Course Syllabus Template
All Courses = 36 Hours; minimum 6 sessions

Please complete a full course syllabus using this format. The number of sessions held will depend on how you allocate the 36 hours. This syllabus will be uploaded to the ASPDP web site. Please be sure it is in a word or PDF document format.

Title of Course: Common Core in Mathematics: Instructional Shifts for Effective Implementation, Grades 9-12
Course Code: N/A
Course Location: On-line, www.kdsi.org/NYC
Instructor’s Name: Sophia Thwaites  Author: Ronit Carter  Presenter: Meesha Brown
Instructor’s Telephone #: 800-728-0032  E-mail: nyc.kdsi.org
Course Begins: 2/24/14  Course Ends: 6/27/14  Total Hours: 36

Course Description

The Common Core State Standards originated in 2010 and have been adopted by the majority of states across the country. The Standards aim to increase the rigor of instruction for all students in order to adequately prepare them for success in college and career. In this course, educators will explore The Common Core State Standards for Mathematics (CCSS-M) in grades 9-12 to understand the purpose for the Standards, the foundations of the Standards, what students are expected to understand, know, and be able to do, and how this will impact teachers’ approach to instruction. The course will address the combination of content standards and Mathematical Practice standards, the three shifts in emphasis and organization, how these shifts will impact classroom practice, and ways to address the needs of diverse student populations. Through readings, classroom videos, and other activities, participants will gain a foundational understanding of The Standards and their application. Participants will become informed educators who can implement the standards with fidelity in their school or district.

NOTE: Midterms can be submitted anytime, but in order to receive feedback, midterms must be submitted no later than two months after the final registration date.

Calendar

<table>
<thead>
<tr>
<th>Session # 1</th>
<th>Time: self-paced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date: self-paced</td>
<td>Number of hours for this session: 1.0</td>
</tr>
</tbody>
</table>

Topics: List session topic and material, e.g. handouts. Indicate midterm and final exam date.

In this course introductory unit, participants read the syllabus that contains a course and unit descriptions to develop student learning goals related to the domains and components from Charlotte Danielson’s Framework for Teaching (at http://charlottedanielson.com/theframeteach.htm). They may also consult the

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NYC Teacher Effectiveness site
(At http://schools.nyc.gov/Academics/CommonCoreLibrary/Toolkit/TeacherEffectiveness/default.htm), and
the NYC CCSS (at
http://schools.nyc.gov/Academics/CommonCoreLibrary/Why/NYSStandards/default.htm). (Participants may
also draw from existing classroom data they have collected from pretests and assessments or know
anecdotally.)

| Objectives: Specify instructional goals and standards for each session. |
| To set student learning goals. |
| Method of Instruction: List the method of presenting: Classroom video or interactive hands-on activity. Include strategies to meet diverse learning needs (differentiated instruction). |
| • Participants consult standards |
| • Participants create learning goals |

Classroom Practice: Specify what skills and strategies the participant will bring back to his/her classroom.
Participants set learning goals that will inform classroom instruction

| Resources (readings, artifacts, internet sites, videos, etc.): Provide the title, author, edition, publisher, cost, and where it is available. If there is a guest speaker, include the presenter’s name and affiliation. |
| http://charlottedanielson.com/theframeteach.htm |
| http://schools.nyc.gov/Academics/CommonCoreLibrary/Toolkit/TeacherEffectiveness/default.htm |

| Guest Speakers: |
| N/A |

### Calendar

<table>
<thead>
<tr>
<th>Session # 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date: self-paced</td>
</tr>
<tr>
<td>Number of hours for this session: 4.0</td>
</tr>
</tbody>
</table>

**Topics:** List session topic and material, e.g. handouts. Indicate midterm and final exam date.

In this introductory unit, educators will explore The Common Core State Standards for Mathematics in
grades 9-12 (CCSS-M) to understand the purpose for the standards, the foundations of the standards, what
students are expected to know and how this will impact teachers’ approach to instruction. Participants will
also set goals for the course to guide their personal learning experience.

**Objectives: Specify instructional goals and standards for each session.**

After completing this unit, educators will know:

- Why the CCSS-M standards were developed
- The meanings and intent of the Mathematical Practice standards
- The organization of the CCSS-M content standards
- The 3 major shifts in organization and instructional emphasis as the structure for understanding the

Revised 11.2011 his
**CCSS-M (focus, rigor, coherence)**

**Method of Instruction:** List the method of presenting: Classroom video or interactive hands-on activity. Include strategies to meet diverse learning needs (differentiated instruction).

