Mathematics and Special Education Leadership Protocols

Protocol 4:

Aligning Barriers & Strategies

Developed in collaboration with the MA DESE, the MA Math Support Specialists' Network and Education Development Center, Inc.

Massachusetts Department of
ELEMENTARY & SECONDARY
EDUCATION

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Clarifying the Work of the Team

- 1: Shared Beliefs About Mathematics Instruction for Students with Disabilities
- 2: Essential Understandings About Students with Disabilities
- 3: Essential Understandings About Rigorous Mathematics Instruction
- **4: Aligning Barriers and Strategies**
- 5: *Responding to a Range of Learning Needs*

Protocol 4 Goals

- Learn a process that can be replicated with teachers for using the accommodations and modifications (specially designed instruction) included on a particular student's IEP to support that student's work on identified math content and math practice standards.

- Learn how to modify a math task for a student with a disability without reducing the rigor.

Agenda

- Getting Started
- Complete a math pre-assessment
- Get to know Kym – a student with a disability
- Look at Kym's work on the pre-assessment
- Choose strategies that align with the accommodations and modifications that are identified on Kym's IEP
- Modify the pre-assessment to addresses the accommodations and modifications identified on Kym's IEP
- Wrap up, next steps

Get to Know the Math

1. Read through the *Candies* pre-assessment.

2. Complete all 4 problems either individually or with a partner, using visual models to show how you solved the problems.

Be ready to share a brief explanation of the thinking process you went through to arrive at your solution.

Get to Know the Math

- Note: this problem aligns to content standard 6.RP.1: *Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.*

- As we look at different people's methods for solving the problem, think about how using Math Practice #3 – *Construct viable arguments and critique the reasoning of others* – gives you insight into the person's understanding of this content standard.

Get to Know the Math

Here's one way a person may have solved this problem:

F F	C C C	5
F F	C C C	10
F F	C C C	15
F F	C C C	20
F F	C C C	25
F F	C C C	30

There are 18 caramel centers.

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Get to Know the Math

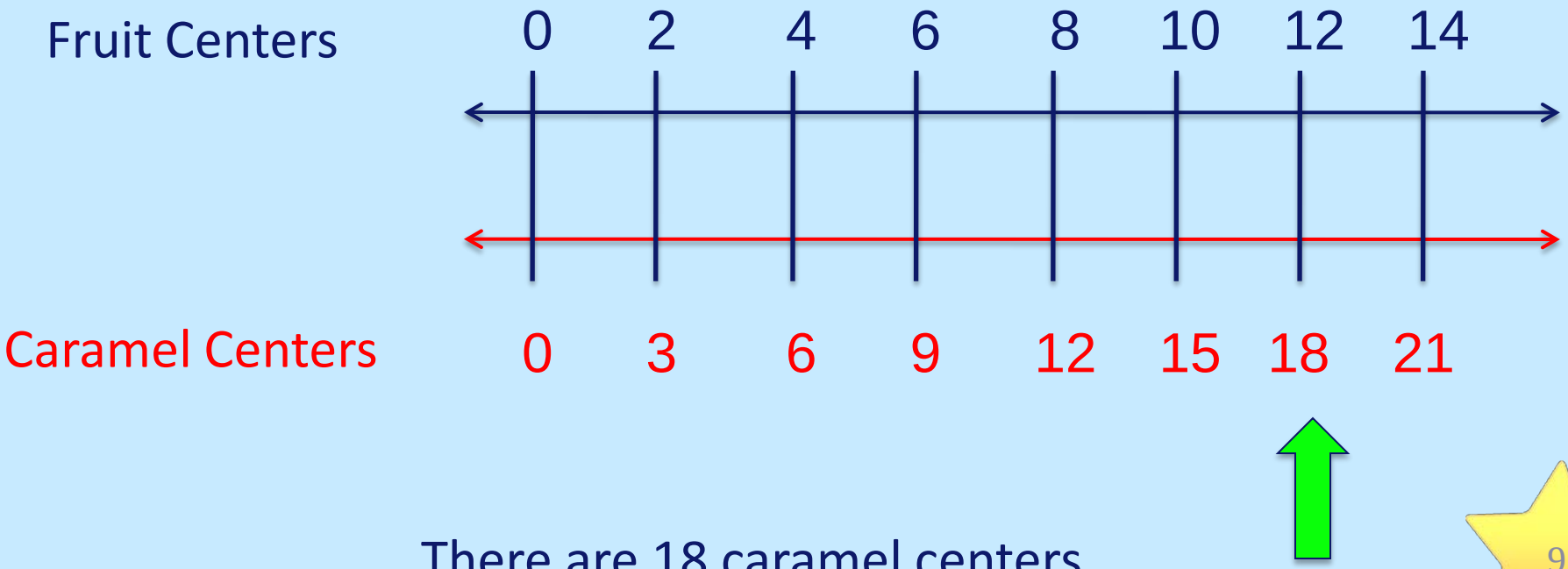
Here's another way a person may have solved this problem:

Fruit	Caramel	Total Candies
2	3	5
4	6	10
8	12	20
12	18	30

There are 18 caramel centers.

Get to Know the Math

Here's another way a person may have solved this problem:



There are 18 caramel centers.

Get to Know the Math

Were there any ways you thought about the problem that were not shown here?

Get to Know A Student: Kym

With a partner, discuss:

- ***In the Candies pre-assessment, what are potential barriers for Kym in showing and explaining her work?***
- ***What learning strengths does Kym have that will help her show or explain her work?***
- ***What supports might she need to show or explain her work (supports that build on her strengths, if possible)?***

Get to Know A Student: Kym

- *What are Kym's strengths that might help her solve these problems?*
- *What challenges do you anticipate Kym will face when completing this pre-assessment?*

Looking at Kym's Work

Looking at Student Work Tool for Kym

A pre-assessment in preparation for teaching standard 6.RP.1. Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.	
What did the student do WELL?	*What did the student STRUGGLE with?*
How would you change this problem to avoid unintended barriers?	

Looking at Kym's Work

In pairs, discuss:

- ***What strategies did Kym use?***
- ***To what extent were they successful?***

Looking at Kym's Work

As a whole group, discuss:

- ***What strategies did Kym use?***
- ***To what extent were they successful?***

Share 1-2 ideas that came up in your discussion.

Modifications for Kym

- *How would you change this pre-assessment to avoid unintended barriers?*
- **How would your modified pre-assessment support Kym's capability to show or explain her work?**
- **How do your revisions to the pre-assessment maintain the rigor of the mathematics?**

Wrap Up

- ★ Summarize where you ended up today
- ★ Parking lots questions
- ★ Any follow-up steps?

Next Time…

- #1 *Shared Beliefs About Math Instruction for Students with Disabilities*
- #2 *Essential Understandings About Students with Disabilities*
- *#3 Essential Understandings About Rigorous Mathematics Instruction*
- #4 *Aligning Barriers and Strategies*
- #5 *Responding to a Range of Learning Needs*