



# Using an Inquiry-Based Learning Cycle

## Competency

Educator uses an inquiry-based learning cycle to support student acquisition of content knowledge.

## Key Method

The educator uses an inquiry-based learning cycle that engages students to activate prior knowledge, ask questions, gain new understanding, and analyze and communicate ideas in a content area.

## Method Components

### Introduction

Inquiry is an instructional strategy across content areas and grade levels that guides students through a process of asking questions, generating hypotheses and predictions, investigating through testing or research, making observations, and analyzing and communicating results. (Marzano,)

An inquiry-based learning cycle can be useful to teachers in designing curriculum materials and instructional strategies across content areas.

### Key Elements of Using an Inquiry-Based Learning Cycle

- Clear understanding of content and standards
- Engaging students, activating prior knowledge
- Questioning students to help make better hypotheses or predictions

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- Asking for explanations to facilitate higher-level thinking
- Incorporating scaffolded investigations, structured learning experiences, and a framework for investigating and research to maximize results
- Modeling appropriate observation skills and data collection
- Guiding students to find patterns and make connections from observations, data, or research
- Using questioning strategies throughout the inquiry cycle
- Teaching strategies for communicating the results of the experiment or research
- Providing opportunities for students to apply new learning to future lessons or the real world

Note: There are numerous examples of inquiry-based learning cycles. Most stem from a Constructivist Learning Cycle (Engage, Explore, Explain, and Extend) Many inquiry learning cycles are focused around science, but can be utilized and impactful across all content areas.

## Supporting Rationale and Research

Abraham, M. "Research Matters to the Science Teachers", NARST. National Association for Research in Science Teaching. Jan 2, 1997. Web. June 26, 2017  
<https://narst.org/research-matters>

Barron, B. and Darling-Hammond, L. "Teaching for Meaningful Learning A Review on Inquiry-Based and Cooperative Learning". Edutopia. The George Lucas Educational Foundation. 2008. Web. June 26, 2017  
<https://www.semanticscholar.org/paper/Teaching-for-Meaningful-Learning%3A-A-Review-of-on-Barron-Darling-Hammond/ebb6e2a081cefdb0c9695031b5dfcced734b90d0>

## Resources

Video

[What is Inquiry-Based Learning](#)

[Inquiry-Based Learning: From Teacher Guided to Student Driven](#)

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## Articles

[Answers That Are a Little Out of Reach](#)  
[Generating and Testing Hypotheses](#)  
[Question Stems Framed Around Bloom's Taxonomy](#)

[Constructivism and the Learning Cycle](#)

[Expanding the 5E learning cycle](#)

[How to Ensure Rigorous Questioning for Higher Level Thinking](#)

[Inquiry, the Learning Cycle, & the 5E Instructional Model](#)

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## Submission Guidelines & Evaluation Criteria

*To earn the micro-credential, you must receive a passing score in Parts 1 and 3, and be proficient for all components in Part 2.*

### Part 1. Overview Questions (Provides Context)

(300-500 words)

*Please use the suggested word count as a guide to answer the following contextual questions. This will help our assessor understand your current context for working on this micro-credential.*

*Please do not include any information that will make you identifiable to your reviewers.*

1. Describe your experience using any of the components of an inquiry based learning cycle.
  - a. Please include grade level and subject, successes and challenges using the learning cycle, and how you think an inquiry based learning cycle can be utilized more in your classroom.
  - b. Describe the diverse learners in your classroom (English Language Learners, Gifted Learners, Special Education Students, etc.).
2. Are there any special considerations we should know about your classroom?
3. What content knowledge will support you in developing this inquiry based lesson plan?
4. Explain the background knowledge of your students and how that will help guide you in planning this lesson?

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**Passing:** Response provides reasonable and accurate information that justifies the reason for choosing this micro-credential to address specific needs of both the teacher and the student. Responses provide a detailed description of all aspects requested in the overview questions. Responses are rooted in specific examples, and writing is organized and easy to understand.

## Part 2. Work Examples/Artifacts/Evidence

To earn this micro-credentials please submit the following **three** artifacts as evidence of your learning. Combine the artifacts into one document and include the video or link in a separate file.

*\*Please do not include any information that will make you or your students identifiable to your reviewers.*

### **Artifact 1: Lesson Plan**

Create a lesson plan using the inquiry-based learning cycle that you will teach. This lesson plan should clearly identify each component of the learning cycle in the following order:

- Subject/concept being taught and standards addressed in the lesson
- How you will engage the students, activating prior knowledge (Engage)
- How you will lead students to exploration (modeling and scaffolding included) (Explore)
- Observations and/or data collection students will do (Explore)
- How you will reflect with your students (Explain)
- How will you modify and accommodate the lesson for the diverse learners in your classroom? (Explain)
- How students will communicate new learning (Explain)
- Possible ways new learning can be applied (Extend)

### **Artifact 2: Video**

Choose one component of the inquiry-based learning cycle (Engage, Explore, Explain, or Extend). Submit a video or audio file demonstrating the teaching or facilitation of that component with your students. If submitting a video, be sure not to show students' faces. (8-10 minutes maximum)

### **Artifact 3: Self-Assessment**

(250-400 word limit)

Provide a written Analysis of your video.

