CURRICULUM COMPACTING
for Advanced Mathematics in the Elementary Classroom

Fundamentals of Curriculum Compacting
MEETING THE NEEDS OF EVERY STUDENT?

Imagine a professional development training.
- The presenter starts and you realize you have already had this training.
- How do you feel?
- What do you do?
- Imagine if this happened to you every day?

Our high ability students feel this frustration everyday, sitting in class, waiting to learn.

Reis et al. (1998) found that elementary and middle school teachers who implemented compacting could eliminate between 40%-70% of the regular curriculum for 10%-15% of students in their mixed ability classes.

STUDENT A

<table>
<thead>
<tr>
<th>Instructor:</th>
<th>Carperer:</th>
<th>Total Possible</th>
<th>21</th>
<th>100%</th>
<th>Lowest Score</th>
<th>6</th>
<th>26%</th>
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<th>80%</th>
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<tbody>
<tr>
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<td>Thursday</td>
<td>26</td>
<td>21</td>
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What is compacting?

- “A strategy that streamlines and eliminates previously mastered regular curriculum for students who are capable of completing content at a faster pace.”
- Saves time by eliminating content mastered that can be used to provide enrichment or acceleration.
- A differentiation strategy for high ability learners with less work for you.

Reis et al., 2016

GROUPING

ABILITY GROUPING IS BEST PRACTICE
INDIVIDUAL EDUCATIONAL PROGRAMMING GUIDE
The Compactor

Name it  Prove it  Change it

Step 1: Name it

- What is in the unit?
  - Standards, benchmarks, objectives, concepts, vocabulary
- Deconstruct the standard(s)
  - What is/not included?
  - What level of knowledge is the content?
  - Example assessment items
Number Sense and Operations | Pre | Post
--- | --- | ---
MA.4.NSO.1.1 Express how the value of a digit in a multi-digit whole number changes if the digit moves one place to the left or right. |  |  
MA.4.NSO.1.2 Read and write multi-digit whole numbers from 0 to 1,000,000 using standard form, expanded form and word form. |  |  
MA.4.NSO.1.3 Plot, order and compare multi-digit whole numbers up to 1,000,000. |  |  
MA.4.NSO.1.4 Round whole numbers from 0 to 10,000 to the nearest 10, 100 or 1,000. |  |  
MA.4.NSO.1.5 Plot, order and compare decimals up to the hundredths. |  |  

For each objective, check off and date how much you feel you know at this point.

I can express how the value of a digit in a multi-digit whole number changes if the digit moves one place to the left or right. | All | Most | Some | None
--- | --- | --- | --- | ---
I can read and write multi-digit whole numbers from 0 to 1,000,000 using standard form, expanded form and word form. |  |  |  |  
I can plot, order and compare multi-digit whole numbers up to 1,000,000. |  |  |  |  
I can round whole numbers from 0 to 10,000 to the nearest 10, 100 or 1,000. |  |  |  |  
I can plot, order and compare decimals up to the hundredths. |  |  |  |  

Word Wall
- Expanded Form
- Multi-digit
- Standard Form
- Value
- Whole number
- Word Form

Essential Questions
- How do I express various forms of numbers for different purposes?
- What is the role of place value in our system of math?
Step 2: Prove it

- Identify students for compacting math
- Measure student mastery level of content and skills of the unit
- Mastery does not mean they know everything

GOAL OF ASSESSMENT

- Determine student’s needs:
  - Ability to
    - recall information
    - apply concepts/perform a skill
    - use knowledge to think strategically
    - extend thinking about a concept
- Guide Instruction
  - Before (Pre-Assessment)
  - During (Formative Assessment)
  - After (Summative Assessment)
Skills and/or Content

• Already mastered?
• Can master quickly?

Students Who Know:
Little of the unit’s concepts and skills prior to instruction

Are Students Who Need:
Standard curriculum and instruction

Unit 1 Standards
☐ Standard 1
☐ Standard 2
☐ Standard 3
☐ Standard 4
☐ Standard 5

Unit 1 Standards
☐ Standard 1
☐ Standard 2
☐ Standard 3
☐ Standard 4
☐ Standard 5

Unit 1 Standards
✓ Standard 1
✓ Standard 2
✓ Standard 4
✓ Standard 5

Almost all or all the unit’s concepts and skills prior to instruction
To be taught what they do not know and allowed to skip repetitions if they quickly master the new content or skill

Something new and different
Prove It Examples

• Pre-test (version of the post-test)
• Open-ended large concept question
• Pre-unit challenge lesson to observe advanced mathematics behaviors
• Verbal questioning
• Probes
• Asking students to perform a skill
• Answer the essential question(s)

One way the data could present

• 60% or above on all standards
  • Would benefit from instruction and practice for those elements they need
    • Formative assessment success – go on to something else
    • Formative assessment not yet – full curriculum and instruction
Another way the data could present

• Over 60% or above on 3 out of 5 standards
  • Compact out of those 3 standards
  • Provide instruction and limited practice for the additional 2 standards
    • Formative assessment success – go on to something else
    • Formative assessment not yet – full curriculum and instruction

A choice of ways...

• Have students do an alternative activity or lesson focusing on standards 1–3 while everyone else does lessons for 1–3, and then join the class for 4 and 5.
  OR
• Have students accelerate to standards 4 and 5 while everyone works on 1–3. Then, they can join the students who already compacted out of the unit.
Step 3 – Change it

Alter the regular curriculum for those students in various ways

- Accelerate to concepts or units you do not traditionally have time to cover
- Excuse students from sections mastered; streamline the rest
- Real-world, problem-based learning
- Alternative unit
- A higher grade’s related standards

In the Classroom

- Class goals
  - Show mastery of all benchmarks
  - Provide differentiated learning for students according to their knowledge level
- Meeting students’ needs
  - Pre-tests before each unit to guide instruction
  - Students who show mastery will compact out of the unit and receive alternative math instruction
  - Compacted students receive grades based on their demonstrated mastery and alternative work.
### Pacing Guide Differentiation Log

#### Standard(s) for Today’s Lesson

<table>
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<tr>
<th>Grouping of Advanced Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whole Class</td>
</tr>
<tr>
<td>Flexible Group</td>
</tr>
<tr>
<td>Individual</td>
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#### Content from a Supplemental Source

- Math differentiation option from the textbook for this lesson.
- Page ______ Activity Number(s) ________
- DOK Level 3 __ or Level 4 ___?
- and/or
- DOK Level 3 __ or Level 4 ___?
- DoK Differentiated to: Level 3 __ Level 4 ___?

#### Brief description of differentiated activity:

- Grade ___ Standard ____________________
- DOK Level 3 __ or Level 4 ___?

#### Other/Notes

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Thank you!