Using An Inquiry Based Learning Cycle

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

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.

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
- 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 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://www.narst.org/publications/research/cycle.cfm

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.edutopia.org/pdfs/edutopia-teaching-for-meaningful-learning.pdf

Resources

Marzano, R. "8. Generating Testing and Hypotheses" Wikispaces. Tangient LCC. Oct 25, 2012. Web. June 25, 2017

http://escmarzano.wikispaces.com/8.+Generating+and+Testing+Hypotheses

Inquiry Based Learning in the Science Classroom

https://www.edutopia.org/practice/inquiry-based-learning-science-classroom

25 Question Stems Framed Around Bloom's Taxonomy

http://teachthought.com/critical-thinking/blooms-taxonomy/25-question-stems-framed-around-blooms-taxonomy/

Constructivist Learning Cycle

http://www2.gsu.edu/~mstnrhx/457/lcycle.htm

Expanding the 5E learning cycle

http://www.nsta.org/publications/news/story.aspx?id=48547

How to Ensure Rigorous Questioning for Higher Level Thinking-Question Stems from Revised Bloom's Taxonomy

https://www.iss.k12.nc.us/cms/lib/NC01000579/Centricity/Domain/4083/How_to_Ensure_Rigorous_Question_for_Higher_

Inquiry, the Learning Cycle, & the 5E Instructional Model

http://www.meprogram.com.au/wp-content/uploads/2017/05/Inquiry-5E-Instructional-Model.pdf

Submission Guidelines & Evaluation Criteria

To earn the micro-credential, you must receive a passing score for Parts 1and 3 and a proficient for each component in Part 2.

Part 1. Overview Questions

300 word minimum-500 word maximum

Describe your experience using any of the components of an inquiry based learning cycle.

Please include grade level and subject, successes and challenges using the learning cycle, what subjects you have incorporated the learning cycle in, and how you think an inquiry based learning cycle can be utilized more in your classroom.

Are there any special considerations we should know about your classroom?

What content knowledge will support you in developing this inquiry based lesson plan?

Explain the background knowledge of your students and how that will help guide you in planning this lesson?

- **Passing:** 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

To earn this micro-credential, please submit the following artifacts:

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 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 showing the teaching or facilitation of that component with your students. Be sure not to show students' faces. (8-10 minutes maximum)

Artifact 3:Self-Assessment

250 word minimum-400 word maximum

Provide a written Analysis of your video. 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?

null	Proficient	Basic	Developing
Artifact 1: Lesson Plan	Engage-Lesson starts with a clear purpose and specific strategies for engaging students, activating prior knowledge, setting up lesson, and generating student hypotheses or predictions. Explore-Lesson plan is explicit on how the teacher will model and scaffold for students and	Engage-Lesson provides a purpose and strategies for engaging students, activating prior knowledge, setting up lesson, and generating student hypothesis or predictions, but needs more detail. Explore-Lesson plan provides some examples of modeling and scaffolding for what	Engage-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. Explore-Lesson plan is unclear how the teacher will model and scaffold for students and what

	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. Explain-Lesson clearly shows how the teacher will guide students through the process of analyzing data or researchand communicating new learning. Extend-Lesson plan specifically addresses how the learning from the lesson can be applied to the next lesson(s) or to real life situations.	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. Explain-Lesson provides some detail about how the teacher will guide students through the process of analyzing data or research and communicating new learning. Extend-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.	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. Explain-Lesson is unclear how the teacher will guide students through the process of analyzing data or research and communicating new learning.Extend-Lesson plan does not address how the learning from the lesson can be applied to the next lesson(s) or to real life situations.
Artifact 2: Video	Video's length is appropriate to show the component being taught clearly. Audio and video are clear to the observer. Video clearly shows the component being taught by showing what the teacher is saying and doing and what the students are saying and doing. Questions are answered clearly to show reflection on successes, challenges, and next steps.	Video length is appropriate, but the component being taught is unclear. Audio and video are clear most of the time. Video provides some opportunity to observe the component being taught, what the teacher is saying and doing and what students are saying and doing. Questions are answered in a way that show some reflection on successes, challenges, and next steps.	Video length is too short to observe the component being taught or is over 15 minutes. Audio and video are unclear to the observer. Video does not show clearly what component is being taught, what the teacher is saying and doing and what the students are saying and doing. Questions are not answered clearly to show reflection on successes, challenges, and next steps.
Artifact 3: Self-Assessment	Analysis answers all 4 questions and cites specific examples with timestamp from the video to support analysis	Answers most of the questions and may use some examples with timestamp from the video lesson but questions are either left	Questions not addressed and/or no evidence from the video is cited

		unanswered or unsupported by evidence.	

Part 3. Reflection

500 word limit

Please write a reflection addressing the following questions:

- How has using an inquiry-based learning cycle affected your current practice?
- What are your next steps for utilizing an inquiry-based learning cycle in your classroom?
- How do you think this strategy has supported your students or will support them in the future?
- 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 description, and writing is organized and easy to understand.