



NEW JERSEY CENTER  
FOR TEACHING & LEARNING

**Progressive Science Initiative® (PSI®)**  
**Progressive Mathematics Initiative® (PMI®)**  
**MET6111: Elementary PSI-PMI Methods and Pedagogy**

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**Course Credit:** 4.0 NJCTL credits

**Dates & Times:**

This is a 4-credit, self-paced course, covering 18 modules of content. The exact number of hours that you can expect to spend on each module will vary based upon the module coursework, as well as your study style and preferences. You should plan to spend 12-20 hours per module, completing the module slides, readings, short answer assignments, labs, mastery exercises, practice problems, and module exams.

**LMS Link:** <https://moodle.njctl.org/course/view.php?id=159>

**COURSE DESCRIPTION:**

This course prepares elementary school teachers to instruct students using research-proven methods; methods that were initially developed for the Progressive Science Initiative® (PSI®) and are now being successfully extended to other domains. Teachers will learn best practices for curriculum, pedagogy, technology, formative and summative assessment, grading, and pacing and how those are woven together to create a highly effective teaching and learning environment. Specific topics include best practices for brief direct instruction, inquiry, modeling, facilitating group discussion, social constructivism and frequent formative assessment, inquiry-based science labs, mastery-based summative assessment, appropriate use of retakes to encourage persistence and mastery. Instruction will also focus on the use of student polling devices to drive instruction through formative assessment.

**Prerequisite:** None

**STUDENT LEARNING OUTCOMES:**

Upon completion of the course, the student will be able to:

1. Evaluate your own teaching practice and how to incorporate the PSI-PMI methodology into your classroom.
2. Justify the use of formative assessment as a critical teaching tool that is used to guide both teaching and learning.
3. Create a positive classroom learning environment that supports risk-taking and growth.
4. Evaluate which technology options will best allow you to incorporate PSI-PMI in your classroom.

5. Combine short direct instruction with demos and hands-on activities that engage learners.
6. Develop ideas for differentiating lessons in your classroom.

**TEXTS, READINGS, INSTRUCTIONAL RESOURCES:**

**Required Texts:**

National Research Council. *How People Learn: Brain, Mind, Experience, and School: Expanded Edition*. Washington, DC: The National Academies Press, 2000. ISBN: 978-)- 30907036-2

This course uses free, digital textbook and ancillary materials accessible at:

<https://njctl.org/materials/categories/teaching-methods/>

**Recommended Readings:**

- [New Jersey Center for Teaching & Learning - Course Materials, Media Videos, and Instructional videos](#)
- [Common Core Mathematics Standards](#)
- [New Jersey Student Learning Standards for Mathematics](#)
- [Ferlazzo, L. \(2012, January 9\). The best resources on differentiating instruction. Retrieved July 20, 2016, from Edublogs, <http://larryferlazzo.edublogs.org/2012/01/09/the-best-resources-ondifferentiating-instruction/>](#)
- [Framework for 21st Century Learning](#)
- [Next Generation Science Standards](#)

**COURSE REQUIREMENTS:**

Consistent attendance in your online courses is essential for your success. Failure to verify your attendance within the first 7 days of this course may result in your withdrawal. If for some reason you would like to drop a course, please contact the Dean of Students.

Students should interact with fellow students and course instructor via the discussion boards within the course modules. These discussion boards are monitored by your course instructor and you can post questions or thoughts on module learning here.

Online classes have assignments and participation requirements just like on-campus classes. Budget your time carefully. If you are having technical problems, problems with your assignments, or other problems that are impeding your progress, let your instructor know as soon as possible.

**GRADE DISTRIBUTION AND SCALE:**

In order to receive a Passing grade, the participant must complete the following course requirements: all short answer assignments, critical thinking assignments, the final reflection outlined in the *Assignments* section of the Class Schedule (below).

**Grade Distribution:**

Critical Thinking Assignments	60%
Final Critical Thinking Assignment Short Answer Assignments	10%
Answer Assignments	30%

**Grade Scale:**

A	93 – 100
A-	90 – 92
B+	86 – 89

B	83 – 86
B-	80 – 82
C+	77 – 79
C	73 – 76
C-	70 – 72
D	60.0 – 69.9
F	59.9 or below

**GRADING RUBRIC:**

The following rubrics are used to score:

- Short Answer Assignment – 30% of grade
- Critical Thinking Assignments – 70% of grade

Critical Thinking Rubric:

