Inquiry-Based Learning Primer for Educators

What is Inquiry-Based Learning?

Inquiry-Based Learning supports constructivist learning, a highly involved type of deep learning where "an individual constructs his or her understanding of the world in which he or she lives by reflecting on personal experiences" (Brown & Green, 2006, p.37).

This is an active approach to learning in which students reconstruct their own knowledge through interacting critically with new knowledge in order to achieve a purpose (Crawford, 2000). While there may be elements of teacher-led instruction, inquiry does not follow the traditional teacher- centered model of instruction. Rather, it is an approach to teaching and learning that involves a cycle of asking questions, seeking answers and reflecting on the findings. It places students' questions, ideas and observations at the center of the learning experience.

What are students supposed to learn?

Critical to Inquiry-Based Learning is that students have a fair amount of autonomy in establishing the goals of learning as well as the means to achieve those goals within a given curricular context. This context can be restricted to a specific topic within a subject, or it can be wider and interdisciplinary, depending on the discretion of the educator and needs of the students. Regardless of the scope of an inquiry, it should originate in some way from the unique curiosity of each learner and be rooted in authentic, real-world experiences (Bender, 2010; Haury, 1993). The inquiry could involve answering a question that is relevant to the learner, creating a novel product of some description within a series of authentic constraints, or attempting to solve a problem (the latter two often being referred two as Project and Problem-Based Learning, respectively). In each case, there would be no single or clear-cut answer, solution, or approach; no single "right" answer. There might be multiple correct answers or several reasonable but imperfect ones, and the reasonableness of any solution would be determined after an analysis of available information and consideration of other possibilities.

The learning involved in this process include (but not limited to) a meaningful understanding of the content knowledge that is analyzed in attempt to fulfill their task, the experience of planning and executing a complex task, connections within bodies of knowledge, the skills of assessing and reflecting on one's own thinking, process and progress, and collaborative skills. While the design of the inquiry can dictate learning of specific content knowledge, the most impactful learning is often the personal insights gained as a result of the reflection process. Whether answering a question, creating a product, or solving a problem, the cycle of inquiry and student decision-making are the critical components that make this kind of learning effective and meaningful.

What do educators do during Inquiry-Based Learning?

The educator's role in Inquiry-Based Learning is to move learners from a position of wondering to a position of enacted understanding and further questioning. This is done by, in part, by supporting student ability to formulating the "right kind" of questions, design effective investigations, process and reflect on information, appropriately apply information to solve problems and communicate their experiences. The educator facilitates the process by providing the context for the inquiry,

meeting with individuals or groups about their progress, giving feedback and guiding reflection at each stage, providing direct instruction if and when needed, advising on next steps, and facilitating communication of learning. This work changes significantly the traditional ratio of time spent on direct instruction with other time spent on active independent and collaborative learning, educator interaction with students, and feedback.

What are the steps involved in Inquiry-Based Learning?

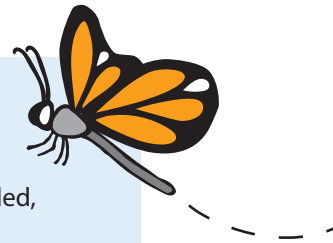
There is no one way to approach this kind of learning by its very nature as it is intended to be responsive to student interests, needs, and abilities. It will vary in scope, length, and complexity depending on the age of the students, the comfort level of the educator, the constraints of educational context, and the experience of all of the participants with this kind of learning. While the following steps are typical component pieces of Inquiry-Based Learning, there is much room for adaptation.

Anchor

1. Used to introduce a broad topic and to generate students' interest in some aspect of it.
2. Ideally it outlines the importance of the issue and its potential implications.
3. Might be simple like a one- or two- paragraph narrative that describes a context, situation problem to consider. Or it could be in some other form such as:
    - A video segment.
    - Excerpts from a local or national newscast that describe a problem or issue to be considered.
    - Real or fictitious correspondence describing a situation or problem.
    - An exploration of an area outside of the classroom.
    - A field trip experience.
    - A discussion or debate.
    - Other creative approaches etc.

Driving Question

1. A question that problematizes some aspect of the broad topic being explored.
2. May be developed by teacher in advance, or student teams may be used to develop this question as part of the process itself.
3. Together with the anchor, the driving question should both engage students' attention, define the scope of their exploration, and focus their efforts on the specific information they need to address the problem.



WHAT MAKES A GOOD INQUIRY QUESTION?

A good inquiry question is open-ended, thought- provoking, and requires higher order thinking. It should also be researchable, interesting, and have multiple possible answers. Common features include:

- **Open-ended:** It doesn't have a single, correct answer.
- **Higher order thinking:** It requires analysis, synthesis, inference, or prediction.
- **Thought-provoking:** It sparks discussion and debate.
- **Points to important ideas:** It can lead to important, transferrable ideas.
- **Raises new questions:** It can trigger new questions and curiosity.
- **Requires support:** It requires support and justification, not just an answer.
- **Can be revisited:** It can be revisited again and again.
- **Examines "why":** Questions that examine "why" rather than "what" can lead to explanations.
- **Has a clear focus:** It requires some focus to allow productive research.

Inquiry Design and Implementation

1. Students working together or individually will plan and organize their activities in order to move toward a solution to the question. These tasks may vary, but generally include the following:
    - Define important terms.
    - Brainstorming possible problem solutions.
    - Identifying a specific series of topics about which information will be required.
    - Dividing up responsibilities for information gathering.
2. Students meet with teacher for feedback on plan and approval to proceed.
3. Students begin their work:
    - Search for information on the problem or question.
    - Synthesize the information collected (collaboratively and/or individually reflect on relevance and possible use of this information, possibly seek feedback from teacher on this).
    - Teacher mini-lessons may be provided to groups or on a whole-class basis if needed.
    - Decide on next steps/determine what additional information or work might be required (reflection and teacher feedback).
    - Design and develop a product, or multiple products or artifacts, that allows students to communicate the results of their work and what was learned (teacher feedback along the way in terms of application of acquired information). Possibly incorporate elements of ongoing reflection into the product to reflect insights.

Presentation and/or Publication of Product/ Celebration of Learning

1. Communicate a synthesis of learning
2. Reflect and debrief on the experience of doing the inquiry
3. Celebration

These steps represent an overview of a complete Inquiry-Based Learning process. Any step can be simple or complex, be reflected upon, be subject to teacher feedback and involve student decision-making. As well, any step can reflect varying levels of teacher guidance and student autonomy. What is important is that the teacher monitor and respond to what is happening at each step of the way and ensure that students are able to fully understand and articulate their own experience through guided reflection and sharing. Celebration is a must as they have accomplished something important and challenging.