NATURAL HISTORY
MUSEUM OF UTAH
Rio Tinto Center | The University of Utah

Why Wonder?

Alignment to Utah Core Curriculum	Enduring understanding:	Grade Level: 3-5
Intended Learning Outcomes (ILO's): 1. Use science process and thinking skills. 2. Manifest scientific attitudes and interests. 3. Understand science concepts and principles. 4. Communicate effectively using science language and reasoning.	Wondering creates a desire to explore the natural world and is, therefore, essential to the process and nature of science.	Activity Length: 45 minutes Process Skills: • Observation • Recording • Wondering

Materials Needed

- At least 10 different objects (use items from a teaching toolbox, or things with obvious and not-so-obvious details you have collected, or treasures from nature students have brought to the classroom)
- Paper (or a Science Notebook) and pencil for each student
- Observation/Wonder sheet (found at the end of the lesson)

Background

Albert Einstein said "I have no special talents. I am only passionately curious." While we might not agree with Mr. Einstein's assessment of himself, his statement regarding the importance of wonder is essential to our classrooms.

Most children experience questions in classrooms that are assessment oriented. They are asked questions of many types in many ways to assess their comprehension, retention, background knowledge, ability to reason, etc. This is all beneficial and informative to the teacher; it helps you build curriculum, plan reading interventions and instruction, etc. But where is the place for questioning and wonder that is simply driven by the student?

Students’ wonder and inquiry is what fuels their desire to explore the world around them. Honoring and encouraging students’ questions will create life long learners who enjoy being actively engaged in the learning process.

Activity

Explain that today you are going to allow the kids to wonder about the world around them. You want to give them time to just really think and talk about what they want to know. To begin with, you want them to take a few minutes to write down all the things they are curious about.

Model how you wonder about the world. Write questions you have, as well as things you want to know about. Tell the kids why you have the questions you do. Was it inspired by something you saw? Something you did?

Give students time to write in their journals.

Wander around the room observing students’ and their writings. If some seem stuck, ask them about things they like; help them remember a time they were outside and found something interesting. See if they have any wonders that are sparked by these memories. You can always model wondering about a student’s memories or interests as well, to see if that will prompt them to write more.

Ask students if any of them would like to share their wonders? Give students some time to share things that they are curious about. You can see if there are other students who share the same interests; share how other people’s questions will sometimes make you wonder new things as well.

Record some of the students’ wonders on the board.

Explain that you noticed lots of these questions were based on their observations about the world around them. Observing, or looking at things closely, helps you wonder more about them.

Practice

Tell students that now they are going to practice observing and wondering. There are many interesting objects in the classroom, and their job is to find objects they think are interesting and observe them closely. They need to record information on the observations/wonder paper about what they look like, feel like, smell like, or even sound like. If more than one person likes the same object, make sure that you share or take turns. When you are done with one object, you can find something new to observe and wonder about.

Distribute the observations/wonder paper.

Wander about the room. Observe what objects the students are drawn to, what sort of observations they are making, and what wonders they have. If you find some wonders that you really enjoy, think are interesting, or show thoughtfulness, ask the student if you can write their wonder on the board.

Discuss

Tell the kids that they all had lots of good questions, and you wrote a few of them on the board, but by no means do they represent all of the good questions that have been asked.
Select one of the questions that you think someone may have special knowledge about.
Ask if anyone knows something about this question. Allow students to offer their ideas.
Select another question, one that may not be so readily answered.
Ask students if anyone has ideas about how to answer this question. Allow students time to offer their ideas.
Explain that some questions can be easily answered, and some are more difficult.
Write on the board “How we explore our questions.”
Ask the kids how they think they can explore and possibly find answers (and maybe even more questions) to their questions.
Record their ideas on the board. Have the students record their ideas in their journals or on their papers. Or, you could use this as an opportunity to do shared writing with your class. Make sure the list includes things such as:

- observing more of the same object
- collecting and comparing more of the same object
- using tools to aid observations, such as microscopes, etc.
- planning and conducting tests on or with the object
- asking other scientists (students, teachers, family members, etc.) who have a special interest or knowledge
- reading a book
- searching on the internet (some discussion will need to be had about how to select sites with accurate information which is appropriate for the students)

Encourage students to research answers to their questions during library time, computer/computer lab time, independent reading, and at home. Also encourage them to keep writing down their observations and wonders.

Learning Extensions

You can leave word strips, paper, or sticky notes and pencils out. Any time students are working independently and have a wonder, they can write it down. You can have a jar they put their wonders in, or they can be posted on a wall or bulletin board.

Once a week, you, an individual, groups, or the whole class, can select a question to try and answer. If you select a question, let the students know which question you are thinking about, so if they would like, they can try and answer it too. During a time when you are talking with the whole class, you can take time to model finding answers to questions. Share books, websites, and discussions you had with others regarding the question and what conclusions you came to. Also give time for students to share what they know or have learned regarding the question.

Formative Assessment Strategies

1. By observing the students wonders, the items they select, and the observations that they make, you will gain insight into not only their background knowledge, but also into what is interesting and motivating for them.

Name Date

Object:

Observations	Wonders