

The Application of Local Plants in Native American and Contemporary Society

Grade Level: 9-10
Course: Biology

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Unit overview:

Inspired by Brian Rajdl on Isle Royal, the basic premise behind this unit plan is to use content knowledge learned on Isle Royal to make the study of plants more exciting and relevant to students. By exploring local plants and their application in Native American culture the students should gain an appreciation for the need to study and classify plants worldwide.

Desired learning outcomes:

Students will gain an appreciation for plant research.
Students will be able to identify and give uses for five local plants.
Students will research, experiment, and present to their peers.

Books/Sources Sited:

NativeTech: Native American Technology and Art, “Indigenous Plants & Native Uses in the Northeast”, August 2006
<http://www.nativetech.org/plantgath/plantgaht.htm>

B. Rajdl (private conversation), Summer 2006.

Michigan Department of Education, “Draft Science Benchmarks” & “Social Studies Benchmarks”, July 2006,
http://www.michigan.gov/documents/MichiganCurriculumFramework_8172_7.pdf

Michigan benchmarks:

SCIENCE

Reflecting on Scientific Knowledge (R) II.1

4. Discuss the historical development of key scientific concepts and principles.
 5. Explain the social and economic advantages and risks of new technology.
 6. Develop an awareness of and sensitivity to the natural world.
- ***Extension 7. Describe the historical, political, and social factors affecting developments in science.

SOCIAL STUDIES

II. Geographic Perspective

Content Standard 2: All students will describe, compare, and explain the locations and characteristics of ecosystems, resources, human adaptation, environmental impact, and the interrelationships among them. (Human/Environment Interaction)

DAY 1 (Research)

Objective:

Students should choose and research a local plant and its practical application today or in Native American culture.

Time required:

One class period of 45-50 minutes

Materials:

Local plant list, computer lab for students, Native American resource, and survival books.

Methods and Procedure:

The teacher should introduce the assignment by presenting a local plant and its application today or in Native American culture. This introduction should be exciting and inspire the students to want to learn more. After the introduction a grading rubric is passed out to the students so they understand the expectations of the assignment. Students should when be given time to research, online or in other resources, a local plant from a list of possible plants.

Reinforcement and Assessment:

Check to see students have chosen a plant.

LOCAL PLANT LIST

Alphabetical list of Common Names (followed by Latin Name):

- [AMERICAN BEECH](#) (*Fagus grandifolia*)
- [AMERICAN ELDERBERRY](#) (*Sambucus canadensis*)
- [ASH](#) (*Fraxinus* species)
- [BASSWOOD](#) (*Tilia americana*)
- [BEDSTRAW](#) (*Galium aparine*)
- [BINDWEED](#) (*Convolvulus sepium*)
- [BIRCH](#) (*Betula* species)
- [BLOODROOT](#) (*Sanguinaria canadensis*)
- [BLUEBERRY](#) (*Vaccinium* species)
- [BLUE FLAG](#) (*Iris versicolor*)
- [BRACKEN FERN](#) (*Pteridium aquilinum*)
- [BULRUSH](#) (*Scirpus validus*)
- [BURDOCK](#) (*Arctium minus*)
- [BUTTERFLY WEED](#) (*Asclepias tuberosa*)
- [CATTAIL](#) (*Typha latifolia*)
- [COMMON WOOD SORREL](#) (*Oxalis* species)
- [DAISY FLEABANE](#) (*Erigeron annuus*)
- [DOGBANE](#) (*Apocynum cannabinum*)
- [DOGWOOD](#) (*Cornus* species)
- [GREEN FALSE HELLEBORE](#) (*Veratrum viride*)
- [GOLDENROD](#) (*Solidago odora*)
- [GROUND PINE](#) (*Lycopodium clavatum*)
- [HICKORY](#) (*Carya* species)
- [HOG PEANUT](#) (*Amphicarpase monica*)
- [HOP HORNBEAM](#) (*Ostrya virginiana*)
- [INDIAN CUCUMBER](#) (*Medeola virginica*)
- [INDIAN PIPE](#) (*Monotropa unifolora*)
- [INDIAN TOBACCO](#) (*Lobelia inflata*)
- [JACK-IN-THE-PULPIT](#) (*Arisaema triphyllum*)
- [JEWELWEED](#) (*Impatiens biflora*)
- [JUNIPER](#) (*Juniperus communis*)
- [LADY'S-SLIPPER](#) (*Cypripedium acaule*)
- [MAPLE](#) (*Acer saccharum*)
- [MAPLE-LEAF VIBURNUM](#) (*Virburnum acerifolium*)
- [MILKWEED](#) (*Asclepias syriaca*)
- [MULTIFLORA ROSE](#) (*Rosa multiflora*)
- [NETTLE](#) (*Urtica* species)