- Video presentation
- Readings
- Reflection questions
- Discussion forum
- Quiz

**Classroom Practice:** Specify what skills and strategies the participant will bring back to his/her classroom.

After completing this unit, educators will apply the following skills:

- Understand the organization of the CCSS-M, specifically how to make sense of the domains and priority focus areas across grades 9-12 to appreciate the full range of conceptual understanding and skills that students need to learn in a specific grade
- Explore how the combination of content and mathematical practice standards within a lesson provides greater rigor for students’ learning and builds conceptual understanding

**Resources (readings, artifacts, internet sites, videos, etc):** Provide the title, author, edition, publisher, cost, and where it is available. If there is a guest speaker, include the presenter’s name and affiliation.

- *Achieving the Common Core: Understanding the K-12 Common Core State Standards in Mathematics*
- *Introduction: Toward Greater Focus and Coherence*
- *How to Read Grade Level Standards*
- *The Common Core State Standards for Mathematics*

(All readings are available free in the classroom)

**Guest Speakers:**

N/A

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**Calendar**

- **Session # 3**
- **Date:** self-paced  
  **Time:** self-paced  
- **Number of hours for this session:** 4.0

**Topics:** List session topic and material, e.g. handouts. Indicate midterm and final exam date.

The CCSS Mathematics standards promote three shifts in organization and instructional emphasis: focus, coherence, and rigor. In this unit, participants will explore the standards to gain an understanding of grade-level expectations and content within the mathematics classroom. Through greater familiarity with the organization, nature, and purpose of The CCSS for Mathematics, participants will explore how the three shifts are intended to help students learn mathematics more deeply, and with a solid combination of conceptual understanding and procedural skill. Participants will also observe evidence of these shifts in the classroom and consider instructional strategies to promote learning that deepens the mathematical understanding that the CCSS-M shifts emphasize, in order to prepare students for college and careers.

**Objectives:** Specify instructional goals and standards for each session.

After completing this unit, educators will know:

- The purpose, emphasis, nature, and structure of the CCSS-M content standards
The three CCSS-M shifts – focus, coherence, and rigor – and what they emphasize
• How the coherence shift provides learning progressions across grade levels K-8
• The three aspects of the rigor shift – conceptual understanding, procedural skill and fluency, and application of content

Method of Instruction: List the method of presenting: Classroom video or interactive hands-on activity. Include strategies to meet diverse learning needs (differentiated instruction).

<table>
<thead>
<tr>
<th>Video presentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Readings</td>
</tr>
<tr>
<td>Reflection questions</td>
</tr>
<tr>
<td>Discussion forum</td>
</tr>
<tr>
<td>Quiz</td>
</tr>
</tbody>
</table>

Classroom Practice: Specify what skills and strategies the participant will bring back to his/her classroom.

After completing this unit, educators will apply the following skills:
• Identify and provide evidence of the mathematics shifts in classroom instruction
• Explore how the integration of content and mathematical practice standards support the CCSS mathematics shifts and conceptual understanding of the content standards
• Reflect on the connections between CCSS Mathematical Practice and content standards

Resources (readings, artifacts, internet sites, videos, etc): Provide the title, author, edition, publisher, cost, and where it is available. If there is a guest speaker, include the presenter’s name and affiliation.

<table>
<thead>
<tr>
<th>CCSS Mathematics Standards, Grades 9-12, pp. 41-56</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCSS-M Charts, Achieve the Core: K-12 Progressions chart, Focusing Attention within Number and Operations, and Priorities in Mathematics</td>
</tr>
<tr>
<td>Making the Shifts in Common Core: Now What?</td>
</tr>
<tr>
<td>The Structure is the Standards</td>
</tr>
<tr>
<td>Focus, Coherence, and Rigor in the CCSS</td>
</tr>
<tr>
<td>Principles Regarding the CCSS</td>
</tr>
<tr>
<td>Designing Math Courses Based on the CCSS</td>
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(All readings are available free in the eClassroom)

Guest Speakers:
N/A

Calendar

<table>
<thead>
<tr>
<th>Session # 4</th>
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</thead>
<tbody>
<tr>
<td>Date: self-paced</td>
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<tr>
<td>Number of hours for this session: 4.0</td>
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</tbody>
</table>

Topics: List session topic and material, e.g. handouts. Indicate midterm and final exam date.

In this unit, participants will answer the questions: What are the Standards for Mathematical Practice, how are they grouped, and how do they support students’ learning of the content standards? In this unit, participants will explore Mathematical Practices 1, 6, 2, and 3, also known as habits of mathematical thinkers to gain an understanding of students’ development of these mathematical practices within the mathematics classroom across grade levels.
### Objectives: Specify instructional goals and standards for each session.

After completing this unit, educators will know:

- The purpose, meaning, and emphasis of the CCSS Standards for Mathematical Practice
- How the Standards of Mathematical Practice support rigor in students’ learning and support conceptual understanding of the content standards
- CCSS-M aligned lessons integrate multiple Mathematical Practice and content standards

### Method of Instruction: List the method of presenting: Classroom video or interactive hands-on activity. Include strategies to meet diverse learning needs (differentiated instruction).

