

Jan Alderson
Sally Frederick
Plant Inventory
Shawnee Mission South High School
Honors Biology 1, 9th and 10th Grades
2006

RATIONALE

I have found that one of the most overlooked, understudied areas of classroom biology, K-12, is botany. Also, few classroom teachers provide field-study experiences and with continued habitat loss, especially within the urban communities, the study of the original biome within which they live is important.

OBJECTIVES

Through plant inventories, students will gain field study techniques, learn a wide range of information, and contribute to Konza Ed plant databases.

CURRICULAR SEQUENCE AND TIMELINE

- The initial unit will be a five-day, transition unit which connects the ecology unit with the botany unit. This will occur in the fall which is the best time for both units.
- During the five-day introductory unit in the fall the students will
 - take a pre-test (some of which was introduced within the flora and fauna series) and review terms and concepts
 - learn how to use field guides, dichotomous keys and to nature journal
 - go over expectations and paperwork for field trips
 - carry out the SMESL plant inventory activity identifying types of plants and actual plant IDs.
 - carry out the follow-up activities identifying the plants and input the data into the database
 - take a CPS Quiz

ADDITIONAL FIELD TRIP SITES

- Trip to the R and F Farm using the same protocol used during the SMESL activity
- Trip to the Prairie Center using the same protocol as used during the SMESL activity

SMESL SITE #1

- The Shawnee Mission Environmental Science Lab contains 22 acres which includes about 30% restored prairie.

NECESSARY ITEMS AND PROCEDURES

Equipment

- Scissors
- Quadrat
- Flags
- Data sheets
- Digital camera
- Clip boards and writing utensils
- Rulers
- Clip boards

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- Plant field guides, dichotomous keys, and composition books
- Prepare a plant inventory spreadsheet before activity and run off
- Field Trip Permission Slips
- Attendance Form ready
- Schedule a bus
- Schedule volunteers and professionals

R & F FARM SITE #2

The R and F Farms is a 240-acre family owned farm currently in pasture and hay.

- A two-acre plot was chosen as a restoration site for the plant inventory project which is located 30 minutes from SMSHS.

PRAIRIE SITE #3

This is a 300 acre tallgrass prairie preserve and education center which is located in Olathe, Kansas. This is located fifteen minutes from SMSHS.

DRIVING QUESTIONS

Instructor will ask some driving questions such as:

After the pretest, how does a plant's role differ from an animal's within an ecosystem?

How is a prairie defined?

What would be the best way to group the types of plants found within a grassland?

What would be a valid way to collect and group plants?

FLORA & FAUNA OF KANSAS

- Excerpts from the starter flora and fauna which review some of the major terms.

DICOTOMOUS KEY FUN

The teacher collects 10 right shoes from students.

Then, as a class, group them using an either/or key while diagramming the outcomes.

When the diagram ends with a particular shoe, then the students give a Genus species name by "Latinizing" the owner's first and last name.

Using a simple dichotomous key, students then key out 5 prairie plants.

USING FIELD GUIDES

- Introduce a wide variety of field guides and the importance within field study

NATURE JOURNALING

- Specific language
- Objective or Subjective
 - Process
 - Reflection

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LOGISTICS CHECKLIST

- Review rules with students
- Review student data inventory sheets
- Review data input process
- Scheduled visit with site manager?
- Scheduled the bus, and adults?
- Handed out permission slips, collected money, and signed forms?
- Handouts, field guide books, equipment, composition books, and snacks ready to go?

SMESL ACTIVITY

- Use 5 minutes for roll, handing out clip boards, and data forms.
- Introduce guests
- Remind them of the expectations for the day
- Collect data for 30 minutes- first establish the flag and quadrat setup.
- Students will spend 10 minutes journaling
- As the students go in, remind them to complete the math portion of the inventory sheets

POST-TRIP ACTIVITIES

As a class, we will go over the data collected.

Students will also input outcomes into the data spreadsheet.

- Students will journal
- CPS Quiz