

When I grow up, I want to be a...Hydrologist!

<https://careers.doi.gov/occupational-series/hydrology>

What Do Hydrologists Do?

Water is important for our health and the environment. Hydrologists study water resources and solve water-related problems. They collect data in the field and/or model hydrologic data with software. This work ensures the quality of our rivers, lakes, and streams and the safety of our water supply for people and businesses. DOI employs over 1200 hydrologists.

Fields of Study: Environmental (Civil) Engineering, Geology, and/or Environmental Science.



Bureaus that employ Hydrologists:



This is a job for you, if you enjoy:

- Being outdoors, collecting, quality assuring, analyzing, and evaluating hydrology data.
- Providing technical advice, planning, and coordinating projects, and preparing technical reports.
- Science, problem solving, challenges, and Water!

Age-Appropriate Activities

Activities for Ages 4 Years and Under:

- [Water Cycle Diagram for Kids - Multiple Languages](#)
- [Iron Precipitation Demonstration](#) (see activity below)

Activities for Ages 5 – 8 Years:

- [Tidepool Math](#)
- [What Is A Watershed? - YouTube](#)
- [What does a USGS Hydrologic Technician Do?](#)
- [Interactive Water Cycle Diagram for Kids - Beginner](#)
- [Iron Precipitation Demonstration](#)

Activities for Ages 9 – 12 Years:

- [Water Cycle | How the Hydrologic Cycle Works - YouTube](#)
- [Tidepool Math](#)
- Video Shorts:
 - [What does a USGS Hydrologic Technician Do?](#)

- [Principles of Hydrology](#)
- [Gulf of Mexico Ground Water Wells](#)

- [Interactive Water Cycle Diagram for Kids - Intermediate](#)
- [Interactive Water Cycle Diagram for Kids - Advanced](#)
- [Iron Precipitation Demonstration](#)

Activities for 13+:

- Video Shorts:
 - [What does a USGS Hydrologic Technician Do?](#)
 - [Principles of Hydrology](#)
 - [Gulf of Mexico Ground Water Wells](#)
- [Water Cycle Diagram and Natural Water Cycle Diagram – Multiple Languages](#)
- [Iron Precipitation Demonstration](#)



Iron Precipitation Demonstration (for all ages):

This demonstration illustrates the treatment of water polluted by iron, a common pollutant in mine drainage. Young kids will be amazed that perfectly clear water will turn cloudy and red after adding a treatment chemical to cause iron to precipitate from water, which will cause them to rethink using visual cues to determine whether water is safe to use. Older kids will learn a primary treatment method used to create potable water is to precipitate dissolved pollutional ions, like iron, to form suspended solids that is then separated from the treated water. The demonstration can be explained as a three-step process:

1. Water contains pollutional iron dissolved as an ion, not visible to the eye
2. Treatment occurs by adding a chemical to make the dissolved iron combine with other ions to form a solid and precipitate from the water
3. The solid iron is separated from the clean water that no longer contains pollutional levels of iron.

Equipment Required

- 1-liter beaker
- Ferrous Sulfate
- Water
- Spoon to stir solution
- Hydrogen peroxide from a pharmacy

Instructions:

- Fill beaker with water and add a teaspoon of ferrous sulfate
- Quickly stir to dissolve ferrous sulfate (not all will dissolve)
- Add a few drops of hydrogen peroxide to force the oxidation and precipitation of iron hydroxide.
- Let settle to separate the clean water from the iron hydroxide.