# Pre-Lab Information

**Purpose** Plan an investigation to model how human activity affects Earth’s freshwater, including pollution of both surface water and groundwater resources.

**Time** Approximately two 45-minute periods

**Question** How does human activity affect Earth’s freshwater resources?

**Summary** In this lab, you will plan your own investigation in which you model the effect of human activity on Earth’s freshwater. As part of this investigation, you will identify sources of water pollution and examine the overall quality of surface water and groundwater resources.

# Safety

* Ensure that behavior in the lab is purposeful.
* Report all accidents—no matter how big or small—to your teacher.
* Wear clothing that is appropriate for working in a lab environment.
* Wash your hands thoroughly after handling all lab materials.

# Background Information

Earth’s freshwater is a vital resource for all life on the planet. Although 71 percent of Earth’s surface is covered in water, only a small percentage of this is usable. Freshwater that is used for drinking and irrigation comes from groundwater and surface water, such as rivers and lakes. Unfortunately, human activity has a lasting effect on groundwater and surface water. Human activity—such as mining, sewage treatment, farming, and urban development—can lead to pollution and contamination of freshwater resources.

# Lab Procedure

Here is an outline of the steps you should follow to plan your investigation for this lab. Later in this document, you will have space to develop your ideas, collect data, analyze and discuss results, and draw conclusions.

1. **Determine the types of data you will gather and the tools of measurement you will use to collect the data.** You may need to conduct additional background research to design this project.

How will you gather data for your investigation? If gathering quantitative data, you may want to devise a table in which you can record your results in an organized manner. Also, consider how you will record any qualitative or descriptive data in addition to your numerical results. You should use a pencil to record data. You can record your data in **Step 5** of this document.

1. **Devise an investigation to model how human activity affects Earth’s freshwater, including pollution of both surface water and groundwater resources.**

Develop the main steps and describe how you will run the investigation. Your teacher will guide you on what materials are available for your investigation.

1. **Stop. Have your teacher sign off on Steps 1 and 2 before you continue the investigation.**
2. **Gather materials and set up your investigation.**

Now that you know what you will do, gather the necessary items. Besides the objects you will investigate with, make sure you have the necessary equipment to take measurements. If you are working with lab partners, make sure each person knows his or her role in running the investigation. Check your setup and make sure everything is in order before you proceed.

1. **Run your investigation.**

As you proceed with your investigation, make sure you record all the necessary data and, if working in groups, the role each student performed during the investigation. Make sure all elements of your investigation are complete. Do not forget to clean up when you are done!

1. **Use the Lab Report Guide to write your lab report.**

# Modeling How Human Activity Affects Earth’s Freshwater Resources

1. **Determine the types of data you will gather and the tools of measurement you will use to collect the data.**

Make a list of the types of data you plan to collect. If gathering quantitative data, you may want to devise a table in which you can record your results in an organized manner.

1. **Devise an investigation to model how human activity affects Earth’s freshwater, including pollution of both surface water and groundwater resources.**

Write the steps of your investigation. Include a sketch of your investigational setup.

1. **Stop. Have your teacher sign off on Steps 1 and 2 before you continue the investigation.**
2. **Gather materials and set up your investigation.**

Gather the necessary items and equipment. If you are working with lab partners, make sure each person knows his or her role in running the investigation. Document the roles here.

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| --- | --- |
| **Student Name** | **Role** |
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1. **Run your investigation.**

Record your data and observations in the space below. Do not forget to clean up when you are done!

1. **Use the Lab Report Guide to write your lab report.**