Learning Progressions

Learning Progression Model

Block of Knowledge → Block of Knowledge → Subskill → Curricular Aim

FA Checks
Success Criteria

3  2  4  9
(Lessons)

Learning Progression: A carefully sequenced set of building blocks consisting of subskills and bodies of enabling knowledge that, it is believed, students must master en route to mastering a more remote curricular aim.

Popham, 2008

Progressions for the Common Core State Standards in Mathematics (draft)

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20 May 2011

K. Counting and Cardinality; K–5 Operations and Algebraic Thinking

Counting and Cardinality and Operations and Algebraic Thinking are about understanding and using numbers. Counting and Cardinality addresses: Operations and Algebraic Thinking, as well as Number and Operations in Base Ten. It begins with early counting and sorting how many in one group of objects. Addition, subtraction, multiplication, and division are all important ideas, but it also understands important ideas that are related. Initial algebraic ideas include the understanding that various kinds of changes in one quantity affect the others, and that there is not a limited number of ways to think about a problem, or a map that is interesting and in-gaging in young children.

The Progression of Professional and Algebraic Thinking moves with the basic operations—the kinds of number relationships they model and, consequently, the kinds of problems they can be used to solve as well as their mathematical properties and relationships. Although much of the emphasis is in the Service Learning number, understanding and estimating the number of problems they can be used to solve as well as their mathematical properties and relationships, it is often easier to describe the concepts involved in Operations and Algebraic Thinking. Thinking means that students' work in this area should be designed to help them understand properties of whole numbers (even the whole number properties and understand and apply operations on whole numbers and operations involving a number that is not a whole number). Addition and subtraction are the first operations studied. In
Constructing a Landscape

Big Ideas

Strategies

Mathematical Models
Big Ideas, Strategies, Models

Working in your group:

• Which are you familiar with? Which does your group need to know more about?

• How might you group these or place these in a “landscape” to show the mathematical connections?

• Do any build on each other?
Activity: “Big Idea”

Step 1: Critical Content

- Identify big ideas, strategies, and models related to (x and ÷) / (+ and -)
- Discuss with your face partner which critical content area(s) focus(es) on (x and ÷) / (+ and -)
Activity: “Big Idea”

Step 2:
• Quickly skim and scan cluster headings and standards related to multiplication and division or addition and subtraction.

Packet Page 13
BREAK TIME
Interpret Evidence
Clarify Intended Learning
Elicit Evidence
Act on Evidence

Formative Assessment Process
Eliciting Evidence of Learning

We have to know where we are before deciding where we need to go.
Learning Target: Students will develop a conceptual understanding that place matters in determining value. (GRADE 2)

“Find a Place” Rules for Play

1. Students play in pairs.
2. Assign either A or B to each partner.
3. Teacher flips one card at a time and call outs which player shall use the given digit (best to alternate between A and B). Record each digit on the board for students to see.
4. Player writes given digit in any one box. Once the digit is written, it cannot be changed to a new box.
5. Play continues until all digit boxes have been filled by both player A and B.
6. Students calculate horizontally the difference between the target number and the number they built and record the difference in the box labeled ‘Score’.
7. Students then vertically total all their scores to arrive at a total amount.
8. Player with lowest recorded total score, wins.
Classroom Discussion

With your partner, take 2 minutes to discuss the strategies that you used during this game.

Find another player at your table with the same letter (A with A, B with B). Take an additional 2 minutes to discuss the differences in your thinking, strategies, and results, given that you had the same digits.
Landscape of Learning

As a table, take a minute to review the labels that you’ve sorted. Identify the big ideas, strategies and models that you encountered in the “Find a Place” game.
Numerate people look to the numbers first.