- Video presentation
- Readings
- Reflection questions
- Discussion forum
- Quiz

### Classroom Practice: Specify what skills and strategies the participant will bring back to his/her classroom.

After completing this unit, educators will apply the following skills:

- Identify and provide evidence of the Mathematical Practices in classroom instruction
- Recognize instructional strategies designed to foster the combination of content and practice standards in a CCSS Mathematics classroom
- Reflect on the connections between CCSS Mathematical Practice and content standards

### Resources (readings, artifacts, internet sites, videos, etc):

Provide the title, author, edition, publisher, cost, and where it is available. If there is a guest speaker, include the presenter’s name and affiliation.

- *Standards for Mathematical Practice, CCSS Mathematics Standards, pp. 6-8*
- *Standards for Mathematical Practice groupings diagram*, Bill McCallum, University of Arizona
- *Publishers’ Criteria for the CCSS Mathematics*

(All reading available free in the eClassroom)

### Guest Speakers:

N/A

### Calendar

<table>
<thead>
<tr>
<th>Session # 5</th>
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<td>Number of hours for this session: 4.0</td>
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</table>

**Topics:** List session topic and material, e.g. handouts. Indicate midterm and final exam date.

In this unit, participants will answer the questions: What are the Standards for Mathematical Practice, how are they grouped, and how do they support students’ learning of the content standards? In this unit, participants will explore Mathematical Practices 4, 5, 7, and 8, also known as habits of mathematical thinkers, to gain an understanding of students’ development of these mathematical practices within the mathematics classroom across grade levels.

**Objectives:** Specify instructional goals and standards for each session.

After completing this unit, educators will know:

- The purpose, meaning, and emphasis of the CCSS Standards for Mathematical Practice
How the Standards of Mathematical Practice support rigor in students’ learning and support conceptual understanding of the content standards
- CCSS-M aligned lessons integrate multiple Mathematical Practice and content standards

**Method of Instruction:** List the method of presenting: Classroom video or interactive hands-on activity. Include strategies to meet diverse learning needs (differentiated instruction).
- Video presentation
- Readings
- Reflection questions
- Discussion forum
- Quiz

**Classroom Practice:** Specify what skills and strategies the participant will bring back to his/her classroom.

After completing this unit, educators will apply the following skills:
- Identify and provide evidence of the Mathematical Practices in classroom instruction
- Recognize instructional strategies designed to foster the combination of content and practice standards in a CCSS Mathematics classroom
- Reflect on the connections between CCSS Mathematical Practice and content standards

**Resources (readings, artifacts, internet sites, videos, etc):** Provide the title, author, edition, publisher, cost, and where it is available. If there is a guest speaker, include the presenter’s name and affiliation.
- *Standards for Mathematical Practice, CCSS Mathematics Standards, pp. 6-8*
- *Standards for Mathematical Practice groupings diagram, Bill McCallum, University of Arizona*
- *Examples of Opportunities for Connecting Math Content*
- *The Modeling Cycle in High School*

(All reading available free in the eClassroom)

**Guest Speakers:**
N/A

**Calendar**

<table>
<thead>
<tr>
<th>Session # 6</th>
<th>Date: self-paced</th>
<th>Time: self-paced</th>
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</thead>
<tbody>
<tr>
<td>Number of hours for this session: 4.0</td>
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</tbody>
</table>

**Topics:** List session topic and material, e.g. handouts. Indicate midterm and final exam date.

**Midterm Project**

To synthesize and apply the knowledge you have gained in this course thus far, this mid-course project asks you to complete two tasks. The first task is to complete a lesson plan which explains the main points of The Common Core State Standards for Mathematics (CCSS-M) to your students. The second task is to create a correspondence to communicate this information to parents in order to introduce them to the CCSS-M.

**Please do the following:**

**Step 1:**
Using the lesson plan template provided, create an original lesson plan which explains the basics and foundations of the
CCSS-M to your students. This lesson plan should include:

1. Objectives ("Students will be able to..."
2. Standards to be met
3. Opportunities and activities for students to interact and engage with the Standards for their grade level.
4. Enough material and activities to cover an entire class period.

Step 2:
Create correspondence to the parents/guardians of your students about the CCSS-M. This could be in the form of a letter, a one-page newsletter, or a detailed outline for an oral presentation. The purpose of this activity is to introduce parents/guardians to the CCSS-M and inform them of the how the new standards are changing your teaching. Your original correspondence should include:

5. A description of the CCSS-M initiative including information about the purpose and the foundation of the Standards.
6. Three main points addressing how the CCSS-M will change your approach to instruction.
7. Three tips for parents on how they can support their child’s engagement with the CCSS-M. You may wish to consider some of the suggestions put forth by the Council of the Great City Schools at: [http://www.cgcs.org/Page/244](http://www.cgcs.org/Page/244).

