



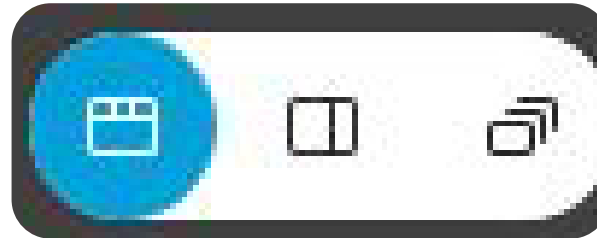
Supporting a Range of Math Learners

Menus and Choice Boards

Summer 2020 | Tanaga Rodgers

Viewing Mode

selecting viewing mode upon arrival



Choose
Floating Panel View
mode for optimal
viewing

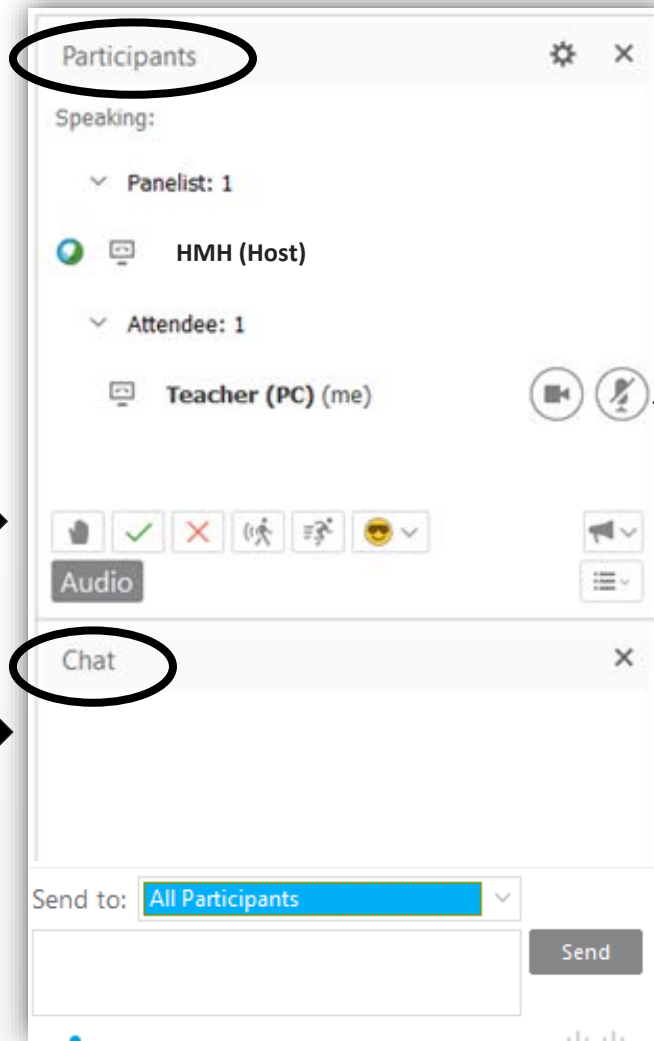
Meeting Center Tools



↑
Annotate Tools

→
Hand Icon

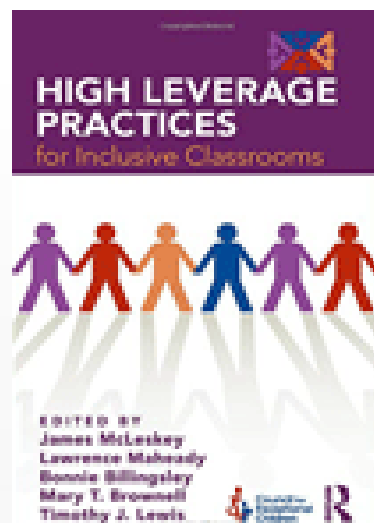
→
Chat



←
Audio to mute/
unmute yourself
Turn on/off video

OSSE and the Division of Teaching & Learning

Build the capacity of educators, from pre-service to in-service, through targeted, sustained, high-quality supports so educators can be effective in empowering each and every PK-12 DC learner to succeed in school and life.