	Meets Expectations	Approaches Expectations	Below Expectations	Limited Evidence
<b>Content, Research, and Analysis</b>				
	<b>13-15 Points</b>	<b>10-12 Points</b>	<b>7-9 Points</b>	<b>4-6 Points</b>
<b>Requirements</b>	Includes all of the required components, as specified in the assignment.	Includes most of the required components, as specified in the assignment.	Includes some of the required components, as specified in the assignment.	Includes few of the required components, as specified in the assignment.
	<b>13-15 Points</b>	<b>10-12 Points</b>	<b>7-9 Points</b>	<b>4-6 Points</b>
<b>Content</b>	Demonstrates strong or adequate knowledge of the materials; correctly represents knowledge from the readings and sources.	Some significant but not major errors or omissions in demonstration of knowledge.	Major errors or omissions in demonstration of knowledge.	Fails to demonstrate knowledge of the materials.
	<b>17-20 Points</b>	<b>13-16 Points</b>	<b>9-12 Points</b>	<b>5-8 Points</b>
<b>Critical Thinking and Analysis</b>	Demonstrates strong or adequate critical thinking and analysis of concepts and applications.	Some significant but not major errors or omissions in critical thinking and analysis.	Major errors or omissions in critical thinking and analysis.	Fails to demonstrate critical thinking and analysis.
<b>Mechanics and Writing</b>				
	<b>9-10 Points</b>	<b>7-8 Points</b>	<b>5-6 Points</b>	<b>3-4 Points</b>

<b>Demonstrates college-level proficiency in organization, grammar, and style</b>	Project is clearly organized, well written, and in proper format (including APA as applicable) as outlined in the assignment. Strong sentence and paragraph structure; few errors in grammar and spelling. Proper APA formatting when applicable.	Project is fairly well organized and written, and is in proper format (including APA as applicable) as outlined in the assignment. Reasonably good sentence and paragraph structure; significant number of errors in grammar and spelling.	Project is poorly organized; does not follow proper paper format (including APA as applicable). Inconsistent to inadequate sentence and paragraph development; numerous errors in grammar and spelling.	Project is not organized or well written, and is not in proper paper format (including APA as applicable). Poor quality work; unacceptable in terms of grammar and spelling.
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Short Answer Rubric:

	<b>Meets Expectations</b>	<b>Approaches Expectations</b>	<b>Below Expectations</b>	<b>Limited Evidence</b>
	<b>7 Points</b>	<b>5 Points</b>	<b>3 Points</b>	<b>1 Point</b>
<b>Content</b>	Demonstrates excellent knowledge of concepts, skills, and theories relevant to topic.	Demonstrates fair knowledge of concepts, skills, and theories.	Demonstrates incomplete or insubstantial knowledge of concepts, skills, and theories.	Demonstrates little or no knowledge of concepts, skills, and theories.
<b>Depth of Reflection</b>	Content is well supported and addresses all required components of the assignment.	Content is partially supported; addresses most of the required components of the assignment.	Content contains major deficiencies; addresses some of the required components of the assignment.	Content is not supported and/or includes few of the required components of the assignment.
<b>Evidence and Practice</b>	Response shows strong evidence of synthesis of ideas presented and insights gained throughout the entire course. The implications of these insights for the respondent's overall teaching practice are thoroughly detailed, as applicable.	Response shows some evidence of synthesis of ideas presented and insights gained throughout the entire course. The implications of these insights for the respondent's overall teaching practice are detailed, but the response is brief.	Response is missing some components and/or does not fully meet the requirements indicated in the instructions. Some questions or parts of the assignment are not addressed. Some attachments and additional documents, if required, are missing or unsuitable for the purpose of the assignment.	Response excludes essential components and/or does not address the requirements indicated in the instructions. Many parts of the assignment are addressed minimally, inadequately, and/or not at all.
	<b>4 Points</b>	<b>3 Points</b>	<b>2 Points</b>	<b>1 Point</b>
<b>Writing Quality</b>	Writing is well-organized, clear, concise, and focused; no errors.	Some minor errors or omissions in writing organization, focus, and clarity.	Some significant errors or omissions in writing organization, focus, and clarity.	Numerous errors in writing organization, focus, and/or clarity.

The minimum possible score for this rubric is 4 points, and the score will be converted to the minimum grade available in this module (which is zero unless the scale is used). The maximum score 25 points will be converted to the maximum grade.

Intermediate scores will be converted respectively and rounded to the nearest available grade. If a scale is used instead of a grade, the score will be converted to the scale elements as if they were consecutive integers.

