

Inquiry in the MYP Science Classroom



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The Purpose of Inquiry

Inquiry-based learning is one of the central ideas of the MYP and puts students at the center of learning. It is a way for your students to directly connect their classroom experiences with their own knowledge, and the world around them.

Good inquiry starts off with the teacher having a very clear idea of what skills the students are going to be working towards and developing throughout the inquiry-based activity or unit.

Ideally, good inquiry-based teaching will involve lots of opportunities for differentiation of personalized learning.

So to sum up inquiry, it's a method of teaching where the teacher creates a structure where students work towards a particular goal or outcome with flexibility for students to make the work their own.

Do you already use inquiry-based teaching in your classroom? What have you found works best for you and your students?

The Stages of Inquiry

There need to be multiple opportunities for students to succeed in different ways, but one of the key features of a good inquiry-based lesson regarding teaching is that the teacher is enabled to deal with students on an individual basis and support them on their particular individual needs.

Beginning a unit with a provocation, then proceed with activities that focus on inquiring into the concepts that will be taught in the unit.

When students embark on the process of questioning, they begin to evaluate their perspectives or the perspectives of others on the concepts of the unit.

This process provokes a deep interest and further inquiry into how, why, what, when.

Through this questioning technique, the students have an invested interest in the topic and a desire to uncover the response to their questions. They are also much more active and dynamic in the learning process. Learning is centered around thinking and thinking is inspired by questioning.

The Three Stages of Inquiry

To understand the different ways inquiry can work within the classroom, it is often helpful to think of inquiry regarding three stages - structured, guided, and open. During the teaching of your MYP unit, you will often move through these different stages of inquiry.



STRUCTURED INQUIRY

This stage of inquiry provides students with a high level of structure and guidance. Students often follow the lead of the teacher often engaging in one inquiry together as an entire group using teacher provided resources.



GUIDED INQUIRY

This stage of inquiry provides students with some direction with the teacher acting as a facilitator. The teacher takes great care to provide the right support when needed. Students can be given the necessary materials and questions to answer, however students have more freedom in answering the question versus structured inquiry, and are involved in designing the product or solution.



OPEN INQUIRY

This stage of inquiry involves students leading the direction in all respects, coming up with the questions then designing the investigation/process, carrying it out, and communicating and reflecting on the results.

My notes



Inquiry in Practice

Inquiry as a concept is a huge idea. In order to consider what an inquiry based classroom might look like, think about how you can put students in the driver's seat when it comes to learning. It can be really difficult to relinquish control over the classroom, particularly when you've put a lot of time into developing your well-thought-out unit plan!

Use the following questions and worksheets to help you think more about what inquiry can look like in your classroom.

What is a unit, project, or lesson that you would like to add more inquiry-based learning into?

List some of the activities in this unit/project/lesson that is teacher-focused and not inquiry-based:

- ---
- ---
- ---
- ---

Now add those teacher-based activities to the left side of the table and think about ways your students can learn this same information by investigating, exploring, inquiring. Then go ahead and fill in the right side of the table with your new ideas.

Teacher-focused:

Inquiry-based idea:









Some key elements of inquiry in science labs may include the following:

- The use of laboratory explorations where students design elements of the lab
- Open-ended questions and statements prompt student inquiry
- Guided inquiry involves exploration with restraints (supplies, time, etc.)
- Inquiry does not have to be 100% student led, it should still be aimed at meeting the lesson or unit learning outcomes, while giving students a say in how they are learning the required content
- Consider where and when appropriate answering questions with questions back to the students in order to help them to “discover” their own answers.

Lesson Plans & Activities

Here are some learning activities and lesson plans that focus on inquiry-based teaching methods so students has the flexibility to really own their learning.

Jig-Saw Groups

I like having my students use Jig-Saw groups when learning information so they can explore different topics through multiple modals and then teach their group what they learned when they come back to their base group.

In the resources section, find:

- A jig-saw lesson plan for teachers on Mammals.
- A jig-saw lesson plan for teachers on Deforestation.

Use lots of Learning Styles

At my school, it is really encouraged to use lots of different ways to teach so that students can experience their learning through reading, listening, speaking, doing, moving, etc.

One of the ways I teach about the parts of a cell is by using all different kinds of activities to help students experience their learning in new ways. You can easily create lesson plans like this on any topic. You can use my example as a model for you.

In the resources section, find:

- A lesson plan on the parts of a cell.

Experiments

Instead of a big test at the end of your units, consider asking your students to create an experiment to show their learning instead. This way students are able to be creative, explore and investigate their learning further, and make more connections.

Projects

Creative projects are a great way for students to show what they have learned. One of my favorite projects is when we are working on Genes. I have students pick a disease and use a RAFT chart to create a project with a specific audience and format.

In the resources section, find:

- A project outline for students on Genes R Us walking them through this project.
- A RAFT guide for the project.

Conclusion

MYP science teachers have it made when it comes to integrating inquiry into the science classroom. After all, it's what science is all about. Continue to implement the solid science practices that you are already using, our subject group is all about inquiry.

Notes

Inquiry in the Classroom

Teacher Reflection

Think through the lessons and activities you have planned over the next month or so. How can you incorporate more student-led activities and inquiry into your plans?

How might your students benefit from more inquiry-based lessons?

What do you want to remember most about what you learned?

My notes



Resources

Find all the printables that were discussed in this Print and Go Pack by downloading the individual files in this Pack.



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