



Celebrating Wildflowers

United States
Department of
Agriculture

Forest
Service

Ochoco
National Forest

P.O. Box 490
Prineville, OR 97754
(503) 447-6247

Reply To: 2670

Date: April 21, 1994

Dear Crook County School District Teacher:

The Ochoco National Forest invites your students to join with us in "Celebrating Wildflowers!" again this year. This is a U.S. Forest Service nationally sponsored event that is jointly sponsored here in central Oregon by the Ochoco National Forest, the Bureau of Land Management, Round Butte Seed Company and the Native Plant Society of Oregon.

As part of this year's event, a botanist will be available for classroom visits from May 16 through May 27. We will be focusing classroom activities on grades 1-2-3. To build on previous presentations, this year I will be offering one activity for each grade level that will be presented year after year, thus there will be no duplication of activities as children move through the system. For kindergarten, I will be doing an introduction to wildflowers; Grade 1, meeting common wildflowers of the Ochoco National Forest; Grade 2, creating a wildflower garden in a milk carton and discussing seeds and what they are; Grade 3, the habitat exercise, and creating a wildflower meadow using the students. These can be done for individual classrooms or for up to two classrooms combined. Presentations will last approximately 20 minutes for kindergarten and 45 minutes for grades 1-3, and will be scheduled on a first-come first-served basis. I encourage you to discuss this information with your colleagues as soon as possible.

For purposes of coordination, I would prefer one contact person per grade to serve as a liaison for scheduling; and I encourage you to feel free to call me if you have any questions or special needs for Celebrating Wildflowers in your classroom.

In addition, there will be a coloring contest again this year with Z-21. You will be receiving the material through ESD.

Last year's classroom visits were very enjoyable and successful. I am looking forward to sharing the rich and diverse wildflower heritage with the children of Crook County again this year.

Sincerely,

Lisa K. Croft
Forest Botanist/Ecologist
447-9571

WILDFLOWER WEEK

Activities which may be useful for school classes in central Oregon:
(Wildflower Week May 24-28, 1993)

The Oregon Science Curriculum Goals outlined below may be applied to these various exercises shared with students during "Celebrate Wildflower Week".

I. Concepts of Science (K-3):

1. Demonstrate CHANGE: The process of things becoming different over time. (aging, growth, metamorphosis, fire, erosion, etc.)
2. Demonstrate CYCLE: A pattern in which events or conditions repeat at regular or irregular intervals. (day/night, seasons, reproductive cycles, nutrient cycling)
3. Demonstrate ENERGY-MATTER: Mutually convertible equivalents ("stuff") from which the universe is made. Matter contains energy in many forms. (e.g. photosynthesis by plants converts light energy into chemical energy, respiration by animals and insects converts chemical energy of food into energy of movement, healing, reproduction, thinking, heat, etc.)
4. Demonstrate ORGANISM: A system living or once living characterized by the process of life. (e.g., plants/animals, unicellular organisms/bacteria)
5. Demonstrate FORCE: a push or pull against resistance which causes action, inaction or change (e.g. catapult, gravity, change the speed or direction of motion, etc.)

II. Processes of Science (K-3)

1. OBSERVE: Make accurate observations of objects and events using the senses or instruments to aid the senses.
2. MEASURE: Use measuring devices to collect data
3. USE NUMBERS: Use number/numeric figures, letters, words, symbols and visuals to count, compute and communicate quantitative data.
4. CLASSIFY: Use the characteristics of objects or events to group them by ordering similarities.
5. QUESTION: Identify problems and develop testable questions relating to the problem.
6. DESIGN EXPERIMENTS: Plan and conduct data-gathering operations to test hypotheses or answer questions.
7. INTERPRET DATA: Find patterns or meanings in experimental results.
8. PREDICT: Use information and data to generate and test predictions.
9. COMMUNICATE: Use a variety of techniques to share the results of investigations.

BIOLOGICAL DIVERSITY

(USDI - BLM - "Rare Plants and Natural Plant Communities" - Fish and Wildlife 2000, 1992)

Biological diversity is the variety of life and its processes. It can be divided into four major levels: 1) genetic diversity, the variety within a particular population or species of plant or animal; 2) species diversity, the variety of kinds of plants and animals; 3) community and ecosystem diversity, the variety of ways that species of plants and animals are naturally assembled in groups; and 4) process diversity, the variety of physical, chemical, and biological forces to which the other types of diversity must respond.

Keystone Policy Dialogue refers to several reasons why biological diversity is important. These include:

1) importance of biological diversity as a source of medicines

2) need to maintain wild relatives of our economically important plant species

3) it supports the integrity and resilience of ecological systems on which humans depend and provides the genetic variation necessary for the continued evolution of new forms of life.

