

3. Make a poster of five commonly found diseases in vegetable gardens, the damage caused by each, and the control options for each.
4. Make a poster of five commonly found vegetable garden insects: beneficial (good guys) and/or injurious (bad guys), benefits or damage caused by each, and the related management practices (how to keep the beneficial, and how to control the injurious insects).
5. Make a poster of a maximum of 10 pests (diseases, insects, weeds, and/or rodents) you found in your garden this year, damage caused, control measures used, and results.
6. Make a poster explaining a computer garden program or mobile application.
7. Make a poster showing a picture story of what you did in your garden this year. Example: how you planned, planted, and maintained your garden.
8. Make a poster showing your financial record.
9. Make a poster of pictures showing your experiences in hydroponics.
10. Make a poster explaining various career options working with vegetables/herbs.
11. Make a poster explaining types of pollinators and their importance in vegetable and fruit production.
12. Make a poster that shows the different types of plant parts that are consumed by humans. Be sure to identify the fruit or vegetable and categorize it by root, stem, leaf, or flower.
13. Make a poster that shows different storage methods for vegetables.
14. Make a poster showing how to create a raised bed OR container vegetable garden.
15. Make a poster discussing how herbs listed on the last page of 4-H Garden Publication 4-H 970-W are used and have been used throughout history. Be sure to include both culinary and medicinal uses as well as other unique uses, if any.



Geology

Judging - Thursday, July 2, at 3pm at the Fairgrounds; Home and Family Arts Building.
One exhibit from each level to State Fair

****Please also refer to the Policies and Procedures beginning on page 2 and the General Project Rules on page 20.***

Create an exhibit to show the public some of the geology specimens you have collected. You may display a poster or specimens in an insect display box (18" x 24"), oriented horizontally. Include actual specimens in your exhibit whenever possible. You can make your own labels for your specimens. See the suggested label format found in the Indiana 4-H geology manuals. Boxes make your specimens more secure. Do not put valuable specimens on posters where they can be removed quickly. Be sure to include a label with your name, grade, and county on back of display. Choose one of the topics listed below, appropriate for your grade in school, and use that name for your title. You may use a sub-title, if you wish. Title must be on the front of the poster or box.

Notes:

- You may purchase specimens and may display rocks, fossils, and minerals. If you purchase your specimen, indicate where and when. If you collect your specimen, indicate the county and township where you found it.
- 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 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 phylum and class. 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 (Grades 3 -5) - Display a poster (or use an exhibit box) based on one 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 major types: igneous, sedimentary, and metamorphic. Examples of each include: Igneous – granite, basalt, gabbro; Sedimentary – limestone, dolomite, shale, chert, gypsum; and Metamorphic – quartzite, schist, basalt, granite.
- **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 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 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) - Display a poster (or use an exhibit box) based on one of the following activities:

- **Rocks with Different Textures.** Identify and display six rocks with three very different textures (two rocks of each general type). Include three grades of sandpaper and show how the differences in sandpaper are similar to the differences in rock texture.
- **Indiana Limestone.** Show and label pictures or photographs of ten 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 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 main three glaciers.
- **Indiana Geology.** Exhibit a map or sketch of Indiana showing at least ten 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 of the following: 8 -16 minerals, fossils, or 4-8 of each (half minerals and half fossils). You may exhibit a new collection in subsequent years but not one you have already exhibited.

Level 3 (Grades 9 -12) - Display a poster (or use an exhibit box) based on one 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 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.

- **Indiana, U.S., or World Geology.** Teach other about one 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.

Level Independent Study (Grades 9 -12)

- **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 ethics. Title your poster “Advanced Geology – Mentor.”



Hay

Judging - Thursday, July 2, at 3pm at the Fairgrounds; Home and Family Arts Building.
No State Fair Exhibit

**Please also refer to the Policies and Procedures beginning on page 2 and the General Project Rules on page 20.*

Exhibit Requirements: Exhibit should be contained in a box, bag, tote, etc. Exhibit one section of new hay; mixed or pure that falls into the following categories:

- Alfalfa Hay
- Grass Hay
- Mixed Hay



Plant Science

Judging - Thursday, July 2, at 3pm at the Fairgrounds; Home and Family Arts Building.

**Please also refer to the Policies and Procedures beginning on page 2 and the General Project Rules on page 20.*

What's in it for me?

The Plant Science project introduces youth to the world of plants and soils through fun hands-on experiences.

The project is divided into two divisions:

- Plant Science I
- Plant Science II

What can I learn?

You can learn about the different parts of the plants, flowers, plant growth, seed germination, soil types and soil formation. Advanced students learn about the differences between different types of plants and their needs. They also have the opportunity to practice several different methods of reproducing and growing plants.

Requirements

LEVEL: Division 1

Project Completion Recommendations:

1. Complete at least five of the experiments outlined in the manual. The experiments include:
 - a. How plant stems carry water.
 - b. Different parts of a plant.