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Progress Together

Meeting students where they are: How to productively adapt instructional material

A productive adaptations tool for middle grades math instructors

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Location: Dusable 163

BILL & MELINDA GATES foundation

Agenda

1. Learning objectives
2. Math learning progressions (10 min)
3. Vignettes (30 min)
4. Tool for productive adaptations (30 min)
5. Questions (5 min)

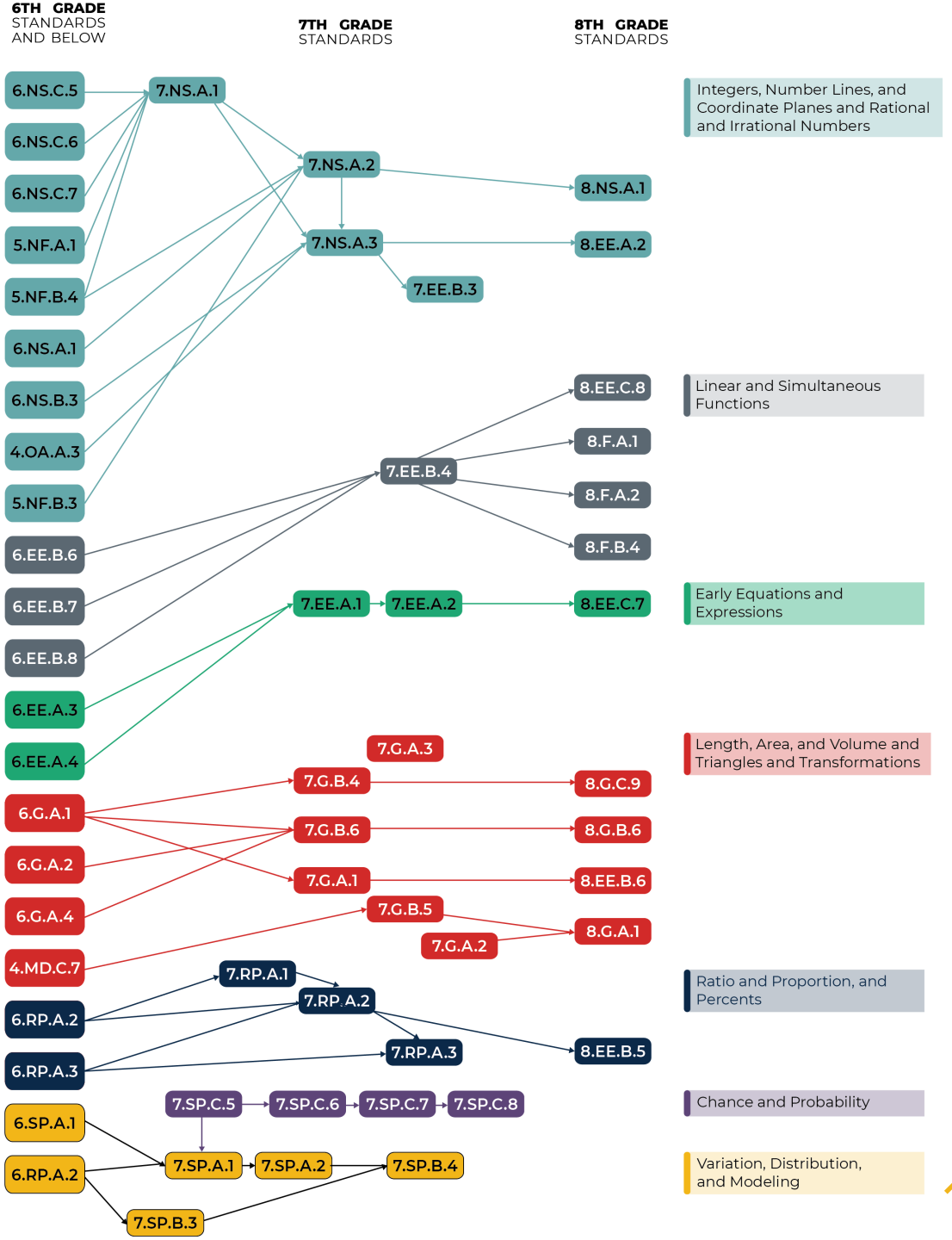
Learning objectives

- Participants will be able to differentiate between productive and non-productive adaptations to improve the planning and enactment of curricula.
- Participants will be able to discuss strategies to adapt curricula to productively meet the needs of diverse students

Mathematical learning progressions

What are mathematical learning progressions?