4) its intrinsic value

5) it adds variety and interest to our daily lives, thereby enhancing our appreciation and aesthetic enjoyment of nature.

EXERCISE #1

WHAT IS A WILDFLOWER?

Materials needed:

Collection of plant material to show some local wildflowers, or parts of a flower

Cooler to keep them fresh

Hand lenses - ask teacher to have available

Suggested discussion/procedure:

I. What is a wildflower?

Among flowering plants:

a) Wildflower (the word gives us a good feeling, positive)
= "any plant growing without cultivation in fields, woods, etc."

b) Weed (the word gives a less supportive feeling, negative)
= "mostly introduced, aggressive plants that occupy disturbed ground"
= "an undesirable, uncultivated plant"
= "an unloved flower" "a plant growing where we don't want it to"

Flowering plants - angiosperms, some of which are "wildflowers" (see diagram)

"Wildflower" refers to a general group of monocots and dicots that include most herbaceous (non-woody, soft-stemmed) plants, some grasses, and a few low shrubs and woody vines. (therefore, the term excludes almost all grasses, sedges, most trees and shrubs)

Total number of wildflower species in the U.S. is between 18,000-20,000

(a species, like humans are a species of animal, is a group of similar organisms which can naturally interbreed and produce viable, live, offspring)

II. Why are we attracted to wildflowers?

Wildflowers are angiosperms, the most modern, highly developed of all plants; they are adapted to life under a wide variety of conditions - from driest desert to freshwater ponds, from cold to hot temperature extremes

Plant taxonomists (specialists who study and classify plants)

Botanists (specialists who study plants in general)

We who study plants encourage you to also observe living plants without picking them or digging them up. Observations may include photographs, drawing, touching, watching, smelling, measuring

Wildflower study allows us to observe the marvelously complex intricacies of life cycles, patterns of natural vegetation on our landscape, and complex interactions between plants and animals in natural settings.

People like to plant wildflower gardens to

- help attract birds, animals, insects
- make more colorful scenery, fragrant places to walk, sit, relax

III. Where do we find wildflowers?

Observe a lawn - backyard - roadside - sidewalk - playground - meadow - woods - field —

A single lawn is likely to have 10-15 different wildflowers among the grass.

Open cooler and/or set out and display in containers with water to show plant “buddies” - friends of our forest that you have brought along to share with students today. Introduce them, common names, talk about where they grow, what special needs they have, special parts. Talk about common vs. rare plants. Mention the terms “environment”, “habitat”, and “niche” to help them relate their experiences to what the bigger terms refer to.

Environment - the combination of living and non-living factors which affect and influence the growth and development of organisms.

Habitat - the place where an organism is most likely to be found. An organism's address.

Niche - the role an organism plays in its environment. The organism's occupation (producer of food, consumer of food, scavenger, decomposer)

Let them use the hand lens to view flower parts (stamens with pollen, pistil with sticky stigma to receive pollen, where the seeds develop in the ovary, petals to attract pollinators, etc.)

Explain/discuss why we don't pick flowers or pull them out of the ground, the different kinds of flowers, why they are important for food, habitat, medicines, beauty of landscapes, helping to hold soil from eroding, etc.

IV. How did they get here? (Concept of CHANGE - tie in with Oregon trail, movement of people to the United States, and between any country)

Wildflowers are indigenous (native) to the area where we find them

Many plants are brought in, transported, either purposely or accidentally, from other parts of the country, or sometimes, from other continents.

Examples of introduced plants which are considered weeds locally:

- Dandelion - Europe and adjacent Asia
- Russian thistle - Russia - in 1870's with flax seed
- Horsetail - (Equisetum) Europe, N. Africa
- Quackgrass - Eurasia
- Annual bluegrass - (Poa annua) Europe
- Knotweed - (Polygonum aviculare)
- Kochia - Eurasia
- Chickweed - Eurasia
- Tumble mustard - Europe
- Henbit - Mediterranean
- Dalmatian toadflax - southeastern Europe
- Mullein - Eurasia
- Teasel - Europe
- Knapweed - Europe and western Asia
- Redstem filaree - (Erodium cicutarium) - Europe

Many are aggressive in new environment and out-compete local native wildflowers as "environmental weeds"

Most are adaptive for success in other ways: prolific seed producers; good seed transportation abilities; germination tricks; vegetative means of spreading like rhizomes, fragments, etc.

V. Why are we concerned about their numbers and habitats?

Some need our protection - hence, Wildflower Week - as their habitats are being destroyed by highway improvements, building, air pollution, erosion, subdivision developments, golf courses, weeds competing with our desirable native wildflowers, etc.

