

East Central BOCES

Introduction to the Units of Instruction for Mathematics

The following process was used to develop the units of instruction-

1. A mathematical topic was selected for grade level instruction
2. Colorado State (Common Core) grade level standards were matched to the topic
3. The matching state standards were unwrapped to determine concepts and skills within the standards and the level of reasoning expected within the standards
4. Big Ideas and Essential Questions were developed from the unwrapped standards

Big Ideas state the mathematical understanding that students will obtain from the instructional activities in the unit.

Essential Questions are the Big Ideas turned into a question that can be used with students instructionally.

Big Ideas are the driving force of the units of instruction.

5. The Unit Assessment was developed.

The Unit Assessment is directly matched to the Big Ideas for the unit. Each Big Idea is assessed using a variety of types of questions including multiple-choice, showing work, and constructed response, to allow students multiple ways to show evidence of understanding. The assessment items are organized by Big Idea to facilitate collection of data pertaining to student proficiency.

A Unit Assessment answer sheet was developed that provides a statement of proficiency for each constructed response assessment item and suggested point values for questions.

6. Other Components that were included in the Instructional Units:
 - Problem Solving Tasks matched to the Big Ideas
 - Suggested Instructional Activities and Resources to teach the Big Ideas
 - Mental Math Themes
 - Math Review Categories
 - Key Vocabulary

Implications of the Design of the Instructional Units

- The grade level textbook may or may not be the primary resource to teach the unit
- Units can be used with various textbook series
- The design allows the classroom teacher to make decisions as to what resource will work best to teach the Big Ideas
- This approach facilitates common assessments for a grade level within a school, district or across the BOCES region
- Individual lesson activities and sequence of lessons will need to be developed by grade level teachers.

Use of the Instructional Units

- Each grade level set of units has a suggested sequence to follow.
- Each instructional unit has a suggested time frame for completion.

A suggested process for the use of the units by individual teachers or grade level teams:

1. Become familiar with the Colorado State Standards that match the topic of the unit.
2. **Optional, but recommended:** *Read the original Common Core Standards matched to the topic that are referenced in the Colorado State Standards. The original Common Core Standards are easier to understand and maintain the integrity of the learning progressions, which will enhance your instruction.*
3. Become familiar with the Big Ideas for the unit and the connection of those Big Ideas to the standards.
4. Become familiar with the unit assessment in terms of the level of reasoning expected and the various ways students are asked to show evidence of understanding.
5. Develop lessons and activities for the units using your textbook, the resources listed in the unit, and other resources that you are familiar with. If possible, collaborate with another teacher at the same grade level to complete this task.
6. Develop formative assessment activities for use during the unit.
7. Determine possible time frame for the unit.
8. Keep track of student misconceptions that are forming. Use this information to generate math review categories to use after the unit.
9. Discuss results on the unit assessment with other grade level teachers.
10. Keep reflective notes about the unit for next year.