Backyard Packs Promote Outdoor Activity for Learning and Fitness

Goals of the joint Science/PE Curriculum at North Winneshiek School:

- Increase knowledge of the natural world
- Increase physical activity levels
- Increase time outdoors

This required cross-curricular team planning—not a rewriting of curriculum, but a rearranging of curriculum.

Joint Field Trips:

- Iowater
- Fly Fishing
- GPS/GIS
- Biking
- Fossil Hunting
- Skiing
- Ice Fishing
- Shelter Building
- Canoeing
- Outdoor Cooking
- Fall/Winter/Spring Nature Hikes
- Endangered Iowa Ecosystems (Prairie, Wetland, Algific Talus Slope)

Science Homework Assignments:

- *Scavenger Hunt*: A 9-week-long project that asks students to bring in samples of items that are listed by their scientific name. This requires research, organizational, and oral skills.
- *Using Science Notebooks for recording data and observations*: For example, exploring microclimates around buildings at home and how that affects the distribution of species. Students record orientation, temperature, hours of sunlight, substrate, plant and animal species etc.
- *Phenology*: Twig Watch. 4 week observations and sketches in springtime.
- *Plant Pressings*: Label flower structures in at least three different species.
- *Bird/Tree Identification*
- *Landforms and Map Reading Skills*: These are connected with using Google Earth and GIS on the DNR site to identify the watershed closest to school and home.

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Assignment Descriptions

Spring Twig Watch/Phenology
(4-6 week assignment in mid to late spring)

1. Select a twig in your yard. Label it with the tree marking tape provided. The label should include your name, the date, and the words PLEASE DO NOT DISTURB.
2. Make an initial sketch in your lab notebook. Include the following observations:
    - Bud size (in mm) and color
    - Pattern and shape of leaf scars and bundle scars.
    - Bud arrangement (opposite, alternate, or whorled)
    - Terminal bud present?
    - Internode length (in mm)
    - Twig color
    - Are there thorns or catkins present?
3. Measure the bud (and eventually the leaf) twice a week.
4. Sketch the twig once a week.
5. Record which buds became leaves and which buds became flowers.
6. Students with digital cameras can take a series of photos.

Bird Watching
(Once each month. Create a separate section in the back of the lab notebook to keep these observations together)

1. Carefully choose an outdoor location for making your observations.
2. Once each week, spend fifteen minutes alone, without earbuds or other distractions, just looking for and listening for birds. Do not write during this time. Just look and listen.
3. Then spend a few minutes recording your observations. Always include: date, time, and weather data.
4. Keep a list of birds sighted, birds heard, and descriptions of their activities.
5. Bird behavior observations can include:
    - Adult or fledgling?
    - Near food source or nest or mate?
    - Feeding, perching, preening, sunning, or vocalizing?
    - Alone, in a pair, or in small flock?
    - Interacting with other species?

Plant Pressing
(Best done in early fall using a wide variety of blossoming plants)

1. Press, mount, and label three different types of flowers.
2. Labels should include: Plant family (genus and species if known), sepals, petals, stamens, and ovary.
3. Other information to record:
    - Diameter (in mm)
    - Color at time of collection
    - Radial or bilateral symmetry?
    - Number of sepals and petals
    - Ovary position above or below petals?
    - How is this plant pollinated and how does that influence the structures observed?