Points to consider:
1. The parental correspondence should be approximately one page in length (single-spaced, 12-pt font).
2. Language should be parent-friendly and as jargon-free as possible.
3. Write with an actual audience in mind. If you are a classroom teacher, please write for your students’ parents. If you are an administrator, please write for a specific audience (i.e. 9-12 grade teachers, literacy coaches, etc.).

When you’ve completed your midterm, upload your Presentation to Colleagues Outline and Parent Letter for evaluation.

<table>
<thead>
<tr>
<th>Midterm Rubric</th>
<th>Distinguished (4)</th>
<th>Proficient (3)</th>
<th>Basic (2)</th>
<th>Unsatisfactory (1)</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part 1: Created an original lesson plan outlining the CCSS-M to students.</td>
<td>Demonstrates an understanding of the purpose and foundation of the standards and extensively and correctly applies course content.</td>
<td>Demonstrates general understanding of the purpose and foundation of the standards and correctly applies course content.</td>
<td>Demonstrates partial understanding of the purpose and foundation of the standards and superficially/incorrectly applies course content.</td>
<td>Demonstrates little to no understanding of the purpose and foundation of the standards and does not apply course content.</td>
<td></td>
</tr>
</tbody>
</table>

Part 1: Lesson plan included objectives, Standards, and opportunities for engagement with the CCSS-M.

Includes lesson objectives, content standards, and engagement activities with the CCSS-M.

Includes lesson objectives, content standards, and engagement activities with the CCSS-M.

Includes lesson objectives, content standards, and engagement activities with the CCSS-M.

Includes lesson objectives, content standards, and engagement activities with the CCSS-M.

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<table>
<thead>
<tr>
<th>students to engage with the CCSS-M.</th>
<th>Standards are thoroughly displayed.</th>
<th>Standards are moderately displayed.</th>
<th>Standards are adequately displayed.</th>
<th>activities with the Standards are not apparent.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part 2: Description of the CCSS-M with purpose and foundation of the standards.</td>
<td>Demonstrates a clear understanding of the purpose and foundation of the standards and extensively and correctly applies course content.</td>
<td>Demonstrates a general understanding of the purpose and foundation of the standards and correctly applies course content.</td>
<td>Demonstrates a partial understanding of the purpose and foundation of the standards and superficially/incorrectly applies course content.</td>
<td>Demonstrates little to no understanding of the purpose and foundation of the standards and does not apply course content.</td>
</tr>
<tr>
<td>Part 2: 3 main points addressing how the CCSS-M will change your approach to instruction.</td>
<td>Includes 3 main points of how the CCSS-M will impact the participant’s instruction/work with a convincing rationale and support for this change clearly provided.</td>
<td>Includes 3 main points of how the CCSS-M will impact the participant’s instruction/work with a rationale and support for this change mostly provided.</td>
<td>Includes 2-3 main points of how the CCSS-M will impact the participant’s instruction/work with little/no rationale or support for this change somewhat provided.</td>
<td>Includes 3 main points with accompanying rationale and support not included.</td>
</tr>
<tr>
<td>Part 2: 3 tips for parents on how they can support their child’s engagement with the CCSS-M.</td>
<td>Provides 3 relevant tips for parents describing how they can support their child’s engagement with the CCSS-M.</td>
<td>Provides 3 tips for parents describing how they can support their child’s engagement with the CCSS-M.</td>
<td>Provides 3 or fewer tips that have limited relevance and do not fully describe how parents can support their child’s engagement with the CCSS-M.</td>
<td>Provides unclear description for how to support a child’s engagement with the CCSS-M, or no tips are provided.</td>
</tr>
<tr>
<td>Part 2: Appropriateness for audience</td>
<td>Addresses the identified audience with a friendly and positive tone and easy to understand language (no jargon).</td>
<td>Addresses the identified audience with a positive tone and easy to understand language (little argon).</td>
<td>Addresses a general audience in the school and uses some jargon.</td>
<td>Addresses a general audience and uses confusing language and jargon.</td>
</tr>
</tbody>
</table>
Part 1 and 2: Quality of writing

<table>
<thead>
<tr>
<th>Objective</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part 1</td>
<td>Includes no grammatical errors or typos. Varied sentence structure. Paragraphs are clearly organized around ideas relevant to the main idea and fully developed.</td>
</tr>
<tr>
<td>Part 2</td>
<td>Includes few grammatical errors or typos. Coherent sentence structure. Paragraphs are organized around ideas relevant to the main idea.</td>
</tr>
<tr>
<td>Part 3</td>
<td>Includes distracting grammatical errors or typos. Incorrect sentence structure. Relevance to main idea of supporting paragraphs is not always clear.</td>
</tr>
<tr>
<td>Part 4</td>
<td>Includes many grammatical errors or typos. Incomplete sentences. No apparent paragraph organization.</td>
</tr>
</tbody>
</table>

Total Score

Objectives: Specify instructional goals and standards for each session.