**ACADEMIC STANDING:**

NJCTL has established standards for academic good standing within a student's academic program. Students enrolled in any NJCTL online course must receive an 80 or higher to successfully complete a course and receive credit for that course. An 80 is equivalent to a GPA of 2.7 or B-. Additionally, students in an endorsement program must receive a cumulative GPA of 3.0 for all courses combined in order to successfully complete the program.

**ACADEMIC INTEGRITY:**

Students must assume responsibility for maintaining honesty in all work submitted for credit and in any other work designated by the instructor of the course. Academic dishonesty includes cheating, fabrication, facilitating academic dishonesty, plagiarism, reusing /re-purposing your own work, unauthorized possession of academic materials, and unauthorized collaboration.

**CITING SOURCES WITH APA STYLE:**

All students are expected to follow proper writing and APA requirements when citing in APA (based on the APA Style Manual, 6th edition) for all assignments.

**DISABILITY SERVICES STATEMENT:**

We are committed to providing reasonable accommodations for all persons with disabilities. Any student with a documented disability requesting academic accommodations should contact the Dean of Students, Dr. Rosemary Knab, additional information to coordinate reasonable accommodations for students with documented disabilities ([rosemary@njctl.org](mailto:rosemary@njctl.org)).

**NETIQUETTE:**

Respect the diversity of opinions among the instructor and classmates and engage with them in a courteous, respectful, and professional manner. All posts and classroom communication must be conducted in accordance with the student code of conduct. Think before you push the Send button. Did you say just what you meant? How will the person on the other end read the words?

Maintain an environment free of harassment, stalking, threats, abuse, insults or humiliation toward the instructor and classmates. This includes, but is not limited to, demeaning written or oral comments of an ethnic, religious, age, disability, sexist (or sexual orientation), or racist nature; and the unwanted sexual advances or intimidations by email, or on discussion boards and other postings within or connected to the online classroom.

If you have concerns about something that has been said, please let your instructor know.

**ASSIGNMENT SCHEDULE (READING SCHEDULE FOLLOWS IN TABLE):****Module 1: Introduction and Philosophy**

**Short Answer Assignment:** Introduce yourself. Provide a background on your current school and district: student population size, socioeconomic status, race and gender demographics, strong community connections.

- What is the current math and science sequence in your school district?
- What curriculum(s) are currently being used?
- How do these compare to PSI-PMI?
- What are the strengths and weaknesses of your district's current implementation?

What grade and course do you teach? What successes and struggles have you found are common with your students?

## **Module 2: Information Literacy for Graduate Students**

**Short Answer Assignment:** To check your understanding for this module, you will be researching a topic of your choice. This topic should be related to your professional development as a teacher, and should require you to find several professional/practitioner or scholarly sources. For example, you may want to find "strategies for teaching students with ADHD" or "research that addresses departmentalization in elementary schools".

In this activity, you will describe your topic, and then describe the types of sources you will be looking for and where you will begin your search. Later on in this session, you will conduct your search on this topic and evaluate the resources you have found.

- Which topic will you be researching? This topic should be related to your professional development as a teacher, and should require you to find several professional/practitioner or scholarly sources. For example, you may want to find "strategies for teaching students with ADHD" or "research that addresses departmentalization in elementary schools".
- Which types of sources will be most useful for your search? Will you be looking for popular, professional/practitioner, and/or scholarly sources? Will you be looking for books, articles, and/or blogs?
- Where will you conduct your search? Will you search a specific database, and if so, which one? Will you search Google or the NJCTL Library?

Short Answer Assignment responses should be at least 200-300 words and do not need to be referenced. Refer to the Short Answer rubric for more information on the expectations of this assignment.

**Critical Thinking Assignment:** To check your understanding of this module, you will continue researching a topic of your choice. In the short answer assignment, you described your topic, the types of sources you will be looking for, and where you will begin your search. Now, you will conduct your search on this topic and evaluate the resources you have found.

- Describe your topic of choice and how it applies to your classroom.
- Search for at least two resources (articles, books, blog posts) that relate to your topic. What steps did you take to conduct your search, and why? Discuss the terms you input into the search bar, and any filtering options that you used. If you searched multiple times using synonyms or looked at the reference list of a book or article, describe what you did and why. Be as detailed as possible when describing your search.
- Provide a reference list for your resources in APA format.
- Describe why the resources in the previous question meet your needs. How are they relevant, and how do you know that they are reputable or reliable sources?

Responses should be at least 500-750 words and 2 *references*.

## **Module 3: Grading**

**Short Answer Assignment:** Describe the current grading practices and policies in your classroom. Which pieces of these are district mandated? What steps can you take towards moving to align with the PSI-PMI philosophy of grading and retakes? What challenges do you anticipate? What benefits do you anticipate?

