ask the teacher)
- Individual or pair think time to brainstorm ideas to get started
- Consider how you will “catch and release” your students: showcase a productive strategy or a group idea for the whole class to consider.



## TEACHING TIPS & CHOICES

### Building Models

Take a moment to work through three different strategies to anticipate students' mathematical ideas. We have seen students use:

- addition, multiplication, subtraction, division
- Tally charts, rations
- Physically grouping/sorting snacks, building with manipulatives, etc.

# REPRESENT & EXPLORE

## Rigor & Support

### Sustaining High Cognitive Demand

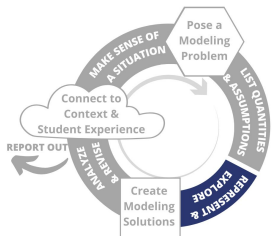
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*[Insert your modeling question here]*

Our Important  
Que

Our Math Work (pictures, equations, words)



## TEACHING TIPS & CHOICES

### Represent & Communicate Models

- Our
- What tools will you give students as they build their models? (grid paper, 100's chart, manipulatives, etc.)
  - How will students record their mathematical work and thinking (graphic organizers)? Will this be done individually and as a group?
    - This slide includes a link to various handouts with graphic organizers
  - During group work, be sure to cue connections to experiences.
    - “What do you know about fair sharing?”
    - “How do you know your plan for sharing \_\_\_\_ with \_\_\_\_ will work?” “How do you know we will have enough?”
- Our

# Talking About Your Plan

## Power & Participation

### Distributing Intellectual Authority

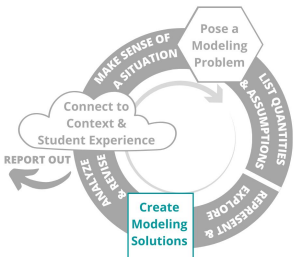
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What experiences did you draw on?

What

What

How

Will w



## TEACHING TIPS & CHOICES

### Sharing Plans

Have students talk about their models. Use prompts like the ones below or write your own!

- What experiences did you draw on?
- What mathematical strategies did your group use?
- What assumptions or decisions did you make?
- How did you decide how many \_\_\_\_\_ each person gets?
- How do you know you have enough [snack] for our class?
- How do you know [snack] will last for [\_\_\_\_\_ days/weeks]?
- Will we have enough snacks for tomorrow or will we need to get more?

# Let's Discuss our Plans!

## Power & Participation

### Distributing Intellectual Authority

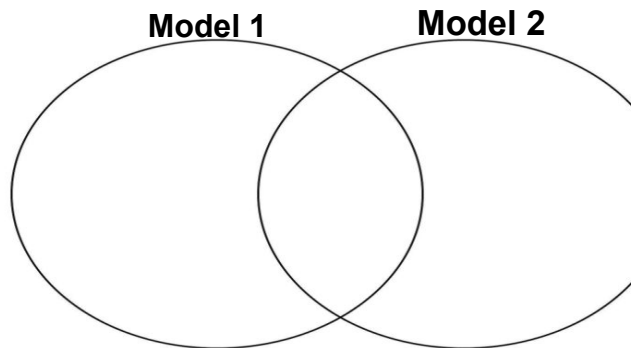
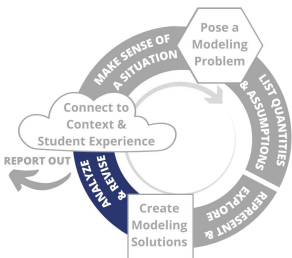
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*What do the models have in common?*

*How are the models different?*



## TEACHING TIPS & CHOICES

### Analyzing Plans

The goal is *not* to say that one model is right and another is wrong. **The goal is to help students understand *why* their models are different.**

Have students talk about their models.

- “How are the models the same?”
- “How are the models different?”
  - “What do you notice about the **assumptions, operations, and answers** for each model?”

*Choose a format (Venn Diagram or Table) to compare models.*

## Rigor & Support

### Sustaining High Cognitive Demand

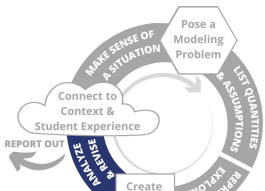
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## What if...?

What if we needed to have more snacks to share with [*insert teacher grade*]? How would your plan change?

What if the package size changed? How would your plan change?



## TEACHING TIPS & CHOICES

### Interpret & Revise

Students might say things like, “We will need more snacks” or “We won’t have enough.” **Try to support them in analyzing how their *models* will change.**

- **If they need to more:** will they need to multiply by a different number? Add additional groups? Or change their decision about how much snack to use?
- **If the package size changes:** will they need to multiply or divide by a different number? Add additional packages? Use fewer packages?



# REPORT OUT: VERIFY & GENERALIZE

## Knowledges & Identities

### Centering Cultural and Community Funds of Knowledge

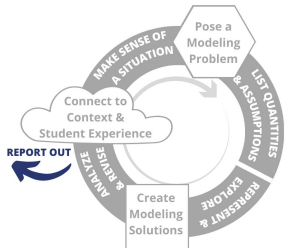
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## Picking a Plan!

Which plan should we use for our snack today?

How do we know if our plan worked?

Share our plan with others.

Allow for classmates to comment on different plans.

# Template Slide

