

GEOLOGY

| | |
|-------------------------|--|
| PROJECT SUPERINTENDENT: | Holly Faust, 317-776-8412, holly.faust@hamiltoncounty.in.gov |
| EXHIBIT CHECK-IN: | Sunday, July 11, 4-6 PM |
| JUDGING: | Monday, July 12, 8:30 AM, Closed Judging |
| RELEASE: | Tuesday, July 20, 9-11 AM , and 5-7 PM |
| STATE FAIR ENTRIES: | Three (3) Exhibits/Poster, and one (1) Independent Study |

Project Description:

The 4-H Geology project helps youth learn about rocks, fossils, and minerals.

Levels:

| | |
|----------------|--------------------|
| <u>Level 1</u> | Grades 3-5 |
| <u>Level 2</u> | Grades 6-8 |
| <u>Level 3</u> | Grades 9-12 |

Project Guidelines:

Each year, members are required to complete a minimum of three (3) different manual activities. Create an exhibit to show the public some of the geology specimens you have collected. Exhibits must be displayed horizontally, sized 22" x 28," mounted on a firm backing (foam-core board or other), and covered in clear plastic or other transparent material. Or, you may display your specimens in an insect display box available for purchase at the Extension Office(18 x 24 inches), orientated horizontally. Be sure to include a label with your name, grade, and county. Choose one (1) of the topics listed below, appropriate for your grade in school, and use a title that indicates your division: Geology 1, 2, or 3. You may use a sub-title, if you wish. Titles must be in the front of the poster or box. All posters, notebooks, and display boards must include a reference list indicating where information was obtained, giving credit to original author.

Notes:

- You may purchase your specimens and may display rocks, fossils, and minerals from other countries. If you purchase your specimen, indicate where and when. If you collect your specimen, indicate the county and township where you found your specimen.
- Posters and display boxes will be exhibited "standing up" at the Indiana State Fair. Therefore, you need to secure your specimens securely. Project leaders suggest the following methods: soaking ½ cotton ball in Elmer's glue, hot glue, or clear tub sealant. Place the cotton ball in your box and put your rock (or fossil or mineral) on the cotton ball and let sit. It will take one to two (1-2) weeks for Elmer's glue to fully harden. Specimens mounted with Elmer's glue can be removed by soaking the cotton ball in water. Glue remaining on the rock may be brushed off with an old, damp toothbrush.
- Do not identify your specimens any further than igneous, metamorphic, or sedimentary. There is one exception to this for fossils which are identified to phylum OR class. Class should only be used for fossils of mollusks, backboned animals, and arthropods.
- When exhibiting rocks- show a fresh surface to help judges identify the rock.
Labels- Include the specific geographical location where you would expect to find any specimens as well as where you actually acquired it (found, purchased, etc.)

Level 1: Grade 3-5

Manual 4-H 985. (One (1) State Fair entry per county)

Exhibit

Display a poster (or use an exhibit box) based on one (1) of the following activities:

- **The Rock Cycle** (Activity 2). Explain the rock cycle using both words and pictures.
- **Rock Types** (Activities 2-4). **Display rocks from the three (3) major types:** igneous, sedimentary, and metamorphic. Examples of each include: Igneous- granite, basalt, gabbro; Sedimentary- limestone, dolomite, shale, chert, gypsum; and Metamorphic- quartzite, schist, marble, slate.
- **How Rocks Change** (Activity 4). Color and display the picture in your book or draw and color your own on your poster. Briefly describe the earth processes that are shown.
- **Rock Artwork** (Activity 12). Display your rock artwork and the story that you created.
- **Collections** (Activity 11). Display and identify eight (8) rocks.
- **Making Crystal Models** (Activities 14 & 15). Display the crystal forms characteristic of most minerals (cubic, tetragonal, hexagonal, orthorhombic, monoclinic, triclinic) in a display box with their name and mineral with this form. You may color, paint, or use markers on your crystal models.
- **Molds and Casts** (Activities 16 & 17). Display three (3) molds and/or casts in a display box. Describe the steps that you followed to create a mold or cast.

Level 2: Grades 6-8

Manual 4-H 986 (One (1) State Fair entry per county.)

Exhibit

Display a poster (or use an exhibit box) based on one (1) of the following activities:

- **Rocks with Different Textures:** Identify and display six (6) rocks with three (3) very different textures (two (2) rocks of each general type). Include three (3) grades of sandpaper and show how the differences in sandpaper is similar to the differences in rock texture.
- **Indiana Limestone:** Show and label pictures or photographs of ten (10) buildings, sculptures, or monuments made from Indiana limestone.
- **Mineral properties and tests:** Explain the characteristics: crystal form, cleavage, hardness, appearance, and streak. Explain tests used in identifying specimens. Examples you might include are streak, acid, hardness, chemical analysis, and specific gravity.
- **How We Use minerals:** Show ten (10) common products that contain minerals. Explain the minerals that are contained in these products and the characteristic that makes them useful.
- **Geologic Time:** Create a display to show the major geologic eras. Indicate the names, specific features, and approximate length of each.
- **Indiana's Glaciers:** Show the extent of Indiana's three (3) main glaciers.

- **Indiana Geology:** Exhibit a map or sketch of Indiana showing at least ten (10) sites with interesting geological formations. Describe the formation and sketch or show a picture of the formation.
- **Field Trip:** Describe a geology field trip that you took. Describe where you went and what you learned. Include photographs (if possible) or sketch what you saw.
- **Collections:** Display and identify one (1) of the following: 16 minerals, 16 fossils, or eight (8) of each (eight (8) minerals and eight (8) fossils). You may exhibit a new collection in subsequent years, but not one you have already exhibited.

Level 3: Grades 9-12

Manual 4-H 987 (One (1) State Fair entry per county.)

Exhibit

Display a poster (or use an exhibit box) based on one (1) of the following activities:

- **Geology Research:** Prepare a display to teach others about the topic you studied. Include an appropriate title, abstract (brief description of your topic), and photographs, drawings, charts, or graphs that help explain your topic. This activity may be repeated if a new topic is chosen in subsequent years.
- **Lapidary and Jewelry:** Show how stones and minerals are turned into polished stones and jewelry. Show and explain the steps involved.
- **Miniatures** Display five (5) miniatures in a display box and explain the benefits of collecting miniatures and how they are prepared.
- **Indiana's State Parks or Forests:** Create a matching game of Indiana's State Parks or Forests and a brief description. This exhibit option should include geological features of the park or forest.
- **Indiana, U.S., or World Geology:** Teach others about one (1) Indiana, U.S., or World Geology topic.
- **Career Exploration:** Prepare a display that explains your interview with someone who needs an understanding of geology to do their job.
- **Prepare an Educational Display:** Based on an Advanced Topic of your choice or mentor a younger 4-H'er enrolled in the 4-H Geology project. Use the following guidelines.
- **Advanced topic:** Learn all you can about a geology topic and present it on a poster. Include a short manuscript, pictures, graphs, and list the works cited to describe what you did and what you learned. Title your poster, "Advanced Geology Independent Study."

Mentoring- Exhibit a poster that shows how you mentored a younger 4-H member. Include your planning, the time you spent, the challenges and advantages of mentoring, and how the experience might be useful in your life. Photographs and other documentation are encouraged. Resources must be from educational or government entities.