



Observing with a Microscope

Boys and Girls Club After School Science
NSF Center for Chemical Innovation
Chemistry at the Space Time Limit (CaSTL)
<https://www.castl.uci.edu/>

Standard(s) Addressed:

California Department of Education, Science Content Standards, Grade 2 IE: Use magnifiers or microscopes to observe and draw descriptions of small objects or small features of objects.

Lesson Objective:

Children will practice observing small objects under the microscope. They will make microscope slides. Then, they will record details and characteristics of the objects under view.

Materials Used:

a Brock Microscope
Index cards to make their own slide
crayons
poster paper
salt
sugar
thread
construction paper- about 5 different colors (one per table)
Book: Greg's Microscope by Millicent E. Selsam and Arnold Lobel

Classroom Management:

Setting up: Have 1 microscope per team/pair/individual. Have materials (salt, sugar, thread) ready in small cups for each table.

During Explore: Encourage students to use caution with and care for the microscopes. Support students in making mounts of salt, sugar, and thread.

Clean Up: Make sure students give back all materials. Paper towels with some water to clean up the salt and sugar.

Signal: Stand silently in front of the room, raising hand in the air to get the children's attention.

Funding and Credits:

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ENGAGE: *Connect to Prior Knowledge and Experience, Create Emotionally Safe Learning Environment, Preview New Vocabulary* **Estimated time: 5 minutes**

Description of Engage: Students will connect to their prior knowledge by reviewing what they know about microscopes. They will preview the new vocabulary word, “slide”.

Teacher’s Role	Teacher Questions	Children’s Role
<p>Teacher shows students a Brock Magiscope (Microscope) and asks them what it is and what it does?</p> <p>Teacher tells students that they will be looking at some objects that they have seen before, but this time they will be looking at them under the microscope. In order for them to see the object under the microscope, they need to make a “slide” (a dry mount, where the object is placed on a slide without liquid).</p> <p>Teacher previews the vocabulary word “slide” and connects it to its homonym. Teacher helps with the scientific definition of slide for this lesson and writes it on the board for future reference.</p>	<p>What is this tool? What does it do? How does it work?</p> <p>Have you heard the word slide before? What is a slide that you know of?</p>	<p><i>“It’s a microscope.”</i> <i>“You can see really small things in there.”</i> <i>“It has two lenses to magnify objects.”</i> <i>“The image of the object appears upside down.”</i></p> <p><i>“We have a slide on the playground.”</i> <i>“You can go down a slide at the park.”</i></p>

EXPLORE: *Hands-On Learning, Contextualize Language, Use of Scaffolding (Graphic Organizers, Thinking Maps, Cooperative Learning), Use of Multiple Intelligences, Check for Understanding* **Estimated time: 20 – 25 minutes**

Description of Explore: Students will observe four objects with their naked-eye. They will record their observation on an index card. Then they will make a dry mount slide to observe the object under the microscope. They will draw what they see on the other side of the index card.

Teacher’s Role	Teacher Questions	Children’s Role
<p>First, she models how to draw the hair as she observes it with her naked-eye. All students draw what they see of their</p>		<p>Students observe and record a piece of hair with the naked-eye and the microscope.</p>

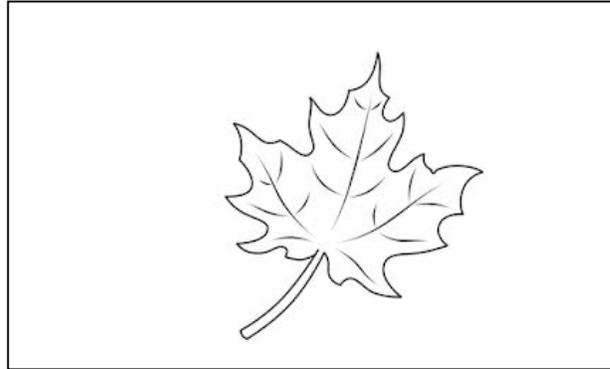
		<p><i>"I see that everyone saw the thread the same. There are really lots of little threads inside it."</i></p> <p><i>"The microscope shows us a very detailed look at the object."</i></p>
<p>EVALUATE: <i>Thinking Maps, Summarize Lesson and Review Vocabulary, Variety of Assessment Tools, Games to Show Understanding</i> Estimated time: 5 -10 minutes</p> <p>Description of Evaluate: The children will be assessed on their understanding a slide is and what other things they could put on a slide to look at.</p>		
Teacher's Role	Teacher Questions	Children's Role
<p>Teacher gives each table a piece of construction paper. She asks each group at the table to make a list of things they would like to see on a slide and how it would look if they made on a dry mount (see example below). One person from each group will report what they wrote.</p>	<p>What would you want to see? How would you make it on a dry mount slide?</p>	<p>Make a list with peers of what they would like to see under a microscope. Draw a picture of how a dry mount would look if they made it.</p> <p><i>"We would want to see a leaf. We think we could see all the lines insides really closely and that would be neat. We would put it on a glass or paper slide and put it under the microscope."</i></p>
<p>EXTEND/ELABORATE: <i>Group Projects, Plays, Murals, Songs, Connections to Real World, Connections to Other Curricular Areas</i> Estimated time: 10 minutes</p> <p>Description of Extend/Elaborate: Students will connect to literacy by listening to a story called, "Greg's Microscope" by Millicent E. Selsam and Arnold Lobel. They will use literacy strategies of connecting, predicting, and summarizing throughout the story.</p>		
Teacher's Role	Teacher Questions	Children's Role
<p>Teacher tells students they are going to read a book about a little boy who wants to see things in a microscope. Teacher tells students that she'll need their help to predict what he should find, relate/connect their own experiences of what Greg wants to see, and summarize what is happening at different</p>	<p>Greg wants to see an ant. How could he look at that?</p> <p>What else on this page could Greg look at? What would he need to make to see it under the microscope?</p>	<p><i>"It might be too big!"</i></p> <p><i>"Some grass."</i></p> <p><i>"A leaf."</i></p> <p><i>"He needs to make a dry mount."</i></p>

places in the story.	What is Greg looking at? Did you see something like that under your microscope? What just happened here? Can someone summarize what is going on?	
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Example:

My list of things I would like to see on a slide and how it would look if I made it on a dry mount.

Leaf



A bug's eye