EXERCISE #2

FAVORITE WILDFLOWERS

Grades: K-1

Time required: 20-30 minutes

Materials needed:

about 8 feet of butcher paper attached to a board or placed on floor
crayons or coloring pens
tacks or tape to hang when drawings completed

Procedure:

After a brief introduction about wildflowers (see Exercise #1 for suggestions), have the students draw their favorite flower on the paper. Ask them to write their names by their drawing.

Ask questions and discuss some of the drawings, why the flower is their favorite, where they see it growing, etc.

Interject some technical information about the plants, wildflowers vs. garden flowers, wildflowers vs. weeds. Discuss when and when not to pick flowers.

Be sure to involve the adults who are also present in the classroom.

EXERCISE #3

THE HABITAT EXERCISE

Grades: 1-3

Time required: 45 minutes

Oregon Science Curriculum Concepts and Processes:

Cycles (1.3)
Cause and Effect (1.1)

Introduction:

Introduce yourself and anyone who accompanied you. Wear your uniform!

Explain briefly "Celebrating Wildflowers" and orient them as to why we celebrate this resource by talking about the forest and grasslands as a home for wildflowers of all kinds.

Ask who has seen wildflowers? Ask about going camping, picnicking on the forest, what do they think of when they hear the word "forest?"

Why are flowers important? (habitat, food, shelter)

Rare vs. common - why not to pick, why preserve them in their environment?

Importance of plants as medicines, etc.

Procedure:

This exercise requires that the students listen and are attentive. It can get chaotic, so it is best to get students focused before you begin, and periodically refocus, if they start to get off task!

Explain that flowers have different requirements for where they live. Some can live anywhere and don't require a lot of sun or water. Some need shade, etc.

These are habitat requirements. Explain the concept of habitat as similar to your address, and then define niche as the role you play, or occupation, and how niche relates to habitat. The general idea is to get across that flowers are part of a larger, interconnected system. Habitats are complex puzzles made up of lots of pieces. Discuss diversity of plants and animals, why we are concerned when the variety of habitats is changed, and often decreased by our human activities.

You will need to determine the number of habitat components, and the quantity of each component based on the number of students participating. When determining components be sure to have producers and consumers (ideally, more producers than consumers!) Discuss what the terms mean: producers use light energy (sunlight), water, carbon dioxide in the air, and chlorophyll - the stuff that makes plants green, to produce food like sugars and starches. Plants are our earth's producers. Consumers eat plants or plant material and turn the sugars and starches into other compounds like muscles, bones, teeth, fat, and energy to move, keep warm, reproduce, grow, stay healthy, etc. Animals - like humans are consumers. Predators, scavengers and decomposers are optional for this activity, and may be used in adapting this to higher grade levels to represent a more complete food chain model.

Objectives:

We are going to build a model of a wildflower meadow today.

Method:

Start by dividing students up by habitat components. This is the pre-work portion that will require coordination with the classroom teachers who participate. You will need to determine the number of habitat components and the quantity of each component based on the number of students participating.

I have used: (optional components are in bold-face)

1. Stream approximately __ kids with blue hats, tie together with blue flagging
2. Seep approximately __ kids with blue hats
3. Fish approximately __ kids with fish hats, I provide "Fish" hats
4. Grass the teachers can be the grass, moving around and among all the habitat components
5. Pine Trees need __ kids with dark green hats
6. Cows approximately __ kids with brown hats and horns sticking out

For the following items use the local common flowers from your area: (Be sure to include common and rare flowers, those with ethnobotanical uses, etc.)

6. Monkeyflower need __ kids with bright yellow hats
7. Lady Slipper Orchids need __ kids with yellow and brown hats
8. Mariposa Lilies need __ kids with pink hats
9. Blue Flag Iris need __ kids with purple hats
10. Blue Camas need __ kids with light blue hats

FOR A TOTAL OF __ (without the grass)

Arrange the students on the gym, or classroom, floor by components as you “build” the meadow. Discuss relevant information, such as food chains, habitat needs, relationships between non-living elements such as soil, water, etc., as you build.

Eventually, everybody will be in the center of the room and your “meadow” will be complete. Have the students look around and discuss the functioning of an intact system. Discuss cooperation, interdependence and working together.

Then start to ask “What happens if...?” You can either discuss seasonal changes, or disturbance to the system, too many cows trampling over everything - eating the orchids, lilies, grass, etc. As you do this, work backwards: take the system apart and have them sit down. This is a good opportunity to talk about multiple use and conservation biology, parts of an ecosystem, etc.