Assess CCSS-M foundational knowledge.

Method of Instruction: List the method of presenting: Classroom video or interactive hands-on activity. Include strategies to meet diverse learning needs (differentiated instruction).

Assessment

Classroom Practice: Specify what skills and strategies the participant will bring back to his/her classroom.

The ability to communicate the academic demands of The CCSS to students and families.

Resources (readings, artifacts, internet sites, videos, etc): Provide the title, author, edition, publisher, cost, and where it is available. If there is a guest speaker, include the presenter’s name and affiliation.

N/A

Guest Speakers:

N/A

Calendar

Session # 7:
Date: self-paced Time: self-paced
Number of hours for this session: 4.0

Topics: List session topic and material, e.g. handouts. Indicate midterm and final exam date.

In this unit, participants will learn how The Common Core State Standards requires new end-of-year summative assessments aligned to what students are expected to know and be able to do. In order to actively prepare students for these new assessments, teachers will learn how to use formative assessment strategies in their classrooms. Formative assessment will support the collection of data on students’ understandings and inform follow-up instruction.
There will also be an opportunity to see sample assessment tasks and materials from one of the CCSS assessment consortiums, The Partnership for Assessment of Readiness for College and Careers (PARCC). PARCC is a consortium of 18 states plus the District of Columbia and the U.S. Virgin Islands working together to develop a common set of K-12 assessments in English and math anchored in what it takes to be ready for college and careers. These new K-12 assessments will build a pathway to college and career readiness by the end of high school, mark students’ progress toward this goal from 3rd grade up, and provide teachers with timely information to inform instruction and provide student support. Resources from PARCC will be provided for planning and instruction.

**Objectives:** Specify instructional goals and standards for each session.

After completing this unit, educators will know:
- The purpose of formative assessment
- How to use formative assessment to provide student feedback
- Strategies for formative assessment in the classroom

**Method of Instruction:** List the method of presenting: Classroom video or interactive hands-on activity. Include strategies to meet diverse learning needs (differentiated instruction).

- Video presentation
- Readings
- Reflection questions
- Discussion forum
- Quiz

**Classroom Practice:** Specify what skills and strategies the participant will bring back to his/her classroom.

After completing this unit, educators will apply the following skills:
- Develop formative assessments
- Analyze data gleaned from formative assessment

**Resources (readings, artifacts, internet sites, videos, etc):** Provide the title, author, edition, publisher, cost, and where it is available. If there is a guest speaker, include the presenter’s name and affiliation.

*The Best Value in Formative Assessment*, Stephen Chappuis and Jan Chappuis
*Formative Assessment and Assessment for Learning*
*Formative Assessment: An Enabler of Student Learning*, Margaret Heritage
*Classroom Techniques: 10 Ideas for Formative Assessment*, Kathy Dyer
*PARCC Sample Assessment Tasks*
*What Exactly do Fewer, Clearer, Higher Standards Look Like?*
*Key Strategies for Formative Assessment*

(all readings available for free in the eClassroom)

**Guest Speakers:**
N/A

**Calendar**

Session # 8  
Date: self-paced  
Time: self-paced  
Number of hours for this session: 3.0  

**Topics:** List session topic and material, e.g. handouts. Indicate midterm and final exam date.

In this unit, participants will draw on their observations, learning, and reflections from the prior units, in order to plan
Classroom lessons that align to the CCSS Mathematics Standards and promote the shifts in organizational and instructional emphasis. They will learn the importance of developing mathematical tasks and using questioning that require students to think deeply in order to foster the rich discussion emphasized by the Mathematical Practices. They will integrate instructional strategies, such as open questioning, and formative assessment into lesson plans in order to engage students in using mathematical practices to develop understanding of the content standards.

**Objectives:** Specify instructional goals and standards for each session.

After completing this unit, educators will know:

- The purpose and usefulness of formative assessment in the mathematics classroom
- How standards of mathematical practice and content standards combine to form clear objectives
- The importance of setting high expectations in the classroom
- Their learning style and be able to assess their students’ learning styles

**Method of Instruction:** List the method of presenting: Classroom video or interactive hands-on activity. Include strategies to meet diverse learning needs (differentiated instruction).

- Video presentation
- Readings
- Reflection questions
- Discussion forum
- Quiz

**Classroom Practice:** Specify what skills and strategies the participant will bring back to his/her classroom.

After completing this unit, educators will apply the following skills:

- Reflect on instructional strategies and lesson planning that promotes rigor and depth of student learning and conceptual understanding for ALL students
- Develop a formative assessment designed to check for students’ mathematical understanding
- Align standards of mathematical practices and content standards with objectives of a lesson

**Resources (readings, artifacts, internet sites, videos, etc):** Provide the title, author, edition, publisher, cost, and where it is available. If there is a guest speaker, include the presenter’s name and affiliation.

