

# Where the Blue Fern Grows

**Skills:** Science

**Objective:** Students will grow fern from fern spores.

## Background

Ferns are the only non-seeded organisms with roots, stems, and leaves. Over millions of years these ancient plants have adapted and evolved. Most are native to tropical regions of the world. While most propagation of ferns is from divisions of underground stems, spores can also be used to propagate the plants. Mosses and mushrooms are two other kinds of organisms that reproduce from spores.

Spores are found on the underside of the plant fronds or compound leaves. The microscopic spores are held in cases called sporangia. Clusters of sporangia, called sori, are the scale-like bumps that can be seen on the underside of the fronds. When these turn brown, they are ready to release the spores.

Spores can be collected in the wild or at a garden center by tapping the fronds over an envelope.

## Science

*The process of growing ferns from spores is a very slow process. This activity is best done at the beginning of the year so it can be observed over a long period of time.*

1. Review the different forms of plant propagation (seeds, plant cuttings). Introduce the term "spore," and explain that spores are another form of plant propagation. Share background material.
2. Hand out peat pellets, petri dishes and plastic cups. Have students moisten their peat pellets with warm water, squeeze out excess water and place the pellet in the petri dish with a little water in the bottom of the dish.
3. Suspend the spores in warm water. Gently apply the spores to the peat pellets with a syringe, straw or pipette.
4. Invert a clear cup over the petri dish to form a miniature greenhouse.
5. Keep the greenhouse in bright, but not direct, sunlight. Keep the media moist at all times. Water from the bottom, never from the top.
6. In a month or more, a green slime will appear on the growing media. This slime contains heart-shaped male and female structures that will unite in the film of water. Once fertilization has occurred, the more rec-

P.A.S.S.

GRADE 2

**Science Process—1.2**

**Life Science—2.2**

GRADE 3

**Science Process—1.2**

**Life Science—2.1**

GRADE 4

**Science Process—1.2**

**Life Science—3**

GRADE 5

**Science Process—1;2**

GRADE 7

**Life Science—2.2**

GRADE 8

**Life Science—3.2**

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## Materials

(for each student)

Small clear drinking cup (6 - 8 oz.) and small dish (plastic sundae cups with lids) that will hold water

Small compressed peat moss pellet

Spores from the underside of fern frond (leaf). (Look for the rows of small red, brown or black specks on the underside of leaf.)

Container of warm water for expanding the pellets

Container of water to mix a suspension for the spores

Straw, pipette, or syringe to apply the spores

## Vocabulary

**propagate**—To cause (an organism) to multiply or breed.

**spore**—A small, usually single-celled reproductive body that is highly resistant to desiccation and heat and is capable of growing into a new organism, produced especially by certain bacteria, fungi, algae, and nonflowering plants.

**moss**—Any of various green, usually small, nonvascular plants.

**mushroom**—Any of various fleshy fungi, characteristically having an umbrella-shaped cap borne on a stalk.

**frond**—The leaf of a fern.

**sporangium**—A single-celled or many-celled structure in which spores are produced, as in fungi, algae, mosses, and ferns. Also called spore case.

ognizable leaves will appear and form the fronds of the young plant. As soon as the leaves are about one inch tall, they can be transplanted into other containers.

7. Collect spores from several different varieties of fern, and compare their growth rates.

## Extra Reading

Dietl, Ulla, *The Plant-and-Grow Project Book*, Sterling, 1993.  
Fleischman, Paul, and Judy Pederson, *Seedfolks*, HarperCollins, 1997.

Pascoe, Elaine, Bowman, Nicole, and Dwight Kuhn, *Seeds and Seedlings*, Blackbirch, 1996.