

# CCSS Fraction Module 4: Standards for Mathematical Practice - Attending to Precision by Developing Fraction Vocabulary

## Facilitator's Notes

### Goal:

To integrate the Standard for Mathematical Practice, *Attend to Precision*, by developing fraction vocabulary specific to the CCSS content and processes.

### Distribute to participants:

- CCSS: Standards for Mathematical Practice
  - <http://www.corestandards.org/Math/Practice>
- CCSS for Mathematics
  - Gr. 3 <http://www.corestandards.org/Math/Content/3/NF>
  - Gr. 4 <http://www.corestandards.org/Math/Content/4/NF>
  - Gr. 5 <http://www.corestandards.org/Math/Content/5/NF>

### Supplementary Materials:

- [Personal Action Plan Template](#) handout
  - An optional template that can be distributed to each participant to facilitate personal reflection and planning with respect to fraction instruction based on the CCSS. It can be used as a supplementary closing activity for each of the six CCSS Fraction Modules. There are two versions of the template.
    - Initial Template – to be used after a participant completes his/her first module
    - Follow-Up Template – to be used after each subsequent module completed by a participants

### Directions:

1. Ask participants to read the sixth Standard for Mathematical Practice, *Attend to Precision*.
2. Instruct the group to highlight and record the key ideas that are encompassed in this practice.
3. Ask participants to summarize their findings by giving two key ideas that reflect the expectations for this practice. Encourage sharing with the whole group.
4. Share the following quote with the teachers from the resource **North Carolina Common Core Instructional Support Tools: Unpacking Standards**  
“Mathematically proficient students communicate precisely by engaging in discussion about their reasoning using appropriate mathematics language”
5. Encourage participants to discuss how this quote relates to their current instructional practice.
6. Distribute the article by Robert Marzano, **A Six-Step Process for Teaching Vocabulary**.

[http://images.pcmac.org/Uploads/CandlerCounty/CandlerCounty/Divisions/DocumentsCategories/Documents/marzano\\_mong.pdf](http://images.pcmac.org/Uploads/CandlerCounty/CandlerCounty/Divisions/DocumentsCategories/Documents/marzano_mong.pdf)

7. Direct participants to break into small groups. After independently reading the research article and highlighting key points, group members should discuss their findings and then report back to the large group. Questions to consider in the whole group discussion should include: *What tools do teachers currently use that reflect the research on vocabulary development? How could we align these tools to our work with fraction vocabulary?*
8. Pose this question to the whole group: What terms should students learn to use with increasing precision in the fraction units? Give participants a few moments to consider the question individually and then rearrange them into grade level groups.
9. Use the [Quick Write for Fractions](#) protocol to generate lists of new and essential vocabulary for both the students and the teachers.
  - Instruct participants to alternate between independently completing a task and then debriefing that task in their small group until all three tasks have been addressed.
  - Invite each grade level to share their findings with the large group.
10. Compare the group's list to the list provided to the facilitator, [CCSS Fraction Vocabulary](#), for any missing terms or conflicts. Foster a discussion to consider this additional information.
11. Debrief the session by asking participants to reflect on the implications for their future work in the classroom with respect to developing mathematical vocabulary.

## Activities and Tools to Extend Your Study:

### 1. Unpacking the Standard for Mathematical Practice - *Attend to Precision*:

- a. Distribute the following by grade level:
  - i. North Carolina Common Core Instructional Support Tools: Unpacking Standards <http://www.dpi.state.nc.us/acre/standards/common-core-tools/#unmath>
    - Grade 3 will need pages 3 and 18-20
    - Grade 4 will need pages 3 and 20-32
    - Grade 5 will need pages 3 and 22-35
  - ii. EDC: Think Math-CCSS Practices [http://thinkmath.edc.org/index.php/CCSS\\_Mathematical\\_Practices](http://thinkmath.edc.org/index.php/CCSS_Mathematical_Practices)
- b. Direct participants attention to the sixth Standard for Mathematical Practice, *Attend to Precision* and
  - i. Ask participants to review the documents and locate the specific grade level examples of this practice as it relates to fractions.
  - ii. Encourage participants to discuss their findings in small groups. Following the discussion, direct each group to make a poster outlining an example of an activity they could use at their grade level.
  - iii. Invite each group to share out their ideas with the larger group.

### 2. Exploring Illustrative Word Walls for Mathematics:

A word wall is a collection of words, which are systematically organized in the classroom. A word wall should be more than a decorative display. It should be an easily accessible tool that is

used by students to promote group learning, foster reading and writing in mathematics, promote independence, provide visual cues, and develop students' vocabulary in mathematics.

a. Comparing Illustrative Work Walls:

Invite participants to view the four different examples of word walls for grade 5 found at <http://schools.nyc.gov/documents/elementarymath/Differentiation/Environment/vocabulary.htm> . Ask them to compare the samples with these questions in mind:

- i. How accessible is each sample for all types of learners?
- ii. To what degree does each word wall promote student independence? Are they equally as valuable as an aid to a student who is trying to understand a math assignment? Why or why not?
- iii. Are helpful and accurate visual clues provided in each example?
- iv. Does each word wall promote a deep understanding of precise mathematical terminology?

b. Making Illustrative Word Walls More Interactive:

Ask participants to consider the suggestions on the following two websites for ways in which to encourage students to interact more effectively with mathematical word walls.

Encourage participants to work in grade level groups to brainstorm and/or choose two strategies that they will bring back to their own classrooms.

<http://www.k-5mathteachingresources.com/math-vocabulary.html>

<http://www.broward.k12.fl.us/studentssupport/ese/PDF/MathWordWall.pdf>

c. Using Student Friendly Language:

Ask teachers to think about the key fraction vocabulary at their grade level and then to brainstorm appropriate kid friendly language that captures the essence of each term.

Provide cardstock to each teacher so they can record their findings. Suggest that teachers bring these cards back to their classrooms in order to give students the opportunity to generate the diagrams that will complete their mathematics word walls.

d. Creating an Action Plan for Word Walls:

Provide time for groups of grade level teachers to develop a plan for the design and usage of illustrative word walls for fractions for their classrooms. Suggest that teachers may want to include activities that will assist students in the introduction to word walls as well as strategies to assist students in becoming independent users of the resource.