- Adding On vs. Removing
- Jumps of 10 forward and adjust
- Splitting: Partial Sums
- Count On
- Unitizing: 2 tens = 20
- Place Determines Value
- Jumps of 10 backward and adjust
- Keep one number whole and move to landmark number
- Standard Algorithm
- Decompose to get a landmark number
- Make 10s: Combinations that make ten
- Use Compensation as a strategy
- Organize & Keep Track
- Cardinality: Quantity: How many all together
- Nesting: Part/whole
- Grouping
- Jumps of 10 backward and adjust

K-2 Landscape of Learning

- Numerate people look to the numbers first.
- Additive Structuring: $100 + 30 + 2 = 132$
- Grouping
- Nesting: Part/whole
- Compensation ($+1$, $-1$): $5 + 5 = 10, 6 + 4 = 10$
- Skipping:
- Model with Groups
- Tallies
- Magnitude
- Picture

Strategies

Big Ideas

Models
Observing Students

Take a look at the following second grade student work from the game. As you read consider where students are on the landscape.

Discuss with your table group:
• where students appear to be on the landscape based upon placement of digits
• new learning goals that you may have recommended
• ways in which these formative assessments inform instruction
**FIND A PLACE**
(2 Players)

Use 40 cards numbered 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 (four of each).

### Player A

<table>
<thead>
<tr>
<th>Hundreds</th>
<th>Tens</th>
<th>Units</th>
<th>Score</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>93</td>
<td>75</td>
<td>10</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td></td>
<td>50</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>77</td>
<td>75</td>
<td>100</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>127</td>
<td>27</td>
<td>100</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>532</td>
<td>32</td>
<td>500</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>604</td>
<td>41</td>
<td>800</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>985</td>
<td>13</td>
<td>1000</td>
<td>14</td>
<td></td>
</tr>
</tbody>
</table>

### Player B

<table>
<thead>
<tr>
<th>Hundreds</th>
<th>Tens</th>
<th>Units</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
<td>9</td>
</tr>
<tr>
<td>0</td>
<td></td>
<td></td>
<td>7</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>0</td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

Order in which digits were called:

**Player A:**
- 8
- 5
- 1
- 8
- 0
- 4
- 0
- 7
- 7
- 5
- 1
- 2
- 9
- 5
- 3
- 2
- 3
- 7
- 9

**Player B:**
- 2
- 6
- 2
- 9
- 7
- 6
- 4
- 5
- 8
- 4
- 9
- 6
- 0
- 3
- 1
- 3
- 4
- 7
- 9

**Total Score**

**Player A:** 185

**Player B:** 202

When asked to discuss their placement of the digits,

**Player A replied:**
“I tried to put the larger digits in the units boxes because most of the target numbers had smaller digits in the hundreds place.”

**Player B replied:**
“I tried not to go over the target number.”
Reviewing Task Considerations

✓ Does the task expose students’ current levels of understanding in relation to the mathematics learning target?

✓ Is it problematic for students?

✓ Does the cognitive demand enable students opportunities to expose the depth of their knowledge?

✓ Does the task have multiple entry and exit points.

✓ Is the context and the mathematics of the task relevant to students

(Van de Walle et. all, p. 19, 2014)
Norms for Watching Teaching Videos

• Teaching is multi-faceted.
  – The video doesn’t show everything.

• Teaching is incredibly hard work!
  – Assume positive intent.

• No lesson is ever perfect.
  – Focus on what you can use to improve your classroom instruction.
  – Focus on the student’s and teacher’s interaction with the Mathematics.
Learning Target: Students will develop a conceptual understanding of the relationship between addition and subtraction and constant difference as equivalence. (GRADE 2)

• Solve the problems as if you were an early, middle or end of second grade student.
• Record your work on the poster at your table.
• An individual note taker has also been provided.
Mr. Galland  Brother  Mom  Dad
31  29  55  57

• How old was my mom when I was born?
• How old was my mom when my brother was born?
• How old was my dad when I was born?
• How old was my dad when my brother was born?
• In how many years will I be as old as my mom?
• In how many years will my brother be as old as my mom?
• When I’m as old as my mom, how old will she be?
• When I’m as old as my dad, how old will he be?
• In how many years will I be as old as my dad?
• In how many years will my brother be as old as my dad?
• How old will my mom be when my brother is her age right now?
• How old will my dad be when my brother is his age right now?
LUNCH
11:30 to 12:30

• See you promptly at 12:30.
• Remember to sign in when you return.
Task Activity – Second Grade

Gallery Walk: Making Connections to your Classroom

• As you observe solutions offered by other groups, consider what you might expect to observe with your students.

