What can I do in the 4-H geology project?

- Study Minnesota’s lakes and aquifers.
- Visit a cave. Go spelunking!
- Learn about Minnesota’s iron deposits.
- Collect rocks and fossils.
- Polish rocks you find or buy. Make jewelry with your polished rocks.
- Learn about volcanoes, earthquakes, and glaciers.

The Geology of Minnesota

People traveling across our state will see a land made up of thousands of lakes, fertile farmland, rolling hills, and rocky outcrops. They will see caves and sink holes in the southeast and iron mines in the north. In the northeast they may collect Lake Superior agates. And in the southwest they may see Native Americans carving a red stone into ornaments and jewelry much as their ancestors did thousands of years ago. Glaciers and other forces formed all these features. At times Minnesota’s climate was much colder than it is now and at other times it was much warmer. Our geologic history is what gives us such a range of rocks, minerals, and features to learn about.

Planning

Start with what makes you curious. Have you ever wondered why the farmland is so rich in some parts of the state or why there are caves in other parts? Could Minnesota ever have an earthquake? Where did Lake Superior agates come from? Why are there so many lakes?!

Look outside Minnesota. Are you interested in volcanoes, glaciers, or deserts? The geology of the moon? These are all things you can explore in the 4-H geology project. Decide which part of geology interests you.

Find someone local to help you. Are there other collectors in your community? Think about where you will go to collect rocks. Remember to get permission before going onto private land.

Resources

University of Minnesota Extension Service
Publications:
- Geology (FO-0324)
- Our World of Water (BU-0328)
- Wild Wetlands (FO-5977)
- www.extension.umn.edu (catalog)

MN Geological Survey
http://www.geo.umn.edu/mgs/

MN Geological Society, Minneapolis

MN Dept. of Natural Resources
1-800-766-6000
www.dnr.state.mn.us

History of Minnesota Rivers by Herb Wright

Minnesota’s Geology by Ojakangas & Matsch

Glaciers of North America: A Field Guide by Sue A. Ferguson

Rocks and Minerals, Golden Book series, by Herbert S. Zim and Paul R. Shaffer

Web Sites:
- geologylink.com
- geogem.com
- geology.usgs.gov

Your school, college earth science departments, or library may all be places to look as well.

What are some additional resources?
What do you do now? Look for ideas below.
Write your own ideas for preparing, doing, and sharing in the open areas.

Prepping

Decide which area of geology interests you.

Make a wish list of tools you would like to get someday.

Start now filling out your 4-H record and planning calendar.

Join the Minnesota Geological Society

Make a glass-top display case for your collection.

Get the equipment you need to collect field samples: pen, paper, rock hammer, notebook, maps.

Collect iron ore samples from the Iron Range

Join the 4-H PLU Society

Get the equipment you need to collect field samples: pen, paper, rock hammer, notebook, maps.

Collect iron ore samples from the Iron Range

Learn to polish rocks.

Identify rocks in your area.

Find a store from which to sell your jewelry or polished rocks.

Do a display on the hydrologic cycle.

Collect rock and mineral samples while on vacation.

Do a demonstration on:
• how volcanoes work.
• protecting groundwater in your area.
• how glaciers shaped your local area

Sharing

Conduct a project meeting on how rocks are classified.

Do an exhibit for the county fair on fossils, jewelry, glaciers, or . . . ?

Take kids on a field trip to a geologic formation in your area.