- *What a Difference a Word Makes* (Assessment FOR Learning) by Rick Stiggins & Jan Chappuis
- *Setting High Academic Expectations: Chapter 1*, Lemov
- *Compass Points Questions*, NSRF
- *Start Where Your Students Are*, Robyn Jackson
- *Inviting Student Engagement with Questioning*
- *Tasks from Student Achievement Partners*

(All readings available for free in the eClassroom)

**Guest Speakers:**

N/A
### Calendar

<table>
<thead>
<tr>
<th>Session #9</th>
<th>Time: self-paced</th>
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</thead>
<tbody>
<tr>
<td>Date: self-paced</td>
<td>Number of hours for this session: 3.0</td>
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</table>

### Topics: List session topic and material, e.g. handouts. Indicate midterm and final exam date.

In this unit, participants will continue to draw on their observations, learning, and reflections from the prior units, in order to plan classroom lessons that align to the CCSS Mathematics Standards and promote the shifts in organizational and instructional emphasis. They will learn the importance of developing mathematical tasks that require students to think deeply. They will also study the cognitive demands of a task and learn strategies to design these kinds of tasks to engage students in using mathematical practices to develop understanding of the content standards.

### Objectives: Specify instructional goals and standards for each session.

After completing this unit, educators will know:
- The cognitive demands of a mathematical task
- How standards of mathematical practice and content standards combine to form clear objectives

### Method of Instruction: List the method of presenting: Classroom video or interactive hands-on activity. Include strategies to meet diverse learning needs (differentiated instruction).

- Video presentation
- Readings
- Reflection questions
- Discussion forum
- Quiz

### Classroom Practice: Specify what skills and strategies the participant will bring back to his/her classroom.

After completing this unit, educators will apply the following skills:
- Define cognitive demand and analyze a mathematics task for cognitive level
- Reflect on instructional strategies and lesson planning that promotes rigor and depth of student learning and conceptual understanding
- Align standards of mathematical practices and content standards with objectives of a lesson

### Resources (readings, artifacts, internet sites, videos, etc): Provide the title, author, edition, publisher, cost, and where it is available. If there is a guest speaker, include the presenter’s name and affiliation.

- *From Inductive Reasoning to Proof* by David Yopp, in Mathematics Teaching in the Middle School, NCTM
- *Effective Strategies for Teaching Students with Difficulties*
- *The CCSS to Curriculum*
- *What a Difference a Word Makes*
- *Parent Roadmaps to the Common Core*

(All readings available for free in the eClassroom)

### Guest Speakers:

N/A
Revised 11.2011

Calendar

Session # 10
Date: self-paced  Time: self-paced
Number of hours for this session: 1.0

Topics: List session topic and material, e.g. handouts. Indicate midterm and final exam date.
In this unit, the presenter revisits the promise of The Common Core State Standards and participants reflect on next steps for incorporating what they’ve learned into their classroom practice for all learners.

Objectives: Specify instructional goals and standards for each session.
After completing this unit, educators will know:
• Their goals for planning instruction and aligning to the CCSS-M
• Relevant strategies to address the learning needs of all students

Method of Instruction: List the method of presenting: Classroom video or interactive hands-on activity. Include strategies to meet diverse learning needs (differentiated instruction).
• Video presentation

Classroom Practice: Specify what skills and strategies the participant will bring back to his/her classroom.
After completing this unit, educators will apply the following skills:
• Revisit learning goals and begin planning lessons and designing tasks aligned to the CCSS-M

Resources (readings, artifacts, internet sites, videos, etc): Provide the title, author, edition, publisher, cost, and where it is available. If there is a guest speaker, include the presenter’s name and affiliation.
N/A

Guest Speakers:
N/A

Calendar

Session # 11
Date: self-paced  Time: self-paced
Number of hours for this session: 4.0

Topics: List session topic and material, e.g. handouts. Indicate midterm and final exam date.
Final Project
For this final, you will develop a lesson based on the CCSS Mathematics Standards shifts and areas of emphasis for instructional practice, and reflect on your results.

Please begin by accessing the following documents:
• The CCSS Instructional Practice Guide for Mathematics worksheet you completed as part of your midterm
• CCSS Mathematics Lesson Plan Template

Part A: Develop a Lesson
Develop an original lesson plan using the CCSS Mathematics Lesson Plan Template. This lesson plan should align with the
CCSS-M Content and Practice Standards and integrate the CCSS Mathematics shifts. Specifically, the lesson should meet all of the criteria below.

