

1972

Did You Know about Our Activity?

Milbert Krohn

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Recommended Citation

Krohn, Milbert (1972) "Did You Know about Our Activity?," *Iowa Science Teachers Journal*: Vol. 10 : No. 1 , Article 3.

Available at: <https://scholarworks.uni.edu/istj/vol10/iss1/3>

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and allow it to set over night or longer. Now examine the stalks or stem. What changes have taken place?

B. Next take a short piece of the stem and split it lengthwise (see page 140 of Life diagram 3 for more information on how to cut the stalk) and look at it under a dissecting stereoscope. Sketch one or two of the tubes that you split open.

C. Now cut a very thin cross section of the stem and examine it under a compound microscope. (See diagram 2 on page 140 of Life.) Sketch and label the pattern of water tubes.

D. Select a small piece of stem from a dicot (ask the instructor) and make a cross-section slide as you did with the celery and sketch and label the water tube pattern you see. (See figure 24.10 on page 335 of Modern Biology.)

Fern Spore Case Lab

Ferns are the only group of vascular plants that reproduce by spores. The others use seeds. You know, from past experience, that seeds are dispersed in many ways. Some seeds are carried by the wind like the milkweed. Birds carry poison ivy seeds, or seeds may be carried by water and animal's fur. The spores are very tiny and do not move except by the wind, water, and a "spring snapper." When the air is moist the spore cases which contain the spores, spring open. The edge of the spore case opens up and acts as a coiled spring to propel the spores out into the world.

In this activity you will be looking at a fern leaflet and seeing the springed spore case and some spores. Look at the diagram on page 78 of WLT.

A. From an instructor, get a fern leaflet and examine it. Notice how the edges are curled up in some places. These still have the spore cases in them! Those that are open and fuzzy on the back have already dispersed their spores.

B. Take a clean slide and place the leaflet on it and smash part of it with your finger and you will notice little black granules which are the spore cases. Use a microscope to examine them. Sketch one of the spore cases and label the "spring."

C. Next add water and a cover slip. Smash the cover slip down to force the spores out. Take a good look and have your slide checked by an instructor. Slide check _____
You may want to take a slide of spore cases and add water and heat them to see if you can make them snap open.

These types of methods have proved to be effective in our particular educational setting. We believe that the added incentives, which are provided for the learner by such methods, have enhanced the interests and the achievement of students. Therefore, we would like to see this model implemented into more classrooms throughout the state of Iowa.

DID YOU KNOW ABOUT OUR ACTIVITY?

Milbert Krohn
Past President
506 20th Street
Spirit Lake, Iowa 51306

The Iowa Science Teachers is sponsoring the following activities for science teachers of Iowa.

- Inland Waters Seminar . . . Lake Okoboji
- Earth Science Seminar . . . Knoxville
- Junior High Seminar . . . Oskaloosa
- Fall Programs Des Moines, ISEA
- Short Course Ames
- Iowa Academy Science
 - Teaching Section Grinnell
 - SSMA National Meeting . . . Des Moines 73
 - St. Louis NSTA Regional . . 1972
- Junior Academy Field Days

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|-------------|---------------|
| Bloody Run | Earth Science |
| Okoboji | Aquatic Field |
| Luther Camp | Winter Field |

We are going to try to expand our program to include seminars in physics, chemistry and elementary science. We need teachers with ideas to join us in our effort to get science education moving. We will help supply the personnel for your idea. Get with us in our movement to place Iowa in the forefront of activity in science education.

2ND ANNUAL WORKSHOP ON INLAND WATERS SPAWNS PROJECT ON LITTLE SIOUX

Milbert Krohn

The second annual workshop on Inland Waters held at Lakeside Laboratory at Lake West Okoboji has ended. Participants have returned to their home schools and are now engaged in