Instructional High Leverage Practices

| | | | |
|---|---|---|---|
| <p>Identify and prioritize long- and short-term learning goals. (11)</p> | <p>Systematically design instruction toward specific learning goal. (12)</p> | <p>Adapt curriculum tasks and materials for specific learning goals. (13)</p> | <p>Teach cognitive and metacognitive strategies to support learning and independence. (14)</p> |
| <p>Provide scaffolded supports. (15)</p> | <p>Use explicit instruction. (16)</p> | <p>Use flexible grouping. (17)</p> | <p>Use strategies to promote active student engagement. (18)</p> |
| <p>Use assistive and instructional technologies. (19)</p> | <p>Provide intensive instruction. (20)</p> | <p>Teach students to maintain and generalize new learning across time and settings. (21)</p> | <p>Provide positive and constructive feedback to guide students' learning and behavior. (22)</p> |



Outcomes

1. Link math content standards within and across grade levels to meet the needs of a range of math learners.
2. Develop menus and choice boards that serve different levels of readiness and learning needs.
3. Provide more opportunities for choice in math class.

Norms

Agreements

- Choose to be present and engaged
- Share your experience and ideas
- Assume positive intent as others share
- Be solutions-minded

Online Engagement

- Please use video when speaking
- Participate in chats and polls
- Keep mic on mute unless speaking to the group

