

Biomass
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RATIONALE

- There is a practical need for people to understand what happens to a prairie environment when it is subjected to systematic burning. If we get our students to see this importance they in turn can explain the need to their parents, siblings (who have not gone through this project), and other relatives or friends... plus we need to start someplace.

GOALS

- Students follow specific directions.
- Students use equipment correctly.
- Students take accurate data.
- Students enter data in the computer.
- Students develop a graph of the data.
- Students arrive at some conclusion after comparison of data for same year/type of prairie, etc.

UNIT OUTLINE

- Review equipment use: electronic scale, GPS, thermometer, dryers, and microscopes.
- Rules for field trip
- Characteristics of various terrestrial biomes
- Populations (plants & animals) found in our ecosystem
- Effects of succession on an ecosystem
- Primary vs secondary plant production
- Propose following hypothesis: Burning on an annual timeframe or every 2 years will allow for a maximum accumulation of biomass in a grassland ecosystem (especially in grass populations).

PRE-TRIP ACTIVITIES

- Review how to use the electronic scales.
- Make the solar oven
- Review how we will mark transects, and how the students will determine their plot, use of GPS, and the cutting of their biomass.
- Explain the following: prairie, grasses, forbs, woody, and biomass.
- Divide students into groups of 2 or 3.
- Go over the rules for the field trip and any health problems students may have.

FIELD TRIP LOGISTICS

- Check with land owner as to best date to collect data prior to his cutting of the field.
- Get principal to approve of date of trip and alternate date.
- Inform other teachers of the date.
- Be sure bus is arranged to transport students.
- Be sure that water, first aid, field equipment, and data sheets are available.

FIELD TRIP ACTIVITIES

- Field trip and initial activities should take about 3 hours.
- Students will draw a rough sketch of the land that we will be studying and fill in journal about the area.
- Students will mark the transects and record their GPS location.
- Student groups will determine their plot, and collect the biomass in that area using their quadrat.
- Students will fill in all pertinent environmental data at site.
- Students will take a quick inventory as to the number of grasses, forbs, and woodies that are found in their plot...may be an estimate at this time.
- Students will sort and cut different types of plant material (if needed) once we return to school to place in drying devise.
- Students will mass the plant material initially, and then every day until the material's mass is not changing.

POST-TRIP ACTIVITIES

- Take final mass of each sample taken in our prairie
- Be sure data sheets are completely filled out and pertinent data recorded in our template as well as Konza Ed's.
- Students will record/print out the data that has been recorded on the Konza Trail 9 "Biomass" web site to obtain this year's data as well as the past 5 years data to be used as a comparison.
- Students will turn in their journal and include a possible experiment that they could do in the future with equipment that we have on hand.

FUTURE EXPANSION

- We may be able to get our land owner to set aside one acre or two and not burn that location so we can compare burned to unburned in the same prairie section.
- We may be able to get our land owner not to cut one or two acres and see if there is a difference from one year to the next.
- We may be able to get our land owner to change his burning schedule from every year to every other year.