**Critical Thinking Assignment:** Create a letter to parents and students that explain what your grading and retake policy will be.

The letter must be 1-2 pages in length and clearly communicate your message. The letter must be formatted in a professional style. Be clear, concise, and focused.

#### **Module 4: Direct Instruction**

**Short Answer Assignment:** Choose one PSI-PMI lesson appropriate to the grade and course you teach. Complete the “Why, What, How?” planning sheet.

<https://njctl.org/courses/teaching-methods/classroom-coaching/attachments/what-why-howprotocol/>

Your answers must be written in complete sentences and thoroughly answer the question prompts.

**Critical Thinking Assignment:** Describe the difference between direct instruction and lecture? What strategies will you employ during your lessons to be sure that you are keeping your direct instruction focused and limiting the amount of “teacher talk”?

#### **Module 5: Social Constructivism**

**Critical Thinking Assignment:** Explain how you will introduce the idea of social constructivism to your students. Provide three strategies that you will provide to your students to help them engage constructively with peers. Identify each strategy in a short phrase that you can hang on the wall of your classroom as a reminder to students.

Your paper must be 2-3 pages in length. Strategies provided must be supported by two credible resources. Use APA style to cite your references.

#### **Module 6: Formative Assessment**

**Short Answer Assignment:** On a scale of 1-5 with 5 being “daily and throughout my lessons”, how often do you use quality formative assessment questions in your classroom? Describe the current forms of formative assessment that you use and their strengths and weaknesses. In using PSI-PMI, how do you see the use of formative assessment in your classroom changing?

#### **Module 7: Student Polling Devices**

**Short Answer Assignment:** Which type of response option will you be using in your classroom? If you are undecided because you are waiting for your school to determine purchasing, what type do you hope to use? How will you help to ensure successful use?

**Critical Thinking Assignment:** Create a one-page letter to your students explaining why the response option you are choosing will help improve the teaching and learning and the classroom. Explain to students your expectations for the use and why.

The letter must be 1-2 pages in length and clearly communicate your message. The letter must be formatted in a professional style. Be clear, concise, and focused.

#### **Module 8: Data Driven Decision Making**

**Critical Thinking Assignment:** Student assessment data can be used at a district level, school level, class level, and individual level. Here we want to focus on the class and individual level. The fact that not all students harbor the same learning modalities is ubiquitously accepted by educational scholars. In addition, it is well documented that students learn at different paces. This problem highlights the importance of effective scaffolding and differentiated instruction within the classroom.

Briefly explain how the following two goals can be achieved via the utilization of Student Response Systems such as SMART Response or Turning Point Clickers:

- Using formative assessment data to dynamically guide Direct Instruction.

- Support a socially constructivist environment which maintains students in their individual Zones of Proximal Development (ZPD).

Additionally:

- Your paper should be 2-3 pages in length.
- Be formatted according to proper APA writing and requirements.
- Reference two scholarly sources.

### **Module 9: Metacognition, Problem Solving, Pitfalls**

**Short Answer Assignment:** Think of your current classroom environment, for each of the following rate on a scale of 1-5, with 5 being “daily throughout my lessons”:

1. Model metacognitive thinking and strategies
2. Encourage productive struggle
3. Anticipate student misconceptions

For each of the above, explain the rating you gave yourself and identify one strategy for each that you can implement to improve in each area.

**Critical Thinking Assignment:** Choose a unit you would teach. Outline three potential pitfalls you see and what you would do to address them ahead of time. Determine where and how you will model metacognition, providing at least three examples.

Your paper should be 2-3 pages in length. Be clear, concise, and focused.

### **Module 10: Demonstrations, Labs, and Hands-on**

**Short Answer Assignment:** How often do you currently use demos, hands-on activities, and labs in your classroom? Identify any barriers to your incorporation of these activities in the past and what you can do to overcome them.

Short answer assignments should be at least 200-300 words, and submitted by midnight on Thursday. Refer to the Short Answer rubric for more information on expectations of this assignment.

**Critical Thinking Assignment:** Choose one unit, and write a description of 3 demos that you would include in your teaching of the unit. Your description should include all materials needed, when during the unit and lesson you would do the demo, and what you would want the student “take-away” to be from the demo.

Your paper should be 1-2 pages in length. Be clear, concise, and focused.

### **Module 11: Differentiation and Culturally Responsive Teaching**

**Critical Thinking Assignment:** Choose a PSI-PMI lesson from our website [www.njctl.org](http://www.njctl.org) and explain at least 3 ways you would differentiate it for your current class of students. If you would create different assignments or questions, then include those resources. Remember that differentiation should occur not just for students with IEPs, but for all learners. Explain each differentiation you made and why.

