

Be an Adventure Scientist!

by Anna Lindquist



Lesson Overview

- You will go outside and learn how to make observations like a scientist and explore the natural world just like Lewis and Clark did on the Corps of Discovery expedition.
- After you make observations you will write a letter describing your experience to send to a friend or family member!

Notes for Parents/Teachers

- This lesson requires minimal supervision for independent learners, although younger students may need help staying on task or interpreting some directions.
- Reading and writing skills are used throughout the lesson.
- Except for watching a short video, all of this lesson can be done outside.

Age Group:

- 4th-6th grade

Total Time Needed:

- 1-2 Hours

Materials Needed

- Access to the internet to watch accompanying video
- Pencil or pen
- This worksheet or notebook
- Envelope and a stamp

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Step 1: Introduction to Lewis and Clark

- Have you ever been somewhere completely new? Some place that even your friends and family had never visited? If not, just think about a time when you visited a place that was new to you!
- What did you feel? Write the answer here or on a separate sheet of paper or notebook:

- What stood out to you in the new place? Write the answer here:

- Today you are going to be an explorer and a scientist, just like Meriwether Lewis and William Clark exploring the American West back in 1804!
- Watch this short video about the Lewis and Clark expedition and their scientific discoveries: <https://www.youtube.com/watch?v=1t1BMdM8po8>

Step 2: Explore Like A Scientist

- Time to go outside!
- You will need to print out this worksheet, something to write with, and a notebook or extra paper if you need more space than on the worksheet.
- Be sure you check in with an adult and make sure you have anything else you might need.
- Find a place where you are comfortable outside. It can be your yard, your neighborhood, a park, or anywhere else!
- Now, pretend that you have never been in this place before, just like Lewis and Clark when they were travelling.
- You will be using your senses to explore this place.
- First, close your eyes. Then open your eyes—what is the first thing that you see? What are your eyes drawn to? Write it down here:

- Next, close your eyes again. What is the loudest sound that you hear? Write it down here:

- Close your eyes again and think about what you are feeling. Are you sitting on the ground? What does it feel like? Are you warm or cold?

- Finally, what can you smell? What is the strongest smell? Do you know what it is? If not, does it remind you of anything?



Think about....

- The video says that science is a method of gaining knowledge about the universe around us. Do you have a different definition of science?
- If you enjoyed that short video, here are a couple more that you could watch:
 - <https://www.youtube.com/watch?v=PnT0k9wdDZo>
 - <https://www.youtube.com/watch?v=MhsoQJ-O0Fg>
- Lewis and Clark documented 178 types of plants, and 120 new species of wildlife!

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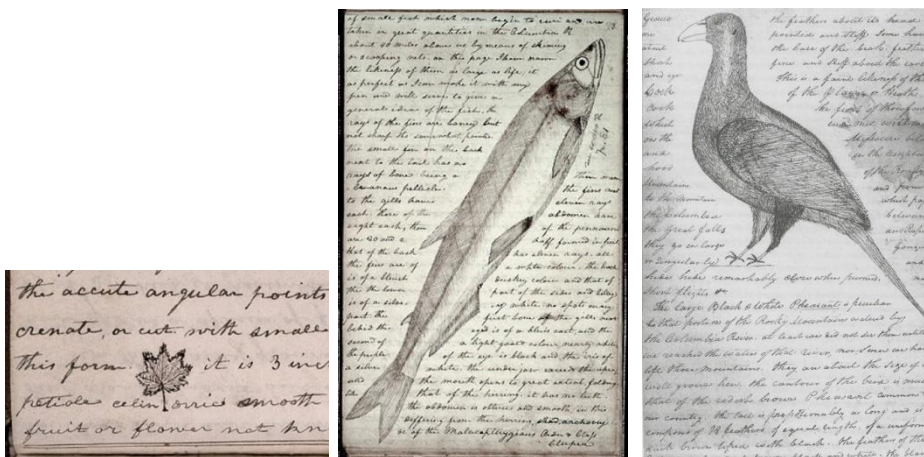
Step 3: Draw Like A Scientist

- An organism is something that is living, such as a plant, animal, or bacteria.
- Pick an organism that you can see around you now. Maybe it is the first thing that you saw when you opened your eyes!
- Remember that you are pretending that you have never been in this place before or seen this organism! Draw a sketch of the organism below and try to be as detailed as possible. Below are some examples of sketches Meriwether Lewis did in his journal.



Think about....

- When you draw your organism, remember to notice what is around it as well. Are there buildings or sidewalks? Is it near rocks? Other plants? Include its surroundings in your drawing, or written observations if you want.
- When you draw your organism try to draw what you actually see, not what you think you see.
- It doesn't matter if you don't consider yourself a good artist. Drawing can help us notice things we didn't notice before. Labeling parts of our drawing can help make what we are trying to draw clearer.



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Step 4: Thinking Like A Scientist

- Meriwether Lewis had no idea what he would find as the Corps of Discovery travelled West. To prepare, he travelled to Philadelphia to study map making, botany, human anatomy, fossils, and mathematics with many different scientists.
 - Based on your exploration of the outdoors and your organism, why do you think it might have been helpful for him to study these things?
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- In addition to drawings, Lewis and other scientists, like field botanists or wildlife technicians, often document the specific setting and conditions in which they found an organism—just like you did when you used your five senses to make observations! Why do you think scientists might do this?
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Step 5: New Discoveries

- Take a few minutes and add anything else to your drawing that you might want to remember.
 - The fun part about being the first to “discover” your organism is that you get to name it! Pretend you do not know the name of the organism you just observed—what name would you give it? Would you name it after yourself like some of the plants that Meriwether Lewis documented, or would you name it for a certain characteristic? Write your name here or on your drawing:
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- Finally, through trial and error, and with the help of Native Americans, Lewis and Clark not only documented many new species of plants and animals, but they also learned how to use them.
 - How useful do you think the organism you just “discovered” would be to you? Do you think you can eat it? Do you think you could build anything useful from its parts? Or, do you think it would be harmful to you or others? If so, make sure to write “CAUTION!” on your drawing.
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- Remember that even if you might not think your organism is useful, it is still playing a valuable part in the ecosystem, and there are still many interesting things we could learn from it through scientific observations.



Think about....

- Do you think if you observed the same organism tomorrow it would have changed at all? What about in a week? What about six months? How do you think the seasons will affect it? The study of how things change from season to season is known as *phenology*.
- Even if we can't eat or cloth ourselves with something in nature, there are still many ways for it to be useful. Designers and engineers have been gathering inspiration from nature for centuries—this is known as biomimicry, or copying things in nature. Do an internet search for *biomimicry* to learn more.

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Step 6: Share Your Discoveries

- Phones, texting, email, and Facebook didn't exist back in 1804. Lewis and Clark relied on letters to communicate their discoveries to President Jefferson and others.
- Reflect on your experience exploring today and write a letter to a friend or family member about it.
- In the letter make sure to describe the place you went to and the organism you observed. You can even include your drawing if you want.
- You can also tell them what the hardest part of making observations was, as well as what was the easiest.
- Also make sure to include which part was the most fun!
- And finally, tell them about a place you would like to visit someday, and what kind of discoveries you think you might make there.
- Draft your letter in the space below, and then copy it onto another piece of paper. Then, give it to someone in your family, or ask an adult to mail it for you!



Think about....

- When you describe something that someone else has never seen what kind of details might it be important to include in your description?
- Size? Shape? Color? Smell?
- The journals and letters of Lewis and Clark are valuable historical artifacts that can give us insight into how things were in the past. Imagine someone were to find your letter in 200 years? What would they think?

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