• Based on experience, what typical steps and missteps do you anticipate?
Observing with Purpose
Landscape of Learning

• Where are these students on the landscape of learning?
• What goals would you set for these children?
• Is the teacher engaging in the formative assessment process?
Landscape of Learning

• Where are these students on the landscape of learning?
• What goals would you set for these children?
• Is the teacher engaging in the formative assessment process?
Landscape of Learning

• Where are these students on the landscape of learning?
• What goals would you set for these children?
• Is the teacher engaging in the formative assessment process?
Looking at your note taker, what formative assessment practices did you notice in these video clips?

Where are these children on the landscape? Where would you nudge them next?

Discuss in your table groups.
Considering Formative Assessment and the Landscape

- Clarify intended learning
- Elicit evidence
- Interpret evidence
- Act on evidence
Populate your Landscape

Based on your observations, work as a group to add to or revise your landscape.
Numerate people look to the numbers first.

**K-2 Landscape of Learning**

- Count On
- Keep one number whole and move to landmark number
- Use Constant Differences
- Standard Algorithm
- Decompose to get a landmark number
- Jumps of 10 forward and adjust
- Adding On vs. Removing
- Relationship Between +/−
- Open # Line
- Decomposing: Partial Sums
- Count On
- Why Constant Difference Works
- Jumps of 10 backward and adjust
- Unitizing: 2 tens = 20
- Place Determines Value
- Make 10s: Combinations that make ten
- 5 Structure
- Use Compensation as a strategy
- Additive Structuring:
  \[100 + 30 + 2 = 132\]
- Grouping
- Nesting: Part/whole
- Cardinality: Quantity: How many all together
- Organize & Keep Track
- Tallies
- Skip Count
- Model with Groups
- Picture
- Magnitude
- Why Constant Difference Works
- Compensation (+1, −1):
  \[5 + 5 = 10, 6 + 4 = 10\]
Numerate people look to the numbers first.

- Adding On vs. Removing
- Jumps of 10 forward and adjust
- Open # Line
- Splitting: Partial Sums
- Count On
- Jumps of 10 backward and adjust
- Relations ship Between +/-
- Additive Structuring: 100 + 30 + 2 = 132
- Unitizing: 2 tens = 20
- Place Determines Value
- Multiplicative Structuring: 3 tens + 2 = 32
- Structure
- Equivalence: 3 + 3 = 5 + 1
- Model with symbols
- Model with Groups
- Using Known Facts
- Compensation (+1, -1): 5 + 5 = 10, 6 + 4 = 10
- Skip Count
- Model with Groups
- Tallies
- Picture
- Magnitude
- Use Constant Differences
- Why Constant Difference Works
- Standard Algorithm
- Decompose to get a landmark number
- Keep one number whole and move to landmark number
- Associativity: 2 + (4 + 5) = (2 + 4) + 5
- Math Rack
- Make 10s: Combinations that make ten
- Structure
- 5 Structure
- Use Compensation as a strategy
- Doubles: + and -

K-2 Landscape of Learning
Data Collection – Kidwatching and the landscape

<table>
<thead>
<tr>
<th>NAME: Sharon V.</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIVISION OF FRACTIONS</td>
</tr>
<tr>
<td>Uses measurement interpretation</td>
</tr>
<tr>
<td>Uses partitive interpretation</td>
</tr>
<tr>
<td>Set models</td>
</tr>
<tr>
<td>Answers that are not whole numbers</td>
</tr>
<tr>
<td>Understands standard algorithm</td>
</tr>
</tbody>
</table>

| MATHmatical PRACTICES |
| Makes sense of problems and perseveres | ✓ |
| Models with mathematics | ✓ |
| Uses appropriate tools | ✓ |

<table>
<thead>
<tr>
<th>Model Landscape</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repetitive Addition can be regrouped</td>
</tr>
<tr>
<td>Using five times</td>
</tr>
<tr>
<td>Repeated addition</td>
</tr>
<tr>
<td>Skip Counting</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Student Observations on 4th Grade Landscape</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIG IDEA</td>
</tr>
<tr>
<td>----------------</td>
</tr>
<tr>
<td>Commutative Property</td>
</tr>
<tr>
<td>Distributive Property</td>
</tr>
<tr>
<td>Relationship between rows and columns</td>
</tr>
<tr>
<td>Model multiplication using equal groups</td>
</tr>
<tr>
<td>Repeated addition</td>
</tr>
<tr>
<td>Stated problem in own words</td>
</tr>
<tr>
<td>Reluctant to use abstract models</td>
</tr>
</tbody>
</table>
Step 2:

- Quickly skim and scan cluster headings and standards related to addition and subtraction for second grade.