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Include the following information with timestamp references to the video.

- What went well in this component?
- What challenges did you have?
- What challenges did the students have?
- What will you do differently next time?

## Part 2. Rubric

	<b>Proficient</b>	<b>Basic</b>	<b>Developing</b>
<b>Artifact 1: Lesson Plan</b>	<p><b>Engage</b>-Lesson starts with a clear purpose and specific strategies for engaging students, activating prior knowledge, setting up lesson, and generating student hypotheses or predictions.</p> <p><b>Explore</b>-Lesson plan is explicit on how the teacher will model and scaffold for students and what students will do during exploration, how the students will observe or research, and collect data and what the teacher's role will be during this time.</p> <p><b>Explain</b>-Lesson clearly shows how the teacher will guide students through the process of analyzing data or research and</p>	<p><b>Engage</b>-Lesson provides a purpose and strategies for engaging students, activating prior knowledge, setting up lesson, and generating student hypotheses or predictions, but needs more detail.</p> <p><b>Explore</b>-Lesson plan provides some examples of modeling and scaffolding for what students will be doing during exploration, how the students will observe or research, and collect data, and what the teacher's role will be during this time.</p> <p><b>Explain</b>-Lesson provides some detail about how the teacher will guide students through the process of analyzing data or research and</p>	<p><b>Engage</b>-Lesson's purpose is unclear. Strategies for engaging students, activating prior knowledge, setting up the lesson, and generating hypotheses or predictions or either missing or not complete.</p> <p><b>Explore</b>-Lesson plan is unclear how the teacher will model and scaffold for students and what students will be doing during exploration. It is unclear how the students will be observing or researching, collecting data and what the teacher's role is during this time.</p> <p><b>Explain</b>-Lesson is unclear how the teacher will guide</p>

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	<p>communicating new learning.</p> <p><b>Extend</b>-Lesson plan specifically addresses how the learning from the lesson can be applied to the next lesson(s) or to real life situations.</p>	<p>communicating new learning.</p> <p><b>Extend</b>-Lesson plan addresses, but without detail how the learning from the lesson can be applied to the next lesson(s) or to real life situations.</p>	<p>students through the process of analyzing data or research and communicating new learning.</p> <p><b>Extend</b>-Lesson plan does not address how the learning from the lesson can be applied to the next lesson(s) or to real life situations.</p>
<p><b>Artifact 2: Video</b></p>	<p>Video or audio length is appropriate to show the component being taught clearly.</p> <p>Whether audio or video, the technical quality of the artifact makes the content clear to the observer.</p> <p>Video or audio clearly shows the component being taught by demonstrating what the teacher is saying and doing, and what the students are saying and doing.</p> <p>Questions are answered clearly to show reflection on successes, challenges, and next steps.</p>	<p>Video or audio length is appropriate, but the component being taught is unclear.</p> <p>The artifact's technical quality (sound and/or video) is clear most of the time.</p> <p>Video or audio provides some opportunity to observe the component being taught, what the teacher is saying and doing, and what students are saying and doing.</p> <p>Questions are answered in a way that shows some reflection on successes, challenges, and next steps.</p>	<p>Video or audio length is too short to observe the component being taught or is over 15 minutes.</p> <p>The technical quality renders the artifact unclear to the observer.</p> <p>Video or audio does not show clearly what component is being taught, what the teacher is saying and doing, and what the students are saying and doing.</p> <p>Questions are not answered clearly to show reflection on successes, challenges, and next steps.</p>

<b>Artifact 3: Self-Assessment</b>	Analysis answers all 4 questions and cites specific examples with timestamp from the video/audio to support analysis	Answers most of the questions and may use some examples with timestamp from the video/audio lesson but questions are either left unanswered or unsupported by evidence.	Questions not addressed and/or no evidence from the video/audio is cited.
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### Part 3 Reflection

(400-500 words)

Use the word count as a guide to write a personal reflection about your work on this micro-credential. For tips on writing a good reflection review the following resource:

[How Do I Write a Good Personal Reflection?](#)

*Please do not include any information that will make you identifiable to your reviewers.*

Please write a reflection addressing the following questions:

1. How has using an inquiry-based learning cycle affected your current practice?
2. What are your next steps for utilizing an inquiry-based learning cycle in your classroom?
3. How do you think this strategy has supported your students or will support them in the future?
4. How do you think this strategy has supported the diverse learners or will support them in the future?
5. What feedback did you receive from students about this learning experience?

**Passing:** Response shows purposeful reflection on the process of using an inquiry-based learning cycle. Reflections provide descriptive examples in response, and writing is organized and easy to understand.