Prework: Requires making of hats in the classroom. Students need to bring or wear the hats to the presentation.

(Curriculum concepts covered:

- seasonal changes
- food chains
- effects of components on others (cause and effect)

EXERCISE #4

WHAT DO YOU SEE?

Grade(s): 1-6

Time required: 45 minutes

Activity involved: Observing and recording observations while outdoors.

Science Concept and Process applied: Observation, Hypothesizing, Communicating

Introduction: What do you think/predict? (Hypothesis): We will be able to see more/fewer different kinds of living things when we go outside, if we stand/kneel/get on our bellies to make observations. (students should predict/decide what will be true).

Discussion: Different senses we can use to make observations. How we can make the observations of our senses more powerful - or magnify them. What kinds of tools can we use to make better observations? What kinds of animals might be seen in the outdoor setting (habitat) we will visit? What kinds of plants might be seen in the outdoor setting we will visit? (Categorize organisms as plants, animals and insects.)

Materials: Chart paper on a hard writing surface, pencil, hand lenses per 2 students, an outdoor setting.

Observations: To be done as teams of 2.

1. Getting Closer

Use the chart provided to record observations:

- A Record on the chart as you stand and look in front of you to the edge of the playground.
 - How many kinds of plants do you see looking around as you stand up?
 - What do the plants look like (crowded, scattered, not very many)
 - What do the animals look like, how many can you see? How many kinds?
- B. Focus on an area with some plants in it and while standing up above this area, record your observations on the chart.
- C. Kneel down and record your observations on the chart.
- D. With a magnifying lens, continue kneeling and look closer at an area with plants and soil - record what you see.

Questions?

- 1. How does your view change?
 - 2. Can you see greater detail from far away or up close?
 - 3. Did you notice anything you had not seen before because you were listing your observations with a team and discussing your problem?
 - 4. Did you notice anything you had not seen before because you were able to enlarge the strength of one of your senses - sight - by using a magnifying lens?
 - 5. What other senses did you use to make your observations?
 - Did you touch anything? Smell anything? Taste anything?
 - 6. Are there any other instruments you know which could be used to add to your report's accuracy - measurements - descriptions.
- E. Complete the exercise by graphing the numbers of different shapes, sizes or kinds of plants, animals and insects that your class observed and the habitat they where they made the observations.

EXERCISE #4 - WHAT DO YOU SEE?

OBSERVATION CHART

DATE:_____ HABITAT BEING OBSERVED:_____

NAMES OF OBSERVERS_____

Observations: far looking down on belly with handlens

Plants-crowded?

-scattered?

-all alike?

-# different shapes?

-# different kinds?

Animals

seen

different kinds?

Insects

seen

different kinds?

Other observations made:

Smells?

Sounds?

Weather?

Soil? moist?/dry?

Feelings?

Questions?

LEADING CHILDREN IN THE FIELD

I. BEFORE THE TRIP

1. Have an objective
2. Make it exciting
3. Know your subject
4. Know your trail
5. Prepare group in advance.

II. DURING THE TRIP - RULES AND REGULATIONS

1. Explain the rules
2. Keep order
3. Stay behind the leader
4. Gather around
5. Stay on the trail
6. Watch your feet
7. Prepare for emergencies
8. Good outdoor manners
9. Practice conservation

III. DURING THE TRIP - TECHNIQUES

1. Explain objectives
2. Move out rapidly
3. Walk casually
4. Talk conversationally
5. Stop to look and listen
6. Prepare for surprises
7. Keep stops short
8. Use serial method
9. Use games
10. Encourage discovery
11. Use all senses
12. Climax the trip
13. Watch length
14. Conclude trip

IV. AFTER THE TRIP - LET THE MEMORY LINGER ON

1. Summarize
2. Follow-up

EXERCISE #5 THE REASON FOR A FLOWER

Grades: K-3

Time required: approx. 10 minutes with introduction

Concept: Organism, Cycle, Energy-Matter

Materials: Hand lenses for students; Diagram of flower parts; Flowers - left-overs from florist like lilies, simple flowers work better for this than composites; razor blade for you or teacher to help cut open ovary to see the tiny seeds waiting to mature.

Introduction: Discuss importance of flowers in cycle of plants from seed to seed. Why flowers are important to attract bees, butterflies, etc. to pollinate flowers so that seeds can be produced. Why we don't pick flowers to help save the different kinds, and so they can produce more flowers, more seeds, more oxygen to breathe, provide something green and colorful to look at when we come and go from school, etc. Why flowers are important as part of a healthy forest, meadow, - as food, habitat, medicines, etc.