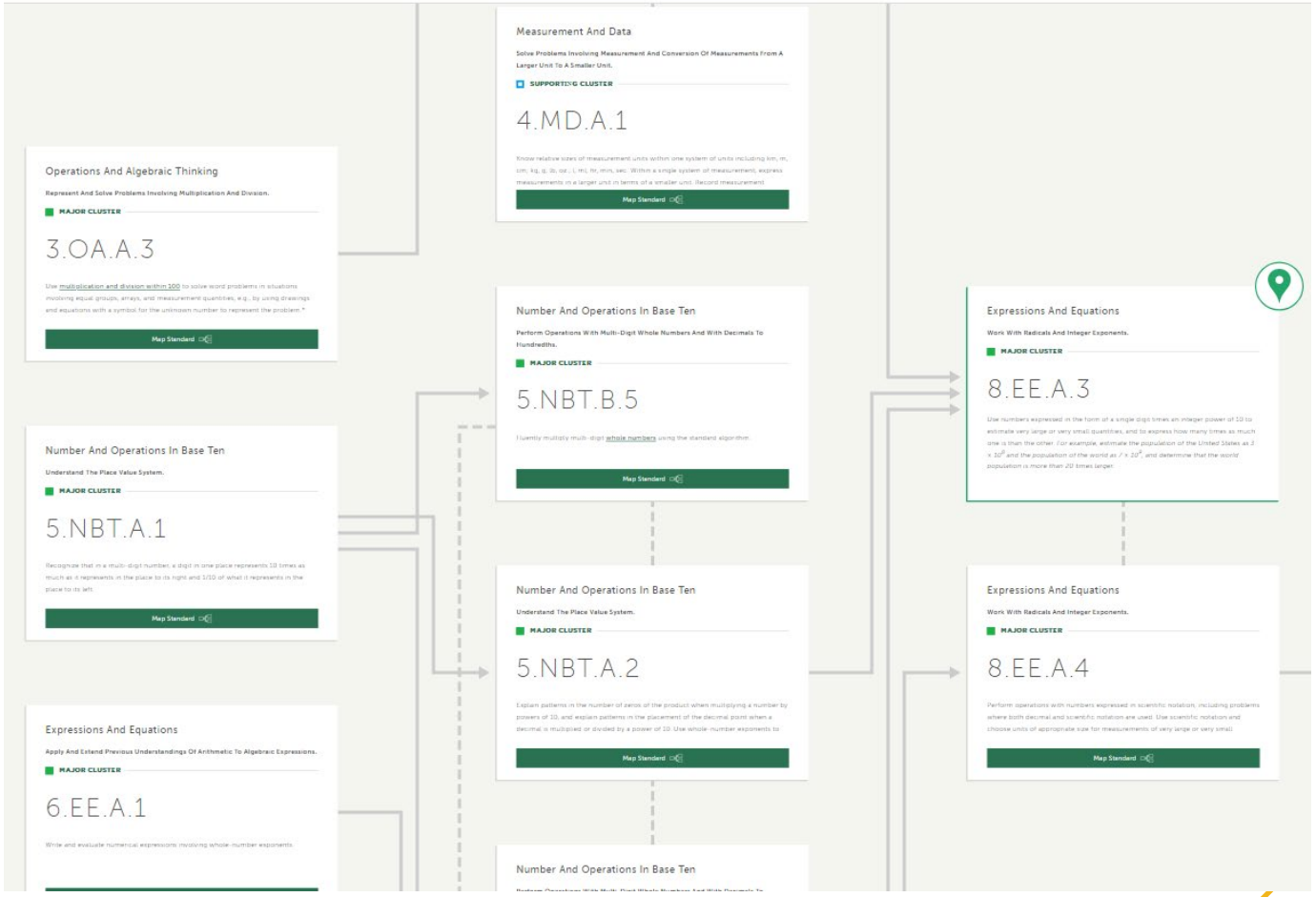
Clusters of knowledge that identify pathways students follow as they develop more sophisticated ways of reasoning about content in mathematical domains within and spanning across grade bands.