Building Community

- Name
- Role in education
- Glow and grow as it relates to remote learning



Agenda

Structure of Mathematics

Choice Boards & Menus

Break

Implementation

Application

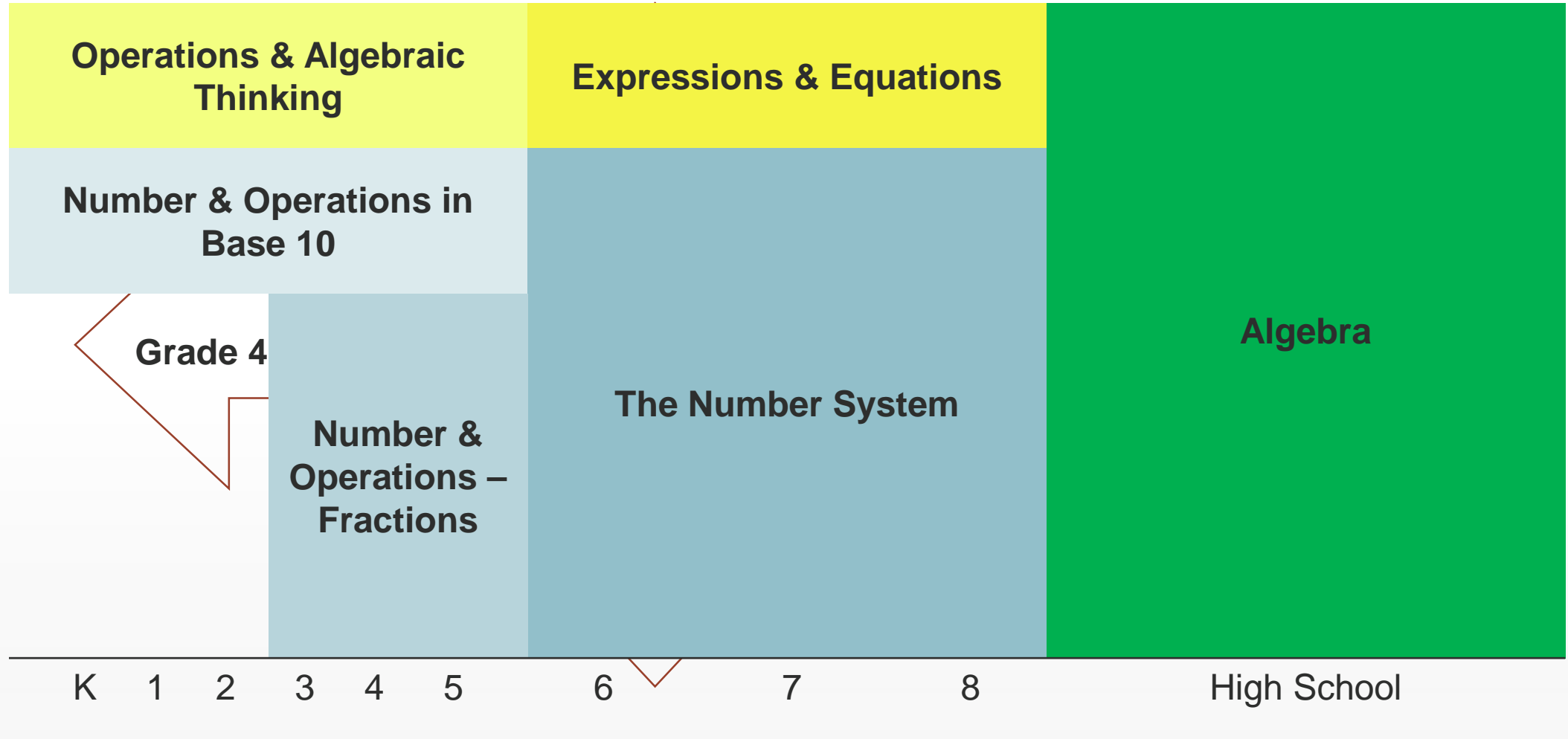
Closing & Evaluation



Structure of Mathematics

Considering the structure of mathematics, how can we address unfinished instruction?

Math is connected



What happens when there's unfinished instruction?

Unfinished Instruction



Range of Learners

Unfinished Teaching

Unfinished Learning

Standards that were not directly taught nor assessed

Standards (or concepts) that students didn't demonstrate proficiency with



How can we approach unfinished math instruction?

Provide differentiated support for each student to reach grade-level standards by designing rich tier 1 instruction that allows for multiple entry points and solution pathways and uses a range of approaches. (NCTM & NCSM, 2020)



What is a menu or choice board?

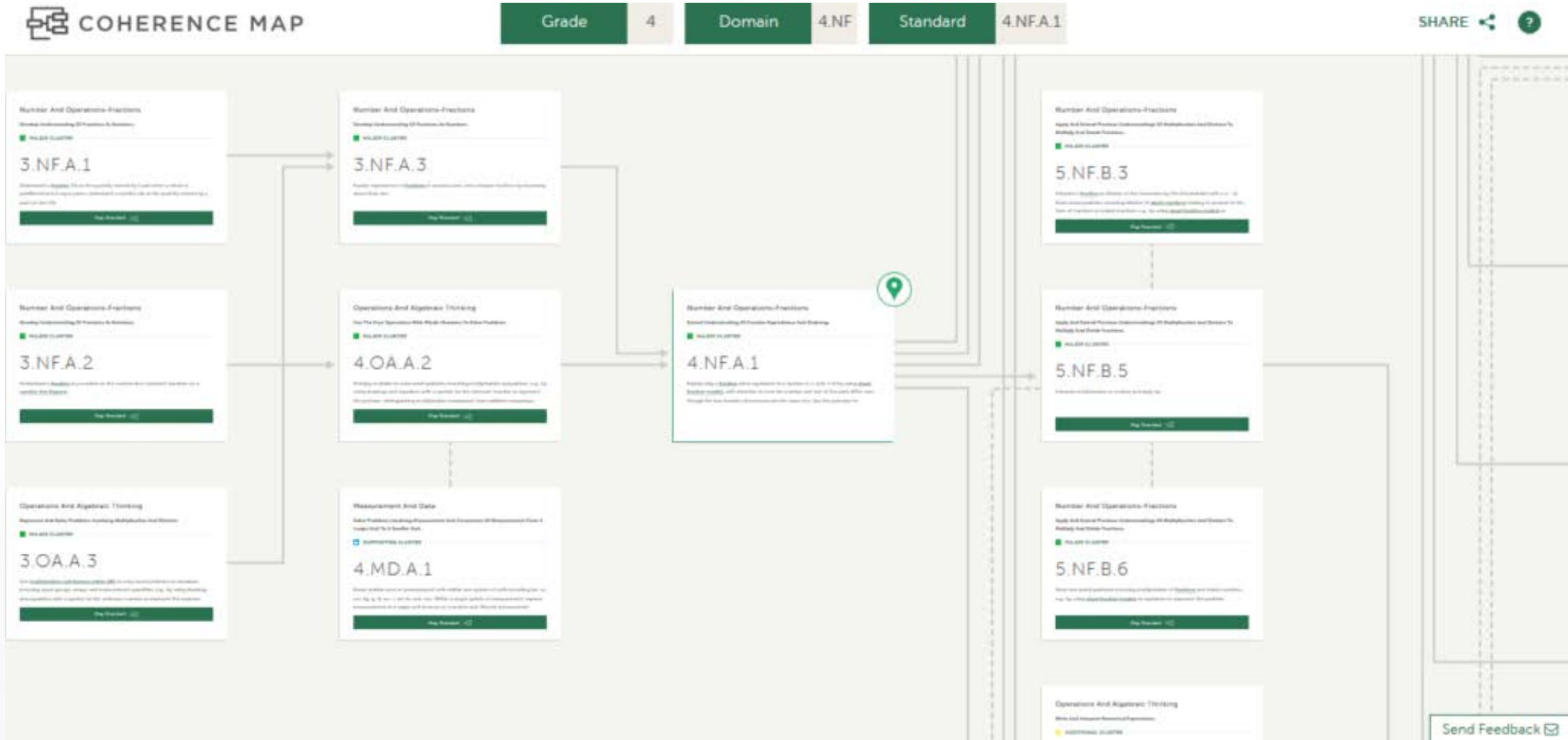
What is it?

