



## The Super Power of Observation: I Notice, I Wonder, It Reminds Me Of

Learn how these three questions can help you make deeper and more meaningful observations.

*Overview: Knowing how to make meaningful observations is the first step to training your mind to think like a scientist. These three prompts can guide individuals to make focused observations and form connections to their prior knowledge that will help them answer their own questions.*

### Lesson Characteristics:

Use the table below for lesson planning purposes:

Grade	K-5
Time Required	30-60 minutes
Key Science Practices	Observation Skills
Key Concepts/Terms	Observation
Setting	Inside and outside
Materials	Two toilet paper rolls, sting, scissors, tape or glue, and anything they would like to use to decorate (examples: marker, paint, colored pencils, construction paper, stickers.) Superpower of Observation data sheet.

### Next Generation Science Standards:

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
Asking questions and defining problems.		Patterns
Engaging in argument from evidence.		Cause and Effect

### Learning Objectives

Students will...

*...make and decorate toilet paper roll binoculars.*

*...learn about the power of observation by engaging with three questions that will lead them to deep and meaningful observations.*

*...get outside and use the prompts and their binoculars to explore their own backyard.*

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### Preparation:

Gather materials

Get ready to spend time outdoors. Make sure to check the weather and be appropriately prepared.

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### Background Information:

#### Vocabulary:

Term	Definition
Observation	The action or process of obtaining information about something or someone by carefully watching or examining it.

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### Procedure:

Follow the steps in the table below to conduct the activity.

**Sentences in bold are suggestions for what an educator might say to students.**

*Items in italics are possible student answers to questions.*

Step	Action
	5E's: Engage      Learning Cycle: Invitation
1	<p><b>How do you know a pencil is a pencil? Have you always known a pencil is a pencil? Do you remember when you first learned what the function of a pencil is? Pretend you don't know what a pencil is. Make a list of things you notice about your pencil, include only observations you can make with your five senses.</b></p> <p><i>It's yellow, it's made of wood, it has a pointy end and a soft end.</i></p> <p><b>What would you wonder about a pencil if you didn't know what it was?</b></p> <p><i>I would wonder what it's used for. What possible function does the sharp end and the soft end have?</i></p> <p><b>Does a pencil remind you of anything else you have encountered in your life?</b></p>

	<p><i>It is the same shape as a pen or a marker.</i></p> <p><b>Now that we have used the power of observation, we could now make a Hypothesis, or educated guess, and perform an experiment. We could hypothesize since a pencil looks like a pen, its function is a writing utensil. We could test our hypothesis by trying to write with it.</b></p>
<p>5 E's: Explore                      Learning Cycle: Exploration</p>	
2	<p>Watch Thinking like a Scientist: I notice, I wonder, It Reminds me of</p> <p>Pause after binoculars have been created.</p> <p><b>Today we will be using the prompts “I notice”, “I wonder”, and “it reminds me of” to think like a scientist and make careful and meaningful observations. Scientists also need the right tools. We will first be making binoculars using toilet paper rolls.</b></p> <p>Instructions:</p> <ol style="list-style-type: none"> <li>1. Gather your supplies. <ol style="list-style-type: none"> <li>a. Two empty toilet paper rolls</li> <li>b. Scissors</li> <li>c. Sting</li> <li>d. Glue or Tape</li> <li>e. Something to decorate your binoculars (eamples: marker, paint, colored pencils, construction paper, stickers)</li> </ol> </li> <li>2. Decorate the two empty toilet paper rolls</li> <li>3. Stick the two rolls together horizontally so they resemble the shape of binoculars.</li> <li>4. Use the scissors to carefully poke one hole in the outer edge of each roll.</li> <li>5. Cut a piece of string long enough to fit around your neck and feed the sting through each hole and tie a knot.</li> </ol>
<p>5 E's: Explain                      Learning Cycle: Concept Invention</p>	
3	<p>Watch the rest of the video Thinking like a Scientist: I Notice, I Wonder, It Reminds Me of.</p>
<p>5 E's: Elaborate                      Learning Cycle: Application</p>	

4	<p><b>Time to take your binoculars outside! Find a location outside in your backyard or a nearby park. Sometimes when we look at nature it all sort of blends together into one big green blur. Now take a look through your binoculars. See how they help cut down your field of vision and allow you to focus? Take a few minutes to explore. Remember to think like a scientist by using the prompts I notice, I wonder, it reminds me of.</b></p>
<p>5 E's: Evaluate                      Learning Cycle: Reflection</p>	
5	<p>Use the attached observation data sheet to record three things you notice, three things you wondered and three things you were reminded of by your observations.</p>