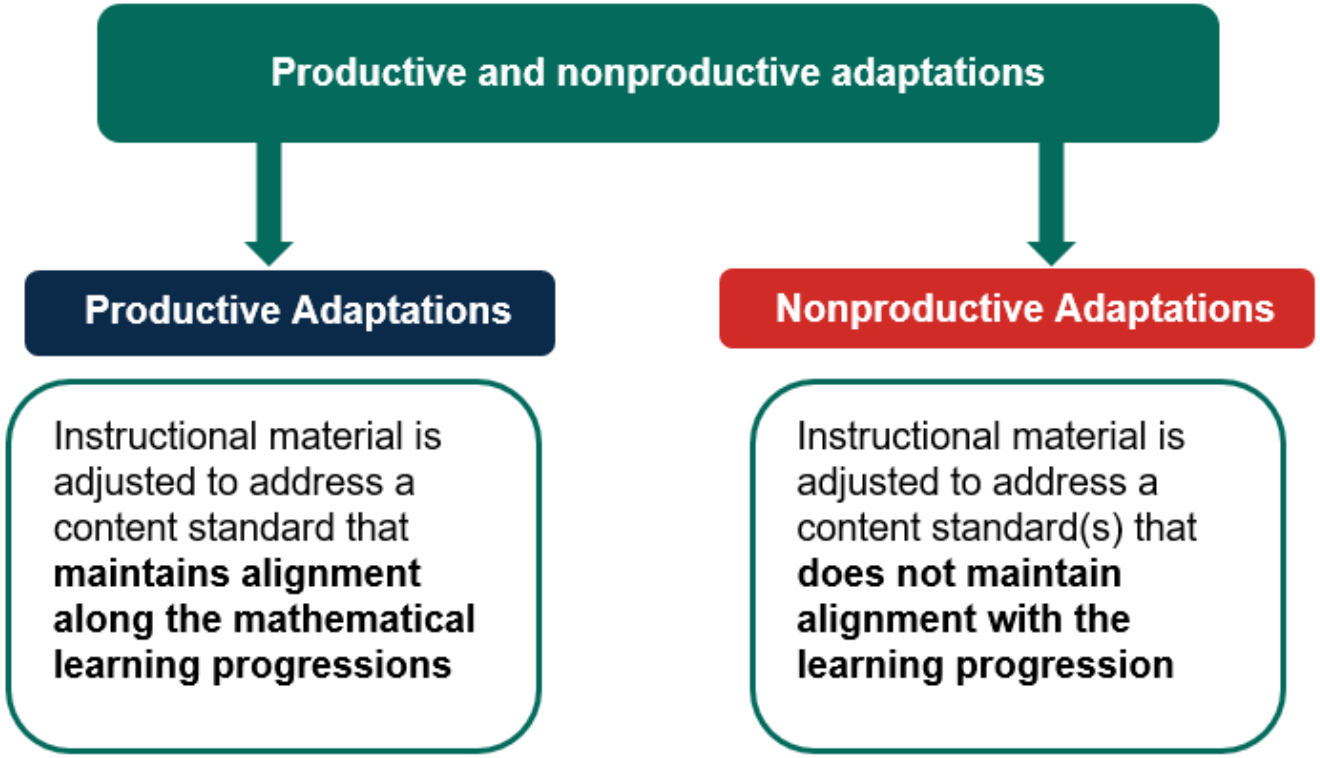
Sources: Coherence Map; A Graph of the Content Standards

How are mathematical learning progressions relevant to daily instruction?

- **Connect math standards across grade levels and domains**
- **Support academic remediation**
- **Align instructional material with standard progressions**



Not all changes to instructional lessons are equal



Example of productive ***below grade-level*** adaptations

Productive, below grade-level

Example

In 7th grade *Illustrative Math*, an intended standard is to apply and extend previous understandings of addition and subtraction to add and subtract rational numbers **(7.NS.A.1)[a].** The teacher adapted the lesson by focusing on ordering rational numbers and understanding absolute values **(6.NS.C.7)[a]**.

Why is it productive?