Teacher name and grade level:

1. Standards & Objectives
   - **Content:** Identify one or more Content Standards for your grade level. Include one standard that’s part of a “Major Cluster” for your grade level (as per the PARCC Model Content Framework for Mathematics, which you explored earlier in the course).
   - **Practice:** Identify 2 Mathematical Practice Standards that support the content of the standard(s) being addressed. (Note: both Content and Practice standards should be emphasized throughout the lesson plan.)
   - **Objectives:** List the specific learning objective(s) for this lesson (specific knowledge and skills that students will acquire by the end of this lesson using the “Students will be able to…” construction)

2. Task(s)
   - Describe the mathematical task(s) in which students will engage.
   - Provide the task (use the course resources as a model- you can re-contextualize for your classroom use)

3. Lesson Structure
   - Please describe how the lesson will be structured and all of the activities students will complete. Include some or all of the following plus any additional activities of you’re choosing: warm-up, independent work, and group work, debrief.
   - Include an explanation of how the activities align to the standards.
   - Please upload all supporting documents, including the mathematics task(s).

4. Instruction & Differentiation
   - Mathematical Practices: What kinds of instructional strategies will you use throughout the lesson to engage students in the chosen Mathematical Practices?
   - Questioning Strategies: What kinds of questions will you ask students throughout the lesson to promote their thinking, discussion, and deep conceptual understanding?
   - Instructional Support: Where do you imagine students will struggle? What scaffolding will you provide?
   - Diverse Learners: How will you address the needs of diverse learners (i.e., students with disabilities, English Language Learners, advanced learners)? Without using names, please describe at least one student or group of students who will need special attention. What adaptations will you make to serve this student/group?

5. Assessment
   - Formative & Informal Checks for Understanding: What questions will you ask to assess learning as the lesson unfolds?
   - Assessments: What formative assessments will be provided during class?
   - Learning Indicators: What kinds of evidence will you be looking for during the lesson, to help you determine which students are meeting the learning objectives and which may need additional support/instruction following the lesson?

Part B: Reflect on Your Action Plan
Revisit the action plan detailed in your midterm.

- Describe its implementation and any results.
- How has your self-assessment changed on the three indicators? Explain.
- Identify the next steps you will take for further improvement on each indicator.

## Final Rubric

<table>
<thead>
<tr>
<th>Step</th>
<th>Distinguished (4)</th>
<th>Proficient (3)</th>
<th>Basic (2)</th>
<th>Unsatisfactory (1)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Part A</strong></td>
<td><strong>Standards &amp; Objectives</strong></td>
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</tr>
<tr>
<td></td>
<td>Content: Participant has listed standard(s) to which this lesson is clearly aligned; one of which is in PARCC Major Cluster for grade level. Practice: Participant has identified 2 Mathematical Practices. Objectives: Participant has identified at least 1 clear learning objective that directly links to the language and emphasis of the CCSS-M standard(s) this lesson is intended to address.</td>
<td>Content: Participant has listed standard(s) to which this lesson is aligned; one of which is in PARCC Major Cluster for grade level. Practice: Participant has identified 2 Mathematical Practices. Objectives: Participant has identified at least 1 clear learning objective that is directly tied to the standards.</td>
<td>Content: Participant has listed standard(s) to which this lesson is aligned; standard(s) are either not included in PARCC Major Cluster or alignment to Major Cluster is not described. Practice: Participant has identified only 1 Mathematical Practice. Objectives: Participant has identified at least 1 clear learning objective, but it may not be directly tied to the standard(s).</td>
<td>Participant has not identified standard(s), Mathematical Practices, or objectives for the lesson. OR Participant has provided minimal information without any reference to the standards.</td>
</tr>
<tr>
<td><strong>Task(s)</strong></td>
<td>Participant has provided and described the task(s) students will engage in during the lesson. Task(s) match a level 3 or 4 on the Cognitive Rigor Matrix; participant has clearly explained choice of cognitive.</td>
<td>Participant has provided and described the task(s) students will engage in during the lesson. Task(s) match at least a level 2 on the Cognitive Rigor Matrix; participant has adequately explained choice of cognitive.</td>
<td>Participant has provided and described the task(s) students will engage in during the lesson. Task(s) match a level 1 on Cognitive Rigor Matrix; explanation shows limited understanding of how to determine.</td>
<td>Participant has not provided the task(s) or explanation of the task(s).</td>
</tr>
<tr>
<td><strong>Lesson Structure</strong></td>
<td><strong>Instruction &amp; Differentiation</strong></td>
<td></td>
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<tr>
<td>Participant has provided a clear and detailed structure for the lesson, including detailed description of all activities and format (e.g., warm-up, group work, independent work, debrief, etc.), including the ways that the structure has been designed to promote CCSS-M shifts, MPs, understanding, etc. Description includes a well-reasoned explanation of how/why activities align to standard(s).</td>
<td>Participant has provided all of the categories in “Proficient.” Additionally, explanations are detailed, make strong connections between instructional strategies and content/practice standards, and show how strategies are targeted to specific standards.</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>cognitive demand level</strong></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Participant has provided a clear structure for the lesson, including a description of all activities and format (e.g., warm-up, group work, independent work, debrief, etc.). Description includes explanation of how/why activities align to standard(s).</td>
<td>Participant has provided a strategy for only 2-3 of the categories (Mathematical Practices, Questioning, Instructional Support, and Diverse Learners). Descriptions focus on identifying the strategy, without clear explanation of how the strategies are used throughout the lesson.</td>
</tr>
</tbody>
</table>