Observations:

Guide students through the parts of the plant from root, stem, leaf, to flower.

Guide them from the outside parts of the flower to central part: sepals, petals, stamens, pistil and if time allows, cut through the ovary to show tiny seeds ready to mature.

Closing Discussion:

Review with them the importance of flowers to the life CYCLE of plants.

Review with them the secrets inside flowers like the pollen grains from stamens to carry the sperm to fertilize eggs inside the ovary of the pistil so that fertile seeds can be produced for new plants.

Ask them to look inside plants they see blooming along the paths and gardens they visit - looking for the different shapes of flowers, kinds of insects that are visiting flowers for pollen, different kinds of seeds, etc.

There is a work sheet that goes with this exercise that has a cross section of a flower that can be used for students to fill in the parts as they identify them. Exercise: The Flower Telephone Game
Grades 1-2

Supplies Needed:

5 different plants

1 for each of the 5 senses- one that smells strongly, feels interesting, sound (I use aspen and shake it) etc

I discuss how we use all of our senses to remember plants

I also discuss scientific names, using dinosaurs as an example and showing them that they already know latin names for critters

Sit them in a circle. Show a plant and talk about which sense— ie smells distinctive— is sagebrush- then I whisper the latin name into the ear of the child next to me and they pass it around ear to ear with the plant and we see how it comes out at the end... the I again give the real name and do it again.. Š

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P.O. Box 490
Prineville, OR 97754
(503) 447-6247

Date: April 7, 1993

Crook County
Elementary Curriculum Director

As requested, this is the follow-up information concerning "Celebrate Wildflower Week", in which your district schools are invited to participate.

The Ochoco National Forest, Deschutes National Forest, Bureau of Land Management, and Native Plant Society of Oregon are co-sponsoring local events to "Celebrate Wildflower Week" beginning May 23, 1993. Our kick-off will begin with a poster coloring contest and we will be joined by KTVZ-Channel 21 to sponsor, judge and display the entries based on the theme: "Celebrating Wildflowers in my Favorite Environment." We are inviting entries from 1,2, and 3rd grade students of schools within Deschutes, Jefferson and Crook Counties. Paper and return envelopes will be provided. Winners will be announced each night during that week on KTVZ.

Further details of the coloring contest will be provided in the letter to principals, as well as more specific contestant details for each classroom teacher of grades 1-2 or 3 who wishes to participate.

The second aspect of our wildflower week program which may involve your students are classroom visits by our agency botanists. These will last approximately 45 minutes and will be scheduled on a first-come, first-served basis.

The sample letters enclosed will be sent to your elementary school principals later this month, with your permission. We look forward to sharing the excitement of our careers as botanists and the wonder of wildflowers with your students. Please call Lisa Croft, Forest Botanist (447-9571), if you have any questions or concerns.

Sincerely,

Lisa K. Croft
Forest Botanist

United States
Department of
Agriculture

Forest
Service

Ochoco
National Forest

P.O. Box 490
Prineville, OR 97754
(503) 447-6247

Date: 29 April 1993

Head Teacher, Powell Butte Elementary
Rt. 1 Box 390
Powell Butte, OR 97753

Dear Mr. Lundy:

The Ochoco National Forest, Deschutes National Forest, Bureau of Land Management and KTVZ-Channel 21 are co-sponsoring a poster coloring contest to help us "Celebrate Wildflower Week." The coloring contest is one event we hold locally to help increase awareness and appreciation for our natural abundance and diversity of wildflowers. Nationally, our agencies are scheduling activities throughout the spring and summer.

Our local kick-off will be May 23-29, 1993 in Deschutes, Crook and Jefferson counties.

Your students in grades 1-2-3 are invited to create a poster on the theme "Celebrating Wildflowers in my Favorite Environment." We will provide paper prepared for this theme and directions for returning classroom entries to KTVZ-Channel 21 in preaddressed envelopes. The entries from each classroom need to be received by KTVZ no later than May 21, 1993.

Daily contest winners will be honored by KTVZ's weatherman Joe English and displayed. There will be daily winners in addition to an overall grand prize winner of each grade level. All participating classrooms will receive a "Wildflowers of Oregon" poster published by the Native Plant Society of Oregon with the entry packet.

We ask that each school principal designate a contact person to work with us for receiving coloring contest materials for your school. We also need to know the number of participating students and number of participating classrooms by May 3, so that packets can be delivered by May 5.

I am your area contact person, and look forward to hearing of your school's participation in the coloring contest. I will also be glad to answer any questions you, or your designee, may have. Thank you for sharing in this event.

Sincerely,

Lisa K. Croft
Forest Botanist
447-9571