- Your paper should be 500-750 words in length, not including additional questions or assignments that you have created.
- Be formatted according to proper APA writing and requirements.
- Reference *three* credible sources.



## **Module 12: Classroom Environment**

**Short Answer Assignment:** Explain three strategies you will use to create a positive and productive classroom environment.

## **Module 13: Pacing and Planning**

**Short Answer Assignment:** Explain the current culture of teacher collaboration in your school and where you would like to see growth and improvement.

## **Module 14: Remote Instruction**

**Short Answer Assignment:** How do you currently use social constructivism in your remote classroom? Identify and describe two additional strategies that you plan to incorporate into your remote classroom. After you post, comment on a previous post on the thread. \* Both components must be completed for full credit.

## **Module 15: 21<sup>st</sup> Century Learning**

**Critical Thinking Assignment:** In a recent study by the Partnership for 21st Century skills and three other organizations, business leaders identified the work skills that new entrants—recently hired graduates from high school, two-year colleges or technical schools, and four-year colleges—need to succeed in the workplace. Among the most important skills cited by employers are the following:

- Professionalism/Work Ethic
- Oral and Written Communications
- Teamwork/Collaboration
- Critical Thinking/Problem Solving

Explain how your PSI-PMI classroom addresses each of these skills.

- Your paper should be 3-4 pages in length, not including additional questions or assignments that you have created.
- Be formatted according to proper APA writing and requirements. • Reference three scholarly sources.

## **Module 16: Teaching Information Literacy & Digital Citizenship**

**Short Answer Assignment:** Take 10 minutes to explore the [Teaching Tolerance Digital Literacy Framework](#) by reading the objectives and skimming the lesson plans for the grade levels you teach. As you do, consider:

- What would the impact be on students if you taught them these skills?
- What do you need to learn to be able to effectively teach these skills?

Short Answer Assignment responses should be at least 200-300 words and do not need to be referenced. Refer to the Short Answer rubric for more information on the expectations of this assignment.

**Critical Thinking Assignment:** Select a lesson that teaches about one aspect of digital literacy and citizenship. This may be a lesson you have designed yourself, or you may find one through exploring the resources found in the "Additional Resources" section of the presentation. Copy/paste or link to the lesson, and then answer the following questions:

- When might you use this lesson in your classroom? How does it connect with the other objectives that you are teaching? What content and academic standards will this activity address?
- What background knowledge do students need to be successful in this activity? Where might you need to build your own background knowledge, and how will you do so?

- How will you know that your students have learned what you were trying to teach? What does mastery look like?
- How will you adapt this lesson to meet the unique needs of the student in your classroom?

Your paper should be 350-500 words in length. Be clear, concise, and focused.

**Module 17: Summary Reflection**

**Short Answer Assignment:** After reviewing modules #1-13, identify and describe three major take home points that you have learned from this course. Do you have any lingering questions about PSI-PMI’s methodology and pedagogy?

**Final Critical Thinking Assignment:** Using NJCTL’s Self Reflection Checklist, check off all of the boxes that you feel you are currently consistently doing.

Identify two boxes that you did not check, and that will be your focus goals. Explain two strategies for each goal that you could use to help you reach that goal.

<https://njctl.org/courses/teaching-methods/classroom-coaching/attachments/self-reflection-checklist/>

You should submit two separate pieces of documentation for this assignment: your checklist, with the areas you marked clearly visible, and your paper.

- Submit your completed Self-Reflection Sheet
- Your paper should be 2-3 pages in length and written professionally.
- Be clear, concise, and focused.

**READING SCHEDULE:**

Required readings are available within each module by clicking the links where materials are listed under the “Required readings:” tab.

Module	Required Readings	Assignments
<b>1 – Intro &amp; Philosophy</b>	<ul style="list-style-type: none"> <li>• Chapters 1 &amp; 2 in How People Learn: Brain, Mind, Experience, and School</li> <li>• Goodman, R (2011). The Progressive Teaching Initiative (PTI): A New Paradigm for Education</li> </ul>	<ul style="list-style-type: none"> <li>• Short Answer Assignment</li> </ul>
<b>2 – Information Literacy for Graduate Students</b>	<ul style="list-style-type: none"> <li>• Choosing Sources &amp; 5Ws Handouts</li> <li>• Zotero Library Research Guide</li> </ul>	<ul style="list-style-type: none"> <li>• Short Answer Assignment</li> <li>• Critical Thinking Assignment</li> </ul>