- Collection of math tasks
- Student choice
- Independent, pairs, small group
- Supports *all* students in meeting the instructional goals

What are the math tasks?

- Games
- Practice problems
- Investigations
- Create a product
- Tiered activities
- Multiple representations

Coherence Map: An Accessible Pathway



Reflection

The Coherence Map can support educators in systematically designing instruction toward a specific learning goal.

- Explore the Coherence Map on your own (5 minutes)
- Be prepared to share what you notice.

You might consider:

- Specific ways to use this tool
- How the tool connects to work you already do
- When you might use this tool

Systematically
Design
Instruction
Toward a Specific
Learning Goal
(HLP 12)




Choice Boards & Menus


What are some different ways to create menus and choice boards?

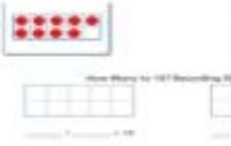
Menu for Grades K-2

STUDENT FACING

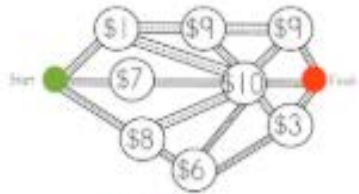
APPETIZERS
(must choose 1)

Ten Frame 

Shake & Spill 


How Many More to Make 10? 

MAIN DISH
(must do)



Dot Map

DESSERTS
(can do)

Snap It 

1-50 Chart

| | | | | | | | | | |
|---|----|--|---|----|--|----|--|--|----|
| 1 | | | 4 | | | 7 | | | 10 |
| | 12 | | | 16 | | 17 | | | 20 |

Circle your menu items as you complete your activities to reach 3!
All activities must be completed by (insert date).

Students complete three activities. Appetizer supports prior grade level connections and dessert is additional representations.

Tic-Tac-Toe Choice Board for Grades 3-5

| | | |
|---|--|--|
| <p>Record Yourself: Watch video tutorial. Then, practice reading the numbers on this padlet.</p> | <p>Matching Cards: Watch video tutorial. Create matching cards (numeral and expanded form) for each place value up to millions.</p> | <p>Base 10 Blocks Watch video tutorial. Use base 10 blocks to show different numbers (3, 4 or 5-digit) that have 6 in the hundreds place.</p> |
| <p>Building Design: Create a building sign that shows the building number in word form.</p> | <p>Puzzle: The Greatest Eight Use clues to solve this puzzle and determine the different possibilities of numbers.</p> | <p>Design a mobile: Select a multi-digit number. Model the value of each digit and draw a picture with place value blocks.</p> |
| <p>Write a Note: Convince a friend that 0s are very important when it comes to place value. Provide 2 examples from real life.</p> | <p>Multilingual: Number words follow a pattern once you get past 12. Research another language and give examples of what you find.</p> | <p>Dream Home: Find 3 different homes. If you save 10 times less the cost of the house, how much would that be? 100 times less?</p> |

Students choose one activity from assigned row (focus on specific skill) and two more of their choice.

Menu for Grades 6-8

Students choose any combination of activities to total ten or more points.

| | |
|-----------------|--|
| 2 points | <input type="checkbox"/> Cooking with Math: Use rate language in the context of the recipe to describe and compare the ingredients. <input type="checkbox"/> School Teacher: Write as many ratios as you can to describe the class using ratio language. Include part to part and part to whole ratios. |
| 5 points | <input type="checkbox"/> Shopping Spree: Give 3 different examples of unit rates at the grocery store. <input type="checkbox"/> Road Trip: Use unit rate to estimate how long it would take to drive at a constant rate from school to Disney World (FL). <input type="checkbox"/> Sports Fanatic: Choose your favorite sport and consider how ratios can be used to describe performance in the sport. <input type="checkbox"/> Game Designer: Create your own 16-piece matching game where you create tables of equivalent ratios and pairs of values on a coordinate plane. Play the game with 2 different classmates. |
| 8 points | <input type="checkbox"/> Juicing Entrepreneur: Learn about juicing and use rates to determine how many apples you will need to serve your poolside customers. <input type="checkbox"/> Art Class: Determine how to make different shades of orange using yellow and red paint. |



Reflection

Take 10 minutes to dive deeper into the choice board or menu of your choice.

