Connecting FOSS to Northern Arizona

References:

Russell, H. R. 1990. Ten-minute Field Trips. Washington, D. C.: National Science Teachers Association. Pg. 30-35. [NAEERC: EE 038]

Kirkman, W. 1981. Nature Crafts Workshop. Carthage, IL: Fearon Teacher Aids. Pg. 16.

Materials needed:
Variety of seeds
Cardboard
Cardboard knife
Rulers
Pencils
Glue

Time: 1 hour

"Structures of Life" Investigation 1 page 16:

Activity 1: "Seed Mosaics"

BACKGROUND INFORMATION:
The "Ten-Minute Field Trips" book has some great background information on seeds (see pages 30-35). It will also give you some good ideas for local field trips.

TEACHER PREPARATION:
Start collecting all kinds of seeds (beans, corn kernels, sunflower seeds, pumpkin seeds, apple seeds, orange seeds, pits, lentils, etc.). Have a good variety before doing this activity.

PLACE-BASED ACTIVITIES:
•**Art:** Make seed mosaics
1. "Seed Mosaics"
How?: Have students cut cardboard into whatever small shape they want (square, circle, frame, animal shapes…). It takes quite a while to cover an area with seeds, so smaller is better first. Sketch the shapes you want to fill with seeds with a pencil then organize your seeds. Start in the middle with a small amount of glue and lay your seeds in an orderly fashion, pressing firmly. Continue working. Let your mosaic dry overnight.

Connecting FOSS to Northern Arizona

References:
Dennee, J. 1995. In the three sisters garden. Montpelier, VT: Food Works. [NAEERC: PL 019]

Materials needed:
9 x 12 inch pieces of felt, leather or heavy fabric
Darning needles
Sharp sewing scissors
Heavy thread or yarn
One large bead per student
Small beads or paints for decoration.

Time: 1.5 hours

"Structures of Life" Investigation 1 page 16:

Activity 2: "Seed Saver Pouch"

BACKGROUND INFORMATION:
Historically, people were very careful with their seeds when they were moving from place to place because you couldn't just run down to the garden store and purchase seeds, or order them from a seed catalog. If you had worked for a long time growing and cultivating a specific type of pumpkin for example, you would want to save those seeds so you could grow them at your new home, too. Taking care of seeds is a very important part of taking care of the earth. This activity will show you how to make a special seed carrier.

TEACHER PREPARATION:
Get all of the materials together. Teach students some simple sewing techniques. This activity would tie in very well with history lessons on settlers or Native American gardening as well as art.

PLACE-BASED ACTIVITIES:
•**Art/History/Sewing:** Make seed carrying pouches to hold the seeds from your favorite plants.
1. "Seed-Saver Pouch"
How?: Have students fold the fabric in half so that it measures 6 x 9 inches. Trace a rounded pouch shape onto the upper half of your folded piece of fabric (A):

Sew together the two sides along the traced lines. Do not stick across the top of the pouch. These stitches will be visible on the outside of the pouch so try and be tidy. Cut around the stitching (not too close!) and cut some fringes hanging off the bottom (B). Sew around the top with a long running stitch to make the drawstring (C) and close by tying a bead on the end!

Connecting FOSS to Northern Arizona

"Structures of Life" Investigation 2 page 23:

Activity 3: "Perplexing Plants"

Use the book now located in this kit!

Caduto, M. J. & Joseph Bruchac. 1998. Keepers of Life: Discovering Plants Through Native American Stories and Earth Activities for Children. Golden, CO: Fulcrum Publishing. Pg. 37.

PLACE-BASED ACTIVITIES:
Use the activity "Perplexing Plants" on page 37 to learn about how the plant families are organized and to learn the differences between plants and plant-like organisms.

Connecting FOSS to Northern Arizona

"Structures of Life" Investigation 2 page 23:

Activity 4: "Old Cave's Crater Botany Kit"

TEACHER PREPARATION:
Call the Resource Center for Environmental Education (RCEE) 928-779-1745 to borrow the Old Cave's Crater Plant kit (or at least the Field experiences notebook). It is a great compilation of activities to do out in the field. The Plant cards work very well, also.

PLACE-BASED ACTIVITIES:
Use the intermediate section of the Field Experiences at Old Caves Crater: Classroom Activities and sets of Old Caves Crater Plant Cards.

<u>Good field trip locations might be:</u>
Old Cave's Crater
Sandy Seep Trail
Elden Pueblo
Sunset Crater N. M.
Radio Tower Trail

Connecting FOSS to Northern Arizona

References:
Western Regional Environmental Education Council. 1986. Project Wild: Secondary. Boulder, CO: Project Wild. Pg. 47. [NAEERC: WL-G 008]

Dennee, J. 1995. In the three sisters garden. Montpelier, VT: Food Works. Pg. 59. [NAEERC: PL 019]

Materials needed:
None

Time: 30 minutes

"Structures of Life" Investigation 3 page 10:

Activity 5: "Habitat Lap Sit"

BACKGROUND INFORMATION:
Habitats are complex associations of food, water, shelter and space. All organisms need these four components of habitat to survive. Without one of these four, chances of survival are slim. This activity will demonstrate the interconnectedness of these components of habitats.

TEACHER PREPARATION:
None

PLACE-BASED ACTIVITIES:
•**Science/Physical Education:** Form an interconnected habitat with a bunch of bodies.
1. "Habitat Lap Sit"
How?: Split the group into four smaller groups (one's through four's). Assign the groups components as follows: one's = food, two's = water, three's = shelter, four's = space. Have one person from each group come forward and form the beginnings of one large circle in order from 1 to 4 clockwise. Repeat this until a complete circle is formed and all students are included. Have students stand with "magnetic shoulders." Then have them turn to their right and take one big step toward the middle of the circle. They should be standing close together in a tight circle facing the back of the person in front of them. **Tell them not to panic! It almost always works great!** Have everyone place their hands on the shoulders of the person in front of them. On the count of three, have them guide that person so that they are sitting on their knees. If everyone helps guide, everyone will have someplace to sit! Tell the students that when food, water, shelter and space are available in the proper proportions, a habitat can provide a safe, nourishing place for organisms to live. They will most likely fall down laughing at this point.

For fun remove one of the components while they are holding position and explain why the circle collapses.

Connecting FOSS to Northern Arizona

References:
Hillen, J., Wiebe, A. & Dave Youngs. 1989. AIMS: Critters. Fresno, CA: AIMS Education Foundation. Pg. 76. [SMLC: 40]

Materials needed:
Snails (variety of sizes)
String
Meter sticks or tape
Dark colored construction paper
Scissors and tape
Stopwatch or watch with a second hand

Time: 1 hour

"Structures of Life" Investigation 4 page 20:

Activity 6: "The Snail Pull"

TEACHER PREPARATION:
This activity will compare big snails with little snails. If you do not have enough of each size, think of something else you could do to make them different. You could tape a small weight to the back of half of the snails to see if they would go slower.

PLACE-BASED ACTIVITIES:
•**Science:**
1. "Snail Pull"
How?: Have two types of snails (small and large, or weighted and un-weighted). Have a student be the time-keeper. Have students hypothesize how far they think the two snails will go in one minute. Race the two snails for one minute and record how far they traveled in centimeters. Their rate would then be cm/sec. Run 3 trials and average the results for each snail. Using the snails' rates, calculate how many cm each snail might travel per hour. Then convert it to m/hour.

Answer the following questions:
1. How long would it take the big snail to travel 15 meters?

2. How long would it take the small snail to travel 30 meters?