**7-28-21 Article Inquiry Ways to Encourage Students to Ask Questions**

**INQUIRY-BASED LEARNING**

4 Ways to Encourage Students to Ask Questions

When exploring their own questions is an integral part of class, students get more invested in working to find answers.

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Take a giant beach ball. Roll it around, toss it in the air, do all kinds of things with it, and then bring it back to where you started. At least one point on the ball is exactly where it was before you did all that stuff. Cool, huh? What does it make you wonder?

This phenomenon is a basic fact in linear algebra, and I demonstrated it to my students to kick off our unit on eigenvalues. After the demonstration, they started to ask questions—brilliant questions! Their questions foreshadowed what we were going to learn in the unit and even got into deep existential ideas in math. Thrilled, I quickly grabbed a poster and started writing all of their questions down. As the unit went on, we returned to their questions and realized that we had learned enough to answer many of them. This kept my students excited and engaged. The learning also stuck with them because they were invested in finding the answers.

As teachers, we strive to make our content relevant to our students. Relevance keeps students motivated and helps them transfer their new knowledge to contexts that are important to their daily lives. By giving students the opportunity to ask questions about the content, we let them do the work to create those connections. Their questions automatically allow them to personally relate to what they are learning.

**QUESTIONS AS REVELATIONS**

When students ask questions, teachers get a glimpse into their prior knowledge with a topic. Their questions expose what they know and help us find that just-right level of challenge. Students shut down when they are confronted with work that is beyond their level of capability and get bored when the work is too easy. Their questions usually indicate exactly where they are.

Student questions also help us differentiate based on their interests. Their wonderings expose the parts of the content that they want to explore more deeply. We can give students the opportunity to focus that energy on their interests, further boosting motivation and the transfer of knowledge.

There is good reason to believe that when students ask questions at the beginning of a new topic or unit, they will learn and retain the content better. As they learn, they seek answers, keeping their minds engaged and primed to eat up new information. In *Small Teaching: Everyday Lessons from the Science of Learning*, James Lang cites research proving that the act of anticipating an answer kick-starts a part of the brain that helps us form deeper, longer-lasting memories.

With all of these benefits in mind, how can we create a culture of curiosity and help students ask more questions?

**4 STRATEGIES TO PROMOTE STUDENT QUESTIONS**

1. Present thought-provoking prompts. When something is surprising or unusual, our human instinct is to be curious. This was evident in my linear algebra class with the beach ball problem. I have also presented surprising mathematical results, interesting data sets, open problems in math, news headlines, flawed proofs, and historical uses of math in other cultures to prompt question-asking. But you can find thought-provoking prompts in any discipline. Look to political cartoons, viral (appropriate) YouTube or TikTok videos, unexpected scientific findings, songs, and more.

2. Celebrate every question. When students ask questions, celebrate them! I like to make a big deal out of good questions by stopping class and having the student repeat the question to the group. Then we have a class discussion about it. We write their questions on index cards and post them on the “I Wonder” wall. My students take pride in having their question added to the wall.

3. Turn questions into teachable moments. In my statistics class, a student asked a question about something he noticed about the way data was presented in an article we read. The whole class looked at it, and we tried to replicate the presentation from the raw data. It led me to discuss two-way frequency tables and conditional probability, a topic that I wasn’t planning to present for weeks. The learning stuck because it was relevant in that moment.

4. Help students ask better questions. Model question-asking yourself. When I show students a prompt, I make it a point to participate in the question-asking process. They see my curiosity, and it inspires them to ask more questions. They also start to see the types of questions that we can ask, and it gives them more ideas. You can also use a protocol like the [Question Formulation Technique](https://rightquestion.org/) to help your students understand and value different types of questions.

Creating a culture of curiosity and wonder does not need to take up extra time in your curriculum, nor do you need to implement a full inquiry-based model in your classroom. You can simply present an inspiring prompt every once in a while and let students’ curiosity run wild. If the prompt is related to your content and you can build on it, wonderful! If not, you can still get students’ creative juices flowing. This lets them know that school is a space where questions are welcomed and integral to learning.