Explore at least two of the activities and experience the task as a student would.

- How does the menu or choice board promote student access to the grade-level content (high-leverage practice 13)?

Adapt Curriculum
Tasks & Materials for
Specific Learning
Goals
(HLP 13)



Break



Implementation

How can menus and choice boards fit into my learning environment?

What are some different formats?

Prescriptive

Students complete all items on menu. Students choose the order to complete the menu.

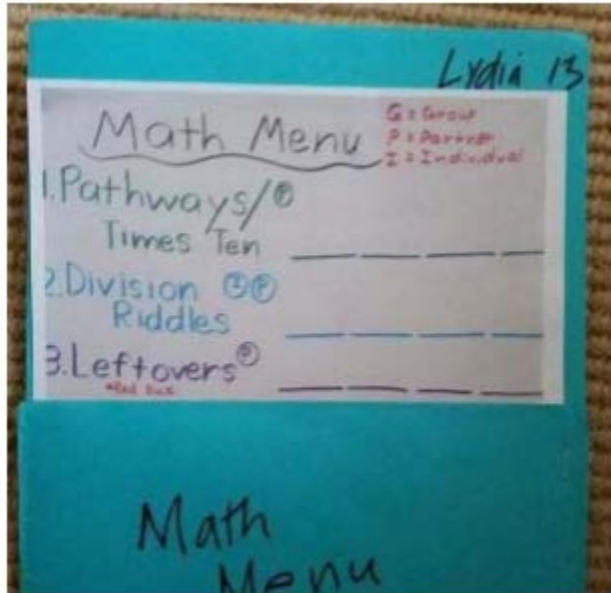
Students complete 1-2 required items and choose how many additional tasks to complete.

All students begin in the same spot but can choose which additional tasks to complete.

Free Choice

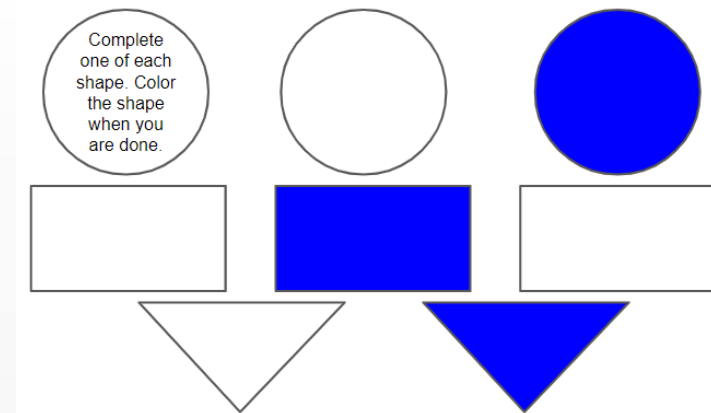
Students can choose how many tasks to complete and in what order. Students suggest their own activity.

How can I monitor performance and accountability?