<b>3 – Grading</b>	<ul style="list-style-type: none"> <li>• Dueck, M. (2011). How I Broke My Own Rules and Learned to Give Retest. <i>Educational Leadership</i>, 69(03), 72-75.</li> <li>• Fisher, D., Frey, N., &amp; Pumpian, I. (2011). No Penalties for Practice. <i>Educational Leadership</i>, 69(03), 46-51.</li> <li>• Reeves, D.B. (2011). Teaching Students to Think: Effective Grading Practices. <i>Educational Leadership</i>, 69(03), 85-87.</li> <li>• Wormeli, R. (2011). Redos and Retakes Done Right. <i>Educational Leadership</i>, 69(03), 22-26.</li> </ul>	<ul style="list-style-type: none"> <li>• Short Answer Assignment</li> <li>• Critical Thinking Assignment</li> </ul>
<b>4 – Direct Instruction</b>	<ul style="list-style-type: none"> <li>• Clark, R., Kirschner, P., &amp; Sweller, J. (2012). Putting Students on the Path to Learning: The Case for Fully Guided Instruction. <i>American Educator</i>, 36(1), 6–11.</li> <li>• Rosenshine, B. (2008). <i>Five Meanings of Direct Instruction</i>.</li> <li>• Chapters 3 &amp; 4 in <i>How People Learn: Brain, Mind, Experience, and School</i></li> </ul>	<ul style="list-style-type: none"> <li>• Short Answer Assignment</li> <li>• Critical Thinking Assignment</li> </ul>
<b>5 – Social Constructivism</b>	<ul style="list-style-type: none"> <li>• Teaching, U. (1997). <i>Education theory/Constructivism and Social Constructivism in the classroom – UCD-CTAG</i>.</li> <li>• Wass, R., &amp; Golding, C. (2014). Sharpening a tool for teaching: the zone of proximal development. <i>Teaching in Higher Education</i>, 19(6), 671–684.</li> <li>• Chapter 6 in <i>How People Learn: Brain, Mind, Experience, and School</i></li> </ul>	<ul style="list-style-type: none"> <li>• Critical Thinking Assignment</li> </ul>
<b>6 – Formative Assessment</b>	<ul style="list-style-type: none"> <li>• Alber, R. (2011, February 15). Why formative assessments matter.</li> <li>• Chappuis, S., &amp; Chappuis, J. (2007). The Best Value in Formative Assessment. <i>Educational Leadership</i>, 65(4), 14–19.</li> </ul>	<ul style="list-style-type: none"> <li>• Short Answer Assignment</li> </ul>
<b>7 – Student Polling Options</b>	<ul style="list-style-type: none"> <li>• Fisher, D., &amp; Frey, N. (2014). Show &amp; Tell/Midcourse Corrections. <i>Educational Leadership</i>, 72(2), 80–81.</li> </ul>	<ul style="list-style-type: none"> <li>• Short Answer Assignment</li> <li>• Critical Thinking Assignment</li> </ul>
<b>8 – Data Driven Decision Making</b>	<ul style="list-style-type: none"> <li>• Alber, R. (2011, December 6). <i>3 ways student data can inform your teaching</i>. Retrieved July 19, 2016, from Assessment, <a href="http://www.edutopia.org/blog/usingstudent-data-inform-teaching-rebecca-alber">http://www.edutopia.org/blog/usingstudent-data-inform-teaching-rebecca-alber</a>.</li> <li>• Fuglei, M. (2014, July 02). <i>How Teachers Use Student Data to Improve Instruction</i>. Retrieved July 19, 2016, from Concordia University, <a href="http://education.cuportland.edu/blog/news/how-teachers-use-student-datato-improve-instruction/">http://education.cuportland.edu/blog/news/how-teachers-use-student-datato-improve-instruction/</a></li> <li>• Guskey, T. (2003). How Classroom Assessments</li> <li>• Improve Learning. <i>Educational Leadership</i>, 60(5), 6–11. Protheroe, N. (2001). <i>Improving Teaching and Learning with Data-Based Decisions: Asking the Right Questions and Acting on the Answer</i>. Retrieved from</li> </ul>	<ul style="list-style-type: none"> <li>• Critical Thinking Assignment</li> </ul>