<table>
<thead>
<tr>
<th>Grade Level</th>
<th>Page # in CCSS now NVACS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kindergarten</td>
<td>11-12</td>
</tr>
<tr>
<td>1</td>
<td>15-17</td>
</tr>
<tr>
<td>2</td>
<td>19-20</td>
</tr>
<tr>
<td>3</td>
<td>23-26</td>
</tr>
<tr>
<td>4</td>
<td>29-32</td>
</tr>
<tr>
<td>5</td>
<td>35-38</td>
</tr>
</tbody>
</table>
Review and Connections

Table Conversation:

As a table group, use the finalized landscape handout to make connections to your grade level Nevada Academic Content Standards (NVACS).

Consider the critical content areas, clusters and standards.

Highlight or note these connections on the Finalized Landscape Handout.
<table>
<thead>
<tr>
<th>NVACS Standards</th>
<th>Language from the Standards</th>
<th>Big Ideas and Strategies from the Landscape</th>
<th>Models to Use with Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.OA.1</td>
<td>*adding to *taking from *putting together *taking apart *comparing *unknowns in all positions</td>
<td>*relationship between addition and subtraction *adding on vs. removing *constant difference *jumps of 10 and adjust *get to a landmark number *splitting *standard algorithm</td>
<td>*open number line *model with symbols *model with groups</td>
</tr>
<tr>
<td>2.OA.2</td>
<td>*add and subtract *mental strategies *two one-digit numbers</td>
<td>*relationship between addition and subtraction *commutative property *doubles +/- *make 10s</td>
<td>*5 Structure *10 Structure *math rack</td>
</tr>
<tr>
<td>2.OA.3</td>
<td>*odd or even *pairing objects *counting them by 2s *even as sum of two equal addends</td>
<td>*grouping *skip count</td>
<td>*additive structure *grouping *landmarks (1-9) *picture</td>
</tr>
<tr>
<td>2.OA.4</td>
<td>*rectangular arrays *sum of equal addends</td>
<td>*grouping</td>
<td>*multiplicative structure *model with groups *picture</td>
</tr>
<tr>
<td>NVACS Standards</td>
<td>Language from the Standards</td>
<td>Big Ideas and Strategies from the Landscape</td>
<td>Models to Use with Students</td>
</tr>
<tr>
<td>------------------</td>
<td>-----------------------------</td>
<td>--------------------------------------------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td>2.NBT.1</td>
<td>*digits represent amounts of hundreds, tens, ones *100 as a bundle of ten tens *100 as one hundred and 0 tens and 0 ones</td>
<td>*place determines value *unitizing *grouping</td>
<td>*additive structure *model with groups *10 structure *model with symbols *landmarks (1-9)</td>
</tr>
<tr>
<td>2.NBT.2</td>
<td>*count within 1,000 *skip-count by 5s, 10s, and 100s</td>
<td>*cardinality *1-to-1 correspondence *skip count *count on *jumps of 10 *organize and keep track</td>
<td>*5 Structure *10 Structure *open number line</td>
</tr>
<tr>
<td>2.NBT.3</td>
<td>*read and write numbers to 1,000 *base-ten numerals *number names *expanded form</td>
<td>*cardinality *synchrony</td>
<td>*landmarks (1-9) *model with symbols *additive structure</td>
</tr>
<tr>
<td>2.NBT.4</td>
<td>*compare two three-digit numbers based on meanings of hundreds, tens and ones * &gt;, &lt;, = symbols</td>
<td>*place determines value *magnitude *nesting *unitizing</td>
<td>*model with groups *open number line *10 structure *additive structure</td>
</tr>
</tbody>
</table>
## Considering the NVACS Standards