These standards both fall within the *Rational and Irrational Numbers* learning progression.[b]

Example of nonproductive, ***below grade-level*** adaptations

Nonproductive, below grade-level

Example

In 6th grade Into Math, an intended standard is to draw polygons, find side lengths, and solve real-world math problems **(6.G.A.3)[a].** While enacting the lesson, the teacher had students find logos (such as car or shoe logos) and describe the characteristics of the geometric shapes in the logo which aligns with understanding shapes and their attributes **(3.G.A.1)[a]**.

Why is it nonproductive?

6.G.A.3 falls on the *Length, Area, and Volume* learning progression.[b]

3.G.A.1 falls on the *Shapes and Angles* learning progression.[b]

Vignettes

Review and discuss two scenarios

- **In your small group you will review two example vignettes that have been repurposed from our study.**

  - Vignette 1: Productive adaptation example and discussion (15 min)

  - Vignette 2: Nonproductive adaptation example and discussion (15 min)

Vignette 1

See handout page 1

Vignette 1 Discussion Questions

1. **After previewing some of the instructional content for this lesson, has your perception of the standard adaptation changed?**
2. **What are some suggestions, modifications, or feedback you would share with this teacher?**

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Vignette 2

See handout page 3

Vignette 2 Discussion Questions

1. **After previewing some of the instructional content for this lesson, has your perception of the standard adaptation changed?**
2. **What are some suggestions, modifications, or feedback you would share with this teacher?**

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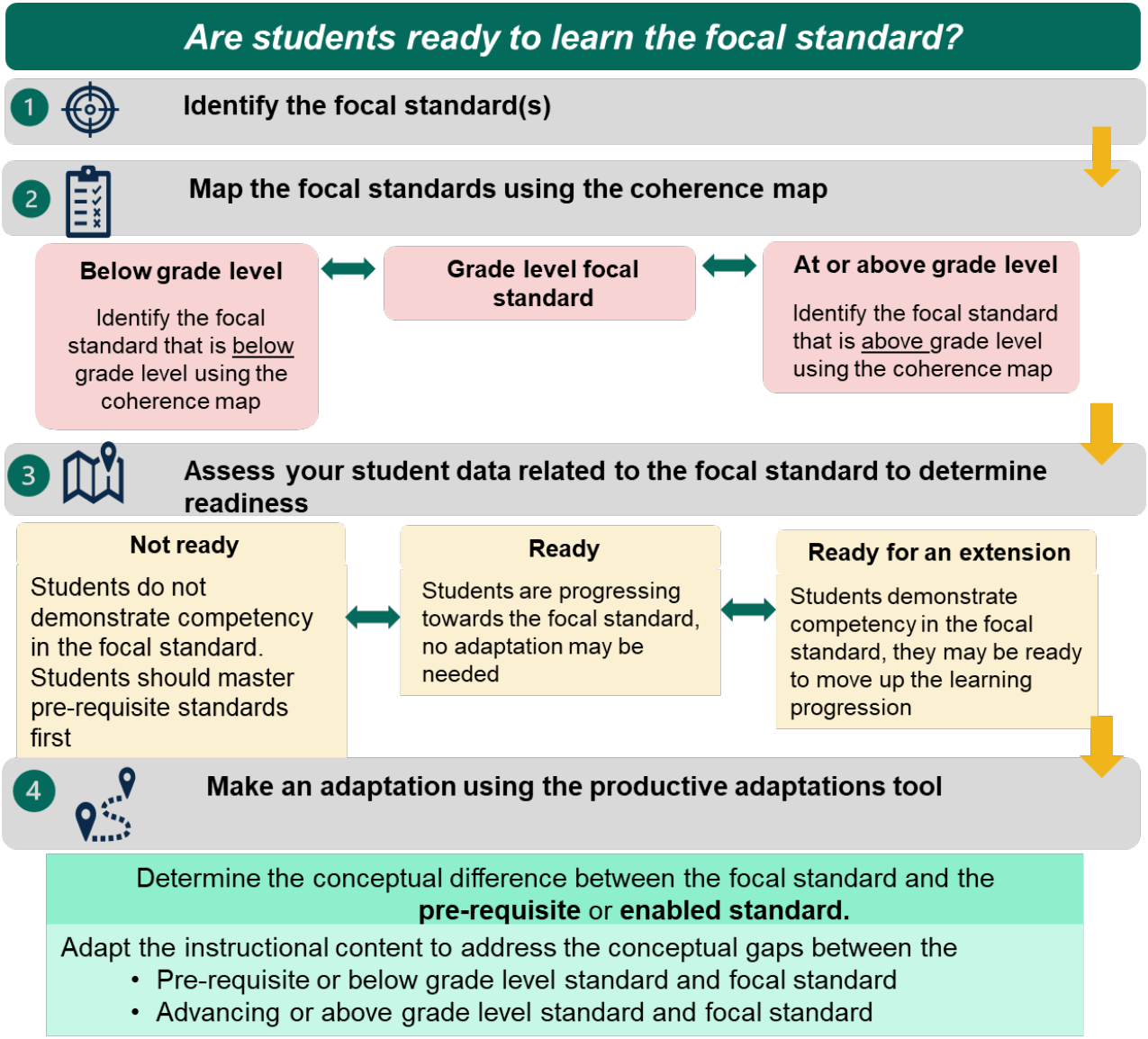
Tool for supporting productive adaptations