	<ul style="list-style-type: none"> <li>• <a href="http://www.rogersschools.net/common/pages/DisplayFile.aspx?itemId=3497164">http://www.rogersschools.net/common/pages/DisplayFile.aspx?itemId=3497164</a></li> <li>• Chapter 7 in <i>How People Learn: Brain, Mind, Experience, and School</i></li> </ul>	
<b>9 – Metacognition, Problem Solving, &amp; Pitfalls</b>	<ul style="list-style-type: none"> <li>• DiBattista, D. (2008). Making the Most of MultipleChoice Questions: Getting Beyond Remembering.</li> <li>• <i>Collected Essays on Learning and Teaching, I</i>, 119-122. Kassinger, A. (2014, June 6). Struggle is a natural part of learning. <i>Washington Post</i>. Retrieved from <a href="https://www.washingtonpost.com/opinions/struggle-is-anatural-part-of-learning/2014/06/06/70ddf0f8-e133-11e3-9743-bb9b59cde7b9_story.html">https://www.washingtonpost.com/opinions/struggle-is-anatural-part-of-learning/2014/06/06/70ddf0f8-e133-11e3-9743-bb9b59cde7b9_story.html</a></li> <li>• Kramarski, B., &amp; Mevarech, Z. (2004). <i>Metacognitive Discourse in Mathematics Classrooms</i>. Retrieved from <a href="http://www.mathematik.uni-dortmund.de/~erme/CERME3/Groups/TG8/TG8_Kramarski_cerme3.pdf">http://www.mathematik.uni-dortmund.de/~erme/CERME3/Groups/TG8/TG8_Kramarski_cerme3.pdf</a></li> <li>• Zepeda, C., Richey, J. E., Ronevich, P., &amp; NokesMalach, T. J. (2015). Direct Instruction of</li> <li>• Metacognition Benefits Adolescent Science Learning, Transfer, and Motivation: An In Vivo Study. <i>Journal of Educational Psychology, 107</i>(4), 954–970.</li> </ul>	<ul style="list-style-type: none"> <li>• Short Answer Assignment</li> <li>• Critical Thinking Assignment</li> </ul>
<b>10 – Demonstrations, Labs, &amp; Hands-on</b>	<ul style="list-style-type: none"> <li>• Burns, M. 7 Musts for Using Manipulatives. Retrieved from Scholastic.com, <a href="http://www.scholastic.com/teachers/article/7-mustsusing-manipulatives">http://www.scholastic.com/teachers/article/7-mustsusing-manipulatives</a>.</li> <li>• Frost, S., &amp; studio D. (2016). Importance of hands-on</li> <li>• Manipulatives in Math. Retrieved from Our Everyday Life, <a href="http://oureverydaylife.com/importance-hands-on-manipulatives-math-13601.html">http://oureverydaylife.com/importance-hands-on-manipulatives-math-13601.html</a>.</li> <li>• National Research Council. America's Lab Report:</li> <li>• Investigations in High School Science. Washington, DC:</li> <li>• <i>The National Academies Press</i>, 2005, 3, 75-115.</li> <li>• (Chapter 3 – page 75-115).</li> </ul>	<ul style="list-style-type: none"> <li>• Short Answer Assignment</li> <li>• Critical Thinking Assignment</li> </ul>