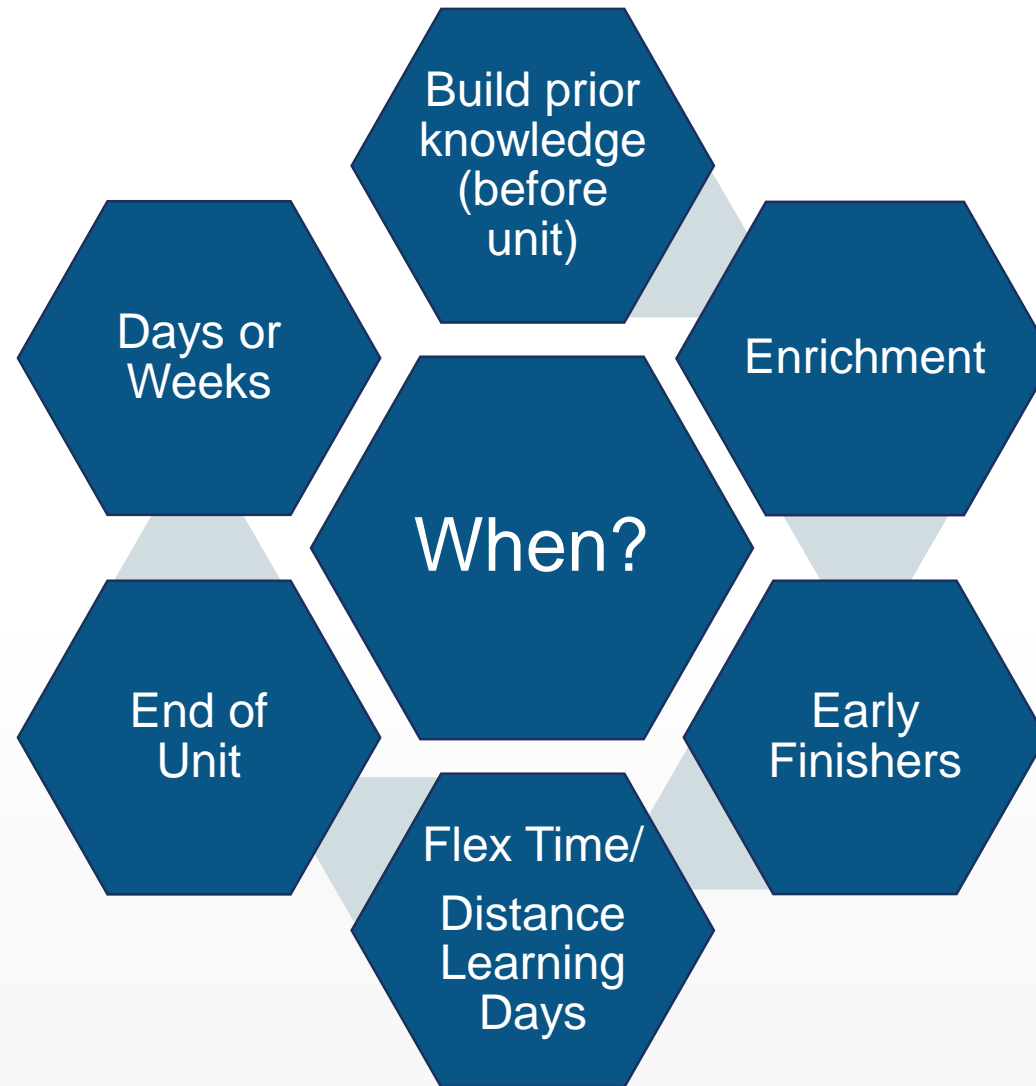


- In progress/finished folders
- Checklists
- Shape Menu

- 4 Corners Class Discussion
- Exit Tickets
- Use a class chart to compile student thinking.
- Rubric



When do menus/choice boards fit into the class schedule?



How do I begin with students?

Organize all materials at the beginning of unit.

Encourage good choice-making by starting with only a few options.

Introduce games whole class.

Get to know your students.

Transform existing tasks (adjust numbers, open up)

Spend the first few days just observing students work before trying to pull a small group.

Additional Reading

- [Using Math Menus: Nuts & Bolts](#) (article by Marilyn Burns)
- [Finishing the Unfinished: Tools to Create an Equitable Learning Recovery Plan](#) (webinar by Pivot Learning and UnboundEd)
- [Progression Documents for CCSS Math Standards](#) (Univ. of AZ)
- [Coherence Map](#) (interactive map by Achieve the Core)
- [Differentiating Instruction with Menus in Math](#) (collection by Laurie Westphal)



Application

How do I begin curating resources for a choice board/menu?

Curating your resources

| Major Cluster | Focus Standard | Connecting Standards | Possible Resources |
|---------------|----------------|----------------------|--------------------|
| | | | |

1. Use link in chat to make a copy of Google planning document (collaborate with team)
2. Download the planning file (save to your personal device)

Focus Document: Identify essential learning

What are the critical skills, knowledge and dispositions that students will focus on?