Steps to make a productive adaptation



Tool Part 1: Preview

1 **Identify the focal standard(s)**

/ Grade 6 lesson:

- Unit 4: Dividing fractions; Lesson 3: Interpreting division situations

/ Mathematical domain

- The number system

/ Focal standard

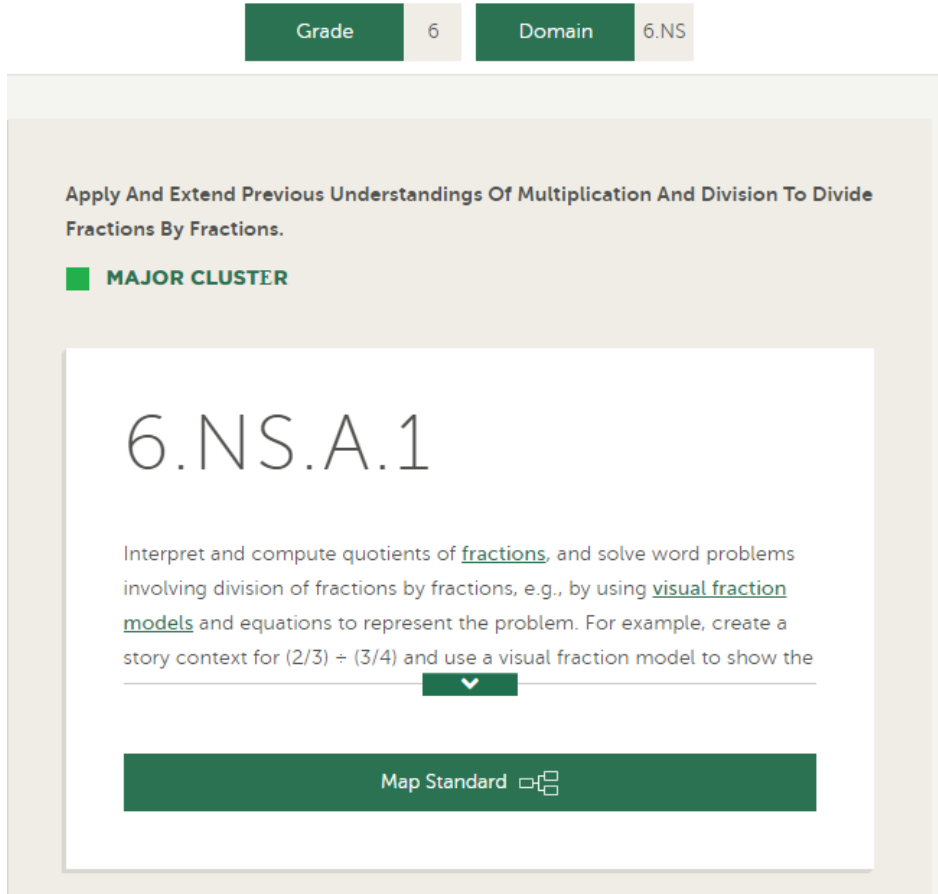
- **6.NS.A.1:** Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem. For example, create a story context for (2/3) ÷ (3/4) and use a visual fraction model to show the show the quotient; use the relationship between multiplication and division to explain that (2/3) ÷ (3/4) = 8/9 because 3/4 of 8/9 is 2/3. (In general, (a/b) ÷ (c/d) = ad/bc).