	<ul style="list-style-type: none"> <li>• NSTA position statement: The integral role of laboratory investigations in science instruction. (2016). Retrieved</li> <li>• from National Science Teachers Association, <a href="http://www.nsta.org/about/positions/laboratory">http://www.nsta.org/about/positions/laboratory</a></li> </ul>	
<b>11 – Differentiation and Culturally Responsive Teaching</b>	<ul style="list-style-type: none"> <li>• Alber, R. (2011, May 24). <i>6 scaffolding strategies to use with your students</i>. Retrieved July 20, 2016, from Teacher Leadership, <a href="http://www.edutopia.org/blog/scaffolding-lessons-sixstrategies-rebecca-alber">http://www.edutopia.org/blog/scaffolding-lessons-sixstrategies-rebecca-alber</a>.</li> <li>• CAST (2011). Universal design for learning guidelines version 2.0. Wake-eld, MA: Author.</li> <li>• Ferlazzo, Larry. “Response: Several ways to differentiate instruction.” Edweek.org. Education Week - Classroom Q&amp;A with Larry Ferlazzo, 17 Jan. 2012.</li> <li>• Web. 20 July 2016.</li> <li>• LLP, E.P. (2010). <i>Methods of Differentiation in the Classroom</i>. Retrieved July 20, 2016, from BBC Active, <a href="http://www.bbcactive.com/BBCActiveIdeasandResources/MethodsofDifferentiationintheClassroom.aspx">http://www.bbcactive.com/BBCActiveIdeasandResources/MethodsofDifferentiationintheClassroom.aspx</a></li> <li>• Ferlazzo, L. (2012, January 9). The best resources on differentiating instruction. Retrieved July 20, 2016, from Edublogs, <a href="http://larryferlazzo.edublogs.org/2012/01/09/the-best-resources-on-differentiatinginstruction/">http://larryferlazzo.edublogs.org/2012/01/09/the-best-resources-on-differentiatinginstruction/</a></li> </ul>	<ul style="list-style-type: none"> <li>• Critical Thinking Assignment</li> </ul>
<b>12 – Classroom Environment</b>	<ul style="list-style-type: none"> <li>• Daniel, L. (2007). Research summary: Heterogeneous Grouping. Retrieved July 20, 2016 from <a href="http://www.nmsa.org/Research/ResearchSummaries/HeterogeneousGrouping/rabid/1264/Default.aspx">http://www.nmsa.org/Research/ResearchSummaries/HeterogeneousGrouping/rabid/1264/Default.aspx</a></li> <li>• Dweck, C. (2015, September 22). Carol Dweck Revisits “Growth Mindset.” Retrieved July 20, 2016, from Education Week.</li> <li>• LLP, E.P. (2010). Encouraging Shy Students. Retrieved July 20, 2016, from BBC Active, <a href="http://www.bbcactive.com/BBCActiveIdeasandResources/MethodsofDifferentiationintheClassroom.aspx">http://www.bbcactive.com/BBCActiveIdeasandResources/MethodsofDifferentiationintheClassroom.aspx</a></li> <li>• Marzano, R. J. (2009). The Art and Science of Teaching / Teaching with Interactive Whiteboards. <i>Educational Leadership</i>, 67(3), 80–82.</li> </ul>	<ul style="list-style-type: none"> <li>• Short Answer Assignment</li> </ul>

<b>13 – Pacing &amp; Planning</b>	<ul style="list-style-type: none"> <li>• Jacobson, D. (2010). Coherent Instructional Improvement and PLCs: Is It Possible to Do Both? <i>Phi Delta Kappan</i>, 91(6), 38–45.</li> <li>• Jones, L. (2014, July 18). The Power of Teacher Collaboration. Retrieved July 20, 2016, from Teaching Channel, <a href="https://www.teachingchannel.org/blog/2014/07/18/power-of-teacher-collaboration-nea/">https://www.teachingchannel.org/blog/2014/07/18/power-of-teacher-collaboration-nea/</a></li> <li>• Leana, C. R. (2011, September). The Missing Link in School Reform. <i>Stanford Social Innovation Review</i>.</li> <li>• Chapter 8 in <i>How People Learn: Brain, Mind, Experience, and School</i></li> </ul>	<ul style="list-style-type: none"> <li>• Short Answer Assignment</li> </ul>
<b>14 – Remote Learning</b>	<ul style="list-style-type: none"> <li>• Minero, E. (2020, June 12). <i>Distance Learning FAQ: Solving Teachers’ and Students’ Common Problems</i>. Retrieved November 4, 2020, from Edtopia, <a href="https://www.edutopia.org/article/distance-learning-faq-solving-teachers-and-students-common-problems">https://www.edutopia.org/article/distance-learning-faq-solving-teachers-and-students-common-problems</a></li> <li>• Trach, E. (2018, October 9). <i>Asynchronous Learning: Definition, Benefits, and Example Activities</i>. Retrieved November 4, 2020, from Schoology, <a href="https://www.schoology.com/blog/asynchronous-learning-definition-benefits-and-example-activities">https://www.schoology.com/blog/asynchronous-learning-definition-benefits-and-example-activities</a></li> </ul>	<ul style="list-style-type: none"> <li>• Short Answer Assignment</li> </ul>
<b>15 – 21<sup>st</sup> Century Learning</b>	<ul style="list-style-type: none"> <li>• Framework for 21<sup>st</sup> Century Learning</li> </ul>	<ul style="list-style-type: none"> <li>• Critical Thinking Assignment</li> </ul>
<b>16 – Teaching Information Literacy &amp; Digital Citizenship</b>	<ul style="list-style-type: none"> <li>• Learning for Justice Digital Literacy Framework</li> <li>• 5 Myths &amp; Truths About Kids’ Internet Safety Article</li> </ul>	<ul style="list-style-type: none"> <li>• Short Answer Assignment</li> <li>• Critical Thinking Assignment</li> </ul>
<b>17 – Self-Reflection</b>	<ul style="list-style-type: none"> <li>• Review key readings/topics from the course</li> </ul>	<ul style="list-style-type: none"> <li>• Short Answer Assignment</li> <li>• Final Critical Thinking Assignment</li> </ul>