<table>
<thead>
<tr>
<th>NVACS Standards</th>
<th>Language from the Standards</th>
<th>Big Ideas and Strategies from the Landscape</th>
<th>Models to Use with Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.NBT.5</td>
<td>*fluently add and subtract  *strategies based on place value *properties of operations *relationship between addition and subtraction</td>
<td>*place determines value *unitizing *grouping *relationship between addition and subtraction *splitting (partial sums) *adding on vs. removing *constant difference *standard algorithm</td>
<td>*additive structure *model with groups *10 structure *model with symbols</td>
</tr>
<tr>
<td>2.NBT.6</td>
<td>*add up to four two-digit numbers *strategies based on place value *properties of operations</td>
<td>*place determines value *splitting (partial sums) *standard algorithm *associativity *unitizing *grouping</td>
<td>*10 Structure *open number line *additive structure *model with symbols *models with groups</td>
</tr>
<tr>
<td>2.NBT.7</td>
<td>*add and subtract within 1,000 *concrete models or drawings *strategies based on place value *relationship between addition and subtraction</td>
<td>*place determines value *relationship between addition and subtraction *unitizing *decompose *splitting (partial sums) *constant difference *standard algorithm</td>
<td>*model with pictures *model with groups *model with symbols *additive structure *multiplicative structure *open number line</td>
</tr>
</tbody>
</table>
### Considering the NVACS Standards

<table>
<thead>
<tr>
<th>NVACS Standards</th>
<th>Language from the Standards</th>
<th>Big Ideas and Strategies from the Landscape</th>
<th>Models to Use with Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.NBT.8</td>
<td>*mentally add 10 or 100</td>
<td>*adding on vs. removing</td>
<td>*10 structure</td>
</tr>
<tr>
<td></td>
<td>*mentally subtract 10 or 100</td>
<td>*unitizing</td>
<td>*open number line as a tool to think with</td>
</tr>
<tr>
<td></td>
<td></td>
<td>*jumps of 10 forward and backward</td>
<td></td>
</tr>
<tr>
<td>2.NBT.9</td>
<td>*explain why addition and subtraction strategies work</td>
<td>*place determines value</td>
<td>*10 Structure</td>
</tr>
<tr>
<td></td>
<td>*using place value</td>
<td>*why constant difference works</td>
<td>*open number line</td>
</tr>
<tr>
<td></td>
<td></td>
<td>*relationship between addition and subtraction</td>
<td>*additive structure</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>*model with symbols</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>*models with groups</td>
</tr>
<tr>
<td>NVACS Standards</td>
<td>Language from the Standards</td>
<td>Big Ideas and Strategies from the Landscape</td>
<td>Models to Use with Students</td>
</tr>
<tr>
<td>------------------</td>
<td>-----------------------------</td>
<td>---------------------------------------------</td>
<td>----------------------------</td>
</tr>
<tr>
<td>2.MD.3</td>
<td>*estimate lengths</td>
<td>*magnitude</td>
<td>*picture</td>
</tr>
<tr>
<td>2.MD.4</td>
<td>*measure to determine how much longer one object is than another *express the length difference</td>
<td>*count on *relationship between +/- *part/whole relations *organize &amp; keep track</td>
<td>*model with groups *open number line *picture</td>
</tr>
<tr>
<td>2.MD.5</td>
<td>*addition and subtraction within 100 *word problems *drawings *equations *symbols *unknown number</td>
<td>*relationship between addition and subtraction *adding on vs. removing</td>
<td>*open number lines *model with symbols *model with pictures</td>
</tr>
<tr>
<td>2.MD.6</td>
<td>*represent whole numbers *number line diagram *sums and differences</td>
<td>*magnitude *nesting *organize &amp; keep track *part/whole relations *unitizing *relationship between +/-</td>
<td>*open number lines *model with symbols *model with pictures *model with groups</td>
</tr>
</tbody>
</table>
## Considering the NVACS Standards