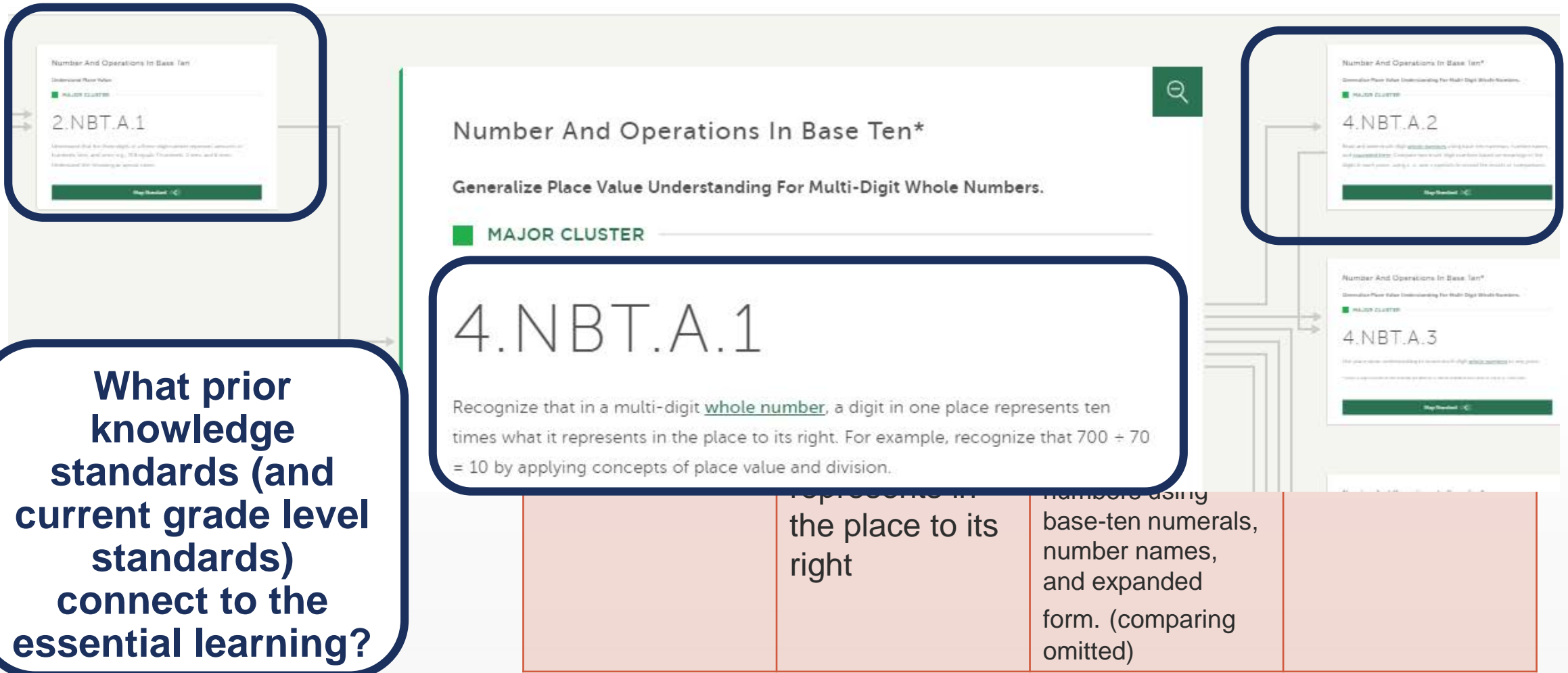
MAJOR, SUPPORTING, AND ADDITIONAL CLUSTERS FOR GRADE 4
Emphases are given at the cluster level. Refer to the Common Core State Standards for Mathematics for the specific standards that fall within each cluster.

Key: ■ Major Clusters □ Supporting Clusters ○ Additional Clusters

- 4.OA.A ■ Use the four operations with whole numbers to solve problems.
- 4.OA.B □ Gain familiarity with factors and multiples.
- 4.OA.C ○ Generate and analyze patterns.
- 4.NBT.A ■ Generalize place value understanding for multi-digit whole numbers.
- 4.NBT.B ■ Use place value understanding and properties of operations to perform multi-digit arithmetic.
- 4.NF.A ■ Extend understanding of fraction equivalence and ordering.
- 4.NF.B ■ Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.
- 4.NF.C ■ Understand decimal notation for fractions, and compare decimal fractions.
- 4.MD.A □ Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.
- 4.MD.B □ Represent and interpret data.
- 4.MD.C ○ Geometric measurement: understand concepts of angle and measure angles.
- 4.G.A ○ Draw and identify lines and angles, and classify shapes by properties of their lines and angles.