<p>| <strong>Participant has provided little to no description of lesson activities and/or lesson description is unclear and difficult to follow, without explanation.</strong> | <strong>Participant has provided little to no description of instructional strategies to support lesson activities.</strong> |</p>
<table>
<thead>
<tr>
<th>Assessment</th>
<th>Instructional or conceptual needs and/or student groups.</th>
<th>deep conceptual understanding.</th>
<th>promote understanding, discussion, support diverse learners, etc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant has included and described multiple formative assessments, both formal and informal, throughout the lesson. Participant has also thoroughly described, in terms of the CCSS standards, the kinds of evidence s/he anticipates will help determine who is meeting learning objectives or not, with a thoughtful description of particular misconceptions that may arise and/or possible follow-up instructional strategies that may emerge from the lesson.</td>
<td>Participant has included and described multiple formative assessments, both formal and informal, throughout the lesson. Participant has also described, in terms of the CCSS standards, the kinds of evidence s/he anticipates will help determine who is meeting learning objectives or not, in terms of looking for conceptual understanding.</td>
<td>Participant has included and described multiple formative assessments, both formal and informal, throughout the lesson. Participant has also described, in terms of the CCSS standards, the kinds of evidence s/he anticipates will help determine who is meeting learning objectives or not, in terms of looking for conceptual understanding.</td>
<td>Participant has included and described at least 1 formative assessment for the lesson. Participant has described, in general terms without reference to the CCSS standards, the kinds of evidence s/he anticipates will help determine who is meeting learning objectives or not; description is general and may be limited to looking for accuracy rather than understanding.</td>
</tr>
</tbody>
</table>
## Part B: Reflect on Your Action Plan

<table>
<thead>
<tr>
<th>Description</th>
<th>Part B: Reflect on Your Action Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant has described progress on implementing his/her action plan (from the midterm), with multiple examples of the results. Description includes a detailed explanation, referring to course content, of how his/her self-assessment on 1-2 of the indicators has changed during the course. Participant has identified next steps for improvement on all 3 indicators, with additional detail on how the steps will further improve practice.</td>
<td>Participant has described progress on implementing his/her action plan (from the midterm), with at least 1 specific example of the results. Description includes how his/her self-assessment on at least 1 of the indicators has changed during the course. Participant has identified next steps for improvement on all 3 indicators.</td>
</tr>
<tr>
<td>Participant has generally described progress on implementing his/her action plan (from the midterm), with no specific examples. Description includes a basic self-assessment of current practice on at least 1 of the indicators. Participant has identified next steps for improvement on 1-2 indicators.</td>
<td>Participant may or may not have implemented action plan (from midterm). Self-assessment of practice and next steps are either not provided, or do not clearly link to action plan, or include little to no description.</td>
</tr>
</tbody>
</table>

### Formal Issues

| Participant has made no grammatical errors. | Participant has made a few grammatical errors. |
| Participant has organized paragraphs around clearly articulated main ideas. | Participant has organized most paragraphs around clearly articulated main ideas. |
| Participant has written in an effective and eloquent style—i.e., has varied his or her sentence structure and made careful word choice. | Participant has written in an effective and eloquent style—i.e., has varied his or her sentence structure though not always found the right word. |
| Participant has made some distracting grammatical errors. | Participant has organized some paragraphs around main ideas but not others. |
| Participant has written in a style that communicates his or her thoughts but with no marked eloquence and insufficient attention to word choice. | Participant has written in a style that does not effectively communicate his or her thoughts. |
| Participant has made multiple grammatical errors. | Paragraphs are not organized around main ideas. |
| Participant has written in a style that does not effectively communicate his or her thoughts. | Participant has written in a style that does not effectively communicate his or her thoughts. |

Revised 11.2011
**Objectives:** Specify instructional goals and standards for each session.

- Demonstrate knowledge of course materials.

**Method of Instruction:** List the method of presenting: Classroom video or interactive hands-on activity. Include strategies to meet diverse learning needs (differentiated instruction).

- Final course assessment/project

**Classroom Practice:** Specify what skills and strategies the participant will bring back to his/her classroom.

N/A

**Resources (readings, artifacts, internet sites, videos, etc.):** Provide the title, author, edition, publisher, cost, and where it is available. If there is a guest speaker, include the presenter’s name and affiliation.

N/A

**Guest Speakers:**

N/A