<table>
<thead>
<tr>
<th>NVACS Standards</th>
<th>Language from the Standards</th>
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<th>Models to Use with Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.MD.7</td>
<td>*tell time</td>
<td>*unitizing</td>
<td>*picture</td>
</tr>
<tr>
<td></td>
<td>*nearest 5 minutes</td>
<td>*skip count</td>
<td>*5 structure</td>
</tr>
<tr>
<td></td>
<td></td>
<td>*count on</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>*organize and keep track</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>*synchrony</td>
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</tr>
<tr>
<td>2.MD.8</td>
<td>*solve word problems</td>
<td>*count on</td>
<td>*model with groups</td>
</tr>
<tr>
<td></td>
<td>*use symbols</td>
<td>*relationship between +/-</td>
<td>*model with pictures</td>
</tr>
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<td></td>
<td></td>
<td>*part/whole relations</td>
<td>*additive structure</td>
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<td></td>
<td></td>
<td>*organize &amp; keep track</td>
<td></td>
</tr>
<tr>
<td>2.MD.9</td>
<td>*measure lengths</td>
<td>*organize &amp; keep track</td>
<td>*open number lines</td>
</tr>
<tr>
<td></td>
<td>*generate data</td>
<td></td>
<td>*model with symbols</td>
</tr>
<tr>
<td></td>
<td>*nearest whole number</td>
<td></td>
<td>*model with pictures</td>
</tr>
<tr>
<td></td>
<td>*line plot</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>*patterns can be made from iterated units</td>
<td></td>
</tr>
<tr>
<td>2.MD.10</td>
<td>*picture graph</td>
<td></td>
<td>*model with symbols</td>
</tr>
<tr>
<td></td>
<td>*bar graph</td>
<td></td>
<td>*model with pictures</td>
</tr>
<tr>
<td></td>
<td>*put-together</td>
<td></td>
<td>*model with groups</td>
</tr>
<tr>
<td></td>
<td>*take-apart</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>*compare</td>
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</tr>
</tbody>
</table>
Explore ways in which FA attributes and practices move learning forward. PLCs will begin planning instruction, within today’s context, embedding formative assessment practices in plans.

Plan next steps in embedding learning into practice. Context of Learning: x and ÷ + and -

Participants will construct a progression of learning. Participants will discuss FA practices observed.

Compose and share a definition or quote capturing the essence of what formative assessment is.

Develop a conceptual understanding of the Formative Assessment Process and its benefits.
Fall PD Opportunities

- District-Wide PLTs (16 hours, 1 credit)
  - Continue your learning from today!
  - Four follow-up sessions: 9/25, 12/4, 2/26, 5/21
  - Work in grade level teams
  - Content tied to “Pacing Timeline” to provide “just in time” connected learning opportunities to prepare for the next quarter of content

- Computational Strategies/Algorithms (8 hours, ½ credit)

- Core Connections: K-5 (8 hours, ½ credit) Same as offered last year. Join us if you missed it or have changed grade levels!

- eSuite Basic (no credit): 8/19 or 9/9

- Intensification Lab: During winter break

- Planning in Math (16 hours, 1 credit)

- Using Classroom Discussion to Promote Problem Solving and Solution Strategies in Mathematics

- Formative Assessment Webinars – (October – November)

Check Solutionwhere frequently for updates and additional opportunities!
Resources to Support

• WCSD Pacing Timeline

• WCSD Curriculum Documents

• Instructional Practice Guides

District Performance Plan Goal 1, Objective 4: The percentage of site administrators, instructional coaches, teachers, and instructional ESPs who report familiarity with WCSD Core NACS Materials and curriculum tools adopted and/or endorsed by WCSD will reach 50% by October 2014 and 75% by May 2015.
Break and Moving to Verticals
2:45-3:30 Vertical Teams with your School

Each school will turn in an exit ticket that addresses the guiding question. Individual copies of the questions have been provided for you to refer to during the discussion.

Guiding Question:

- How does the Mathematical landscape and formative assessment fit with my current teaching practices and my knowledge about nurturing and developing young mathematicians?

- **Presenters:** List schools and assigned room numbers here!
References


• Fosnot, Catherine, and Dolk, Maarten. (2001). Young Mathematicians at Work. Constructing Multiplication and Division. Heinemann, NH.