Handout page 8

Tool Part 2: Preview

2 Map the focal standards using the coherence map

1) Visit **tools.achievethecore.org/coherence-map** and click **Get Started**
2) Click on the **grade level → domain →** unit **focal standard** from **Part 1**.
3) Click **Map the standard** to identify pre-requisite standards and enabled standards.
4) Complete the table on page 9 "Mapping the focal standard learning progression"



Handout page 8

Tool Part 2: Application

2 **Map the focal standards using the coherence map**

/ Use the Coherence map to complete the table on page 9 titled "Mapping the focal standard learning progression"

Mapping the focal standard learning progression

Pre-requisite Standards (or lower in the learning progression)	**Focal Standard**	**Enabled Standards*** (or above in the learning progression)
	6.NS.A.1: Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem. For example, create a story context for (2/3) ÷ (3/4) and use a visual fraction model to show the show the quotient; use the relationship between multiplication and division to explain that (2/3) ÷ (3/4) = 8/9 because 3/4 of 8/9 is 2/3. (In general, (a/b) ÷ (c/d) = ad/bc).	

Handout page 9

Tool Part 2: Application

Review the map of the standards learning progression on page 9. Then consider the following reflection questions in your handout.

Reflections from mapping the learning progression:

a) How do the pre-requisite or enabled standards fit within the current unit?

b) What common mistakes might students make when learning the focal standard's math content?

Handout page 9

Tool Part 3: Preview

Assess your student data related to the focal standard to determine readiness

Are students demonstrating competency in the focal standard(s)?
Group 1: Ready to learn focal standards - What data suggest these students are ready to learn the focal standard? **-20 students demonstrated a strong understanding of 5.NF.B.4, 5.NF.B.6, and 5.NF.B.7.**
Group 2: Ready for a content extension of the focal standards - What data suggest these students are ready for an extension? **-3 students are ready have demonstrated competency in the focal standard and are ready for an enabling standard 6.EE.B.7.**
Group 3: Need to learn pre-requisite content before progressing to the focal standards - What data suggest these students need additional support on the pre-requisite (or below-grade level) standards? **-10 students need support with math standard 4.NF.B.4 to apply and extend previous understandings of multiplication to multiply a fraction by a whole number.**

Handout page 10

Tool: Part 4

4 Make an adaptation using the productive adaptations tool

Consider how you would adapt the instructional material from vignette 2 using the guided questions on pages 11 and 12 of the productive adaptations tool.

Group 1: For students ready to learn the focal standard, consider if any adaptations are needed to assist students in learning the math content.

Group 2: Ready for an extension/to advance content

For students **ready for an extension**, consider how to adapt the content of the instructional materials to meet the advancing standard.

1) Review the **enabling/above-grade-level** standards from Part 2.
   a) What is the conceptual difference between the focal standard and extension standards? In other words, is there a learning gap between the pre-requisite and focal standard that a content adaptation can address?
2) Consider your response above. Brainstorm a few ways you could adapt the content of the instructional materials to meet the advancing or above grade level standards?
3) **Confirm and implement.** Do the proposed content adaptations align with the focal standard learning progression? If not, consider reviewing your responses to question 1. Then, revise your proposed content adaptations. You may repeat this process as necessary.

Group 3: Need to learn pre-requisite content

For students **needing additional support**, consider how to adapt the content of instructional materials to meet the pre-requisite standard.

1) Review the **pre-requisite/below grade level standards** from Part 2.
   a) What is the conceptual difference between the focal standard and below-grade standard(s)? In other words, is there a learning gap between the pre-requisite and focal standard that a content adaptation can address?
2) Consider your response above. Brainstorm a few ways you could you adapt the content of the instructional materials to meet the pre-requisite or below-grade standard(s)?
3) How will you know when your students are ready to return to the focal standards?
4) **Confirm and implement.** Do the proposed content adaptations align with the focal standard learning progression? *If not, consider reviewing your responses to question 1. Then, revise your proposed content adaptations. You may repeat this process as necessary.*

Handout pages 11-12

Concluding reflections

- **What components of the tool are the most helpful? Which are the least helpful?**
- **Do you have any suggestions for improvement?**
- **What is one takeaway you have from this workshop?**

Questions?