Coherence Map: Connecting standards



Curating

What tasks can you bookmark to use (or modify) to develop the menu/choice board?

| Investigations | Digital Games & Tools | Additional Tools |
|---|--|---|
| <p>K-5 Investigations (analog)</p> <p>Marilyn Burns Blog (use categories on right to filter)</p> <p>Illustrative Mathematics</p> <p>Nrich Math (Primary)</p> <p>Nrich Math (Secondary)</p> <p>YouCubed (Jo Boaler)</p> <p>Activities w Rigor & Coherence (NCTM)</p> | <p>Didax Virtual Manipulatives</p> <p>Math App Center</p> <p>Desmos</p> <p>K-5 Investigations (digital)</p> <p>PhET Simulations</p> <p>NCTM Illuminations</p> <p>Khan Academy Videos</p> | <p>Engage NY</p> <p>Open Up (Grades 6-8)</p> <p>Adapted textbook problems</p> <p>Multiple Intelligence Activities (Scholastic)</p> <p>Non-editable Templates</p> <p>UDL Representation Guidelines</p> |
| <p>Tasks should engage students in thinking, reasoning and sense-making.</p> | | |



Share with colleagues.

Which standards might make a good menu and why?

Share a resource.

Ask a question.





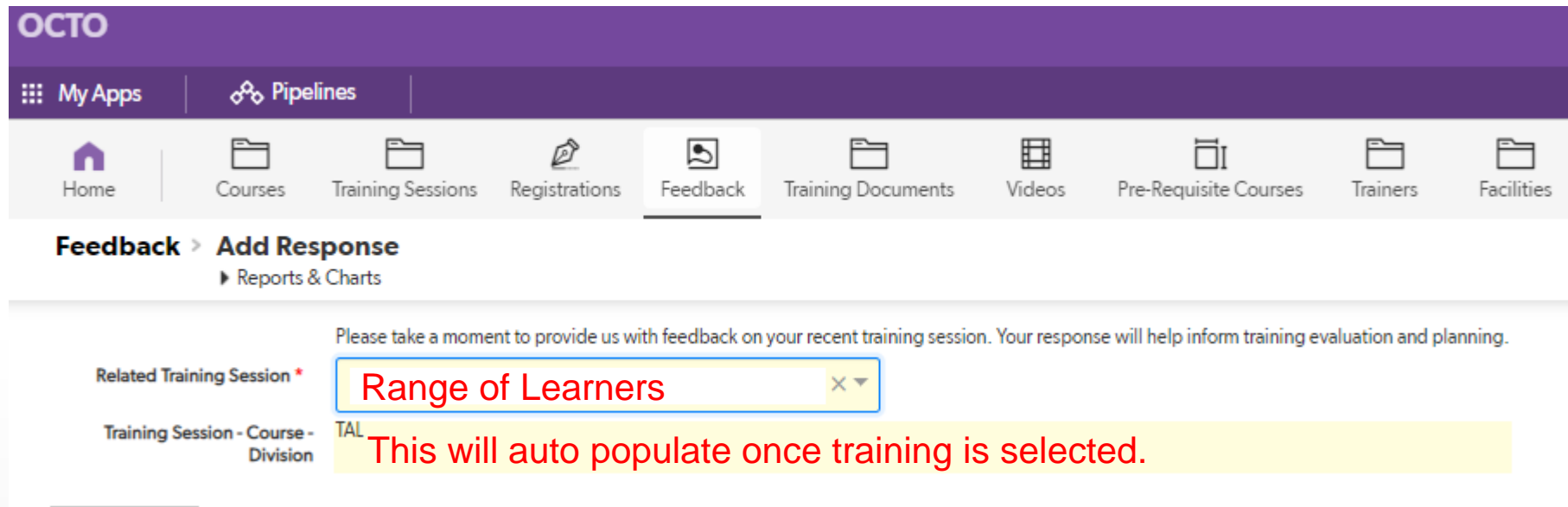
Closing

Outcomes

1. Link math content standards within and across grade levels to meet the needs of a range of math learners.
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Survey Evaluation

Visit OCTO QuickBase app to complete evaluation (link in chat)



After survey is completed, professional learning units will be sent via email.

Thinking Partner

- Choosing instructional materials
- Planning lessons

Individual or Group Support

- Data Dives/Learning Walks
- Customized

Student-Centered

- Driven by student work
- Focused on student outcomes



Technical Assistance is available

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