This course supports the assessment for Mathematics Learning and Teaching. The course covers 7 competencies.

**Introduction**

**Competencies**
This course provides guidance to help you demonstrate the following 7 competencies:

- **Competency 662.1.1: Learning Activities to Teach for Understanding**
The graduate integrates principles and models of teaching for understanding into learning activities.

- **Competency 662.1.2: Teaching Through Problem Solving**
The graduate integrates problem solving into learning activities to build conceptual understanding.

- **Competency 662.1.3: Teaching Strategies**
The graduate evaluates teaching tools and strategies for the purpose of planning learning activities.

- **Competency 662.1.4: Aligning Learning Activities to National Standards**
The graduate evaluates learning activities for alignment with the National Council of Teachers of Mathematics (NCTM) standards.

- **Competency 662.1.5: Standards and Best Practices in Teaching and Learning**
The graduate incorporates standards and best practices for the teaching and learning of mathematics for all students into instructional practice.

- **Competency 662.1.6: Evaluating Student Work**
The graduate uses multiple assessment strategies to evaluate student understanding and guide instruction.

- **Competency 662.1.7: Differentiated Instruction**
The graduate accommodates the needs and abilities of diverse students in the planning of learning activities.

**Study Plan**

**Teaching Dispositions Statement**
Please review the [Statement of Teaching Dispositions](#).

**Course Instructor Assistance**
Seek help when you need it.

**Recommended Activities**
The primary learning resource for this course is a VitalSource E-Text:

This textbook and other recommended learning resources are linked within the following Pacing Guide and Study Plan section of the course. These resources have been carefully selected to prepare you for success on your performance assessment and in your teaching career.

**Supplemental Activities**
To find optional and supplemental activities, please use the word "supplemental" in the Course Search box. These activities can be enriching, but they are not essential for becoming competent. For example, it can be tremendously valuable to view teaching strategies in practice by video, rather than just reading about them.

**Pacing Guide and Study Plan**

<table>
<thead>
<tr>
<th>Topic</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teaching for Understanding</td>
<td>• chapter 1 (&quot;Teaching Mathematics in the 21st Century&quot;) in <em>Elementary and Middle School Mathematics</em></td>
</tr>
<tr>
<td></td>
<td>• Supplemental: see constructivist methods and Socratic questioning in action in <em>Learning Math—Geometry</em>, click &quot;Different Triangles&quot; video (27 min.).</td>
</tr>
<tr>
<td></td>
<td>• chapter 2 (&quot;Exploring What it Means to Know and Do Mathematics&quot;) in <em>Elementary and Middle School Mathematics</em></td>
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<tr>
<td>National Standards and Best Practices</td>
<td>• The Common Core State Standards for Mathematics (CCSSM) are K-12 standards that have been adopted by the majority of states. The</td>
</tr>
</tbody>
</table>
CCSSM are built on the best math standards from across the country as well as international models and current research. Even if the state in which you will be teaching has not adopted them, it is important that you have a firm understanding of the CCSSM, including the grade-level standards, standards for mathematical practice, and the key shifts in how these standards differ from previous standards. Read the following:

- **Mathematics Standards**
- **Key Shifts in Mathematics**

- While the CCSSM set important grade-specific and mathematical practice goals, they do not define how the standards should be taught or which materials should be used to support the standards. It is still the role of the district and teacher to determine how best to select and implement curriculum that will serve their students. **Principles to Action** is a National Council of Teachers of Mathematics NCTM
| Teaching Through Problem Solving | • **chapter 3** ("Teaching Through Problem Solving") in *Elementary and Middle School Mathematics*
| | • **chapter 4** ("Planning in the Problem-Based Classroom") in *Elementary and Middle School Mathematics*
| | • Supplemental: see a teacher striving to help the audience understand through a focus on problem solving in *Translating Words Into Symbols* (58 min.).
| | • Supplemental: a currently-popular problem-focused approach to teaching is the *flipped classroom*. You may learn more about this technique, its benefits, and its... |
challenges at *Inside the Flipped Classroom* (note that you can click "next" to continue through the full article). The WGU Library provides full-text access to *Flip Your Classroom: Reach Every Student in Every Class Every Day*, a valuable resource if you are interested in flipping your teaching. For how-to tips if you are considering submitting flipped lessons for this course's problem-based performance tasks, read chapter 4 ("How to Implement the Flipped Classroom").

**Task 1**

Based on the topic you select in numbers or algebra, review content-specific teaching strategies in *Elementary and Middle School Mathematics*:

<table>
<thead>
<tr>
<th>Topic</th>
<th>Relevant Chapters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number Sense and Basic Facts</td>
<td>chapters 8, 9, 10, 11</td>
</tr>
<tr>
<td>Developing Computation Skills</td>
<td>chapters 9, 12, 13</td>
</tr>
<tr>
<td>Algebra</td>
<td>chapter 14</td>
</tr>
<tr>
<td>Fractions, Decimals, and Percents</td>
<td>chapters 15, 16, 17</td>
</tr>
</tbody>
</table>
## Exponents and Real Numbers

Complete Task 1 in TaskStream.

### Task 2

Review content-specific teaching strategies about functions in *Elementary and Middle School Mathematics*:

- **chapter 14** ("Algebraic Thinking: Generalizations, Patterns, and Functions")

Complete Task 2 in TaskStream.

### Teaching Strategies

- **chapter 6** ("Teaching Mathematics Equitably to All Children") in *Elementary and Middle School Mathematics*

- Supplemental: view teaching strategies in action in the following videos:
  - **Video 12**, Classroom Case Studies, 6-8, Part 2 (27 min.)
  - **Math Drills App Review** (2 min.)
  - **Structured Drill of the Multiplication Tables** (6 min.)
  - **Math Education: An Inconvenient Truth** (16 min.)
### Task 3

Based on the topic you select in geometry, review content-specific teaching strategies in *Elementary and Middle School Mathematics*:

- **chapter 18** ("Proportional Reasoning")
- **chapter 19** ("Developing Measurement Concepts")
- **chapter 20** ("Geometric Thinking and Geometric Concepts")

Complete Task 3 in TaskStream.

### Task 4

Based on the topic you select in probability and statistics for your assessment tasks, review content-specific teaching strategies in *Elementary and Middle School Mathematics*:

- **chapter 21** ("Developing Concepts of Data Analysis")
- **chapter 22** ("Exploring Concepts of Probability")
- **chapter 5** ("Building Assessment into Instruction")

*Elementary and Middle School Mathematics*

Complete Task 4 in TaskStream.

WGU values your input! If you have comments, concerns, or
suggestions for improvement of this course, please Submit your Course Feedback here.

Support
The information in this section is provided to detail the resources available for you to use as you complete this course.

Accessibility Policy
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Course Feedback
WGU values your input! Please submit any feedback you have using the following form:

Course Feedback