OAK (Quercus species)
PARTRIDGE BERRY (Mitchela repens)
PHRAGMITES (P. communis)
PICKEREL WEED (Pontederia cordata)
PINE (Pinus species)
PIPSISSEWA (Chimaphila umbellata)
PLANTAIN (Plantago species)
RED CEDAR (Juniperus virginiana)
RED TRILLIUM (Trillium erectum)
SKUNK CABBAGE (Symplocarpusfae foetidus)
SLIPPERY ELM (Ulmus fulua)
SOLOMON'S SEAL (Polygonatum biflorum)
SPICEBUSH (Lindera benzoin)
SPRUCE (Picea species)
SUMAC (Rhus species)
SWEET FLAG (Acornus calamus)
TAMARACK (Larix laricina)
TREMBLING ASPEN (Populus tremuloides)
VIOLET (Viola species)
VIRGINIA CREEPER (Parthenocissus quinquefolia)
WATER LILIES (Yellow – Nuphar advena / White – Nymphaea oderata)
WILD GERANIUM (Geranium maculatum)
WILD GRAPE (Vitis species)
WILD SARSAPARILLA (Aralia nudicaulis)
WILD STRAWBERRY (Fragaria vesca)
WILLOW (Salix species)
WINTERGREEN (Gaultheria procumbens)
WITCH HAZEL (Hamamelis virginiana)
YARROW (Achillea millefolium)

Warning: I do not necessarily endorse, guarantee or authorize the uses of plants described here. The Native American uses provided here are not necessarily exhaustive or complete in their description. Many plants which are safe for food or medicine in small doses are toxic in larger quantities, or poisonous without the correct preparation. Many plants are difficult to identify without proper knowledge; many plants have poisonous look-a-likes. Always be sure of your information and identification when gathering plants. Native Americans of different Tribes have various ways to procure and prepare the same plant. I have been told that the medicine (or healing spirit) of a plant leaves if a plant is not honored properly with prayers, hence the medicine wont be effective. Harvest only what you could USE yourself. Please respect every plant's right to survive and reproduce; be informed as to the effects your harvesting will have on the survival of the plant, and the surrounding environment.

DAY 2 (Search and Identify)

Objective:

Students will identify and collect, in the school woods, their chosen plant.

Time required:

One class period of 45-50 minutes

Materials:

Plant identification field guides and wooded area.

Prior Knowledge Review:

Using a dichotomous key.

Methods and Procedure:

Students should be taken into the woods with field guides to identify their plant. As a class, the use of a field guide and/or a dichotomous key should be reviewed. Students should then be given time to find and collect their chosen plant.

Reinforcement and Assessment:

Check to see students have identified and collected their chosen plant.

DAY 3 & 4 (Refine/Experiment)

Objective:

Students should prepare and use their plant in its application.

Time required:

One to two class periods of 45-50 minutes

Materials:

Presentation boards and specific materials needed by different groups. The students should bring in or ask the teacher for other necessary supplies specific to their work.

Methods and Procedure:

Students are given time to “experiment” on their plant. After they perfect the application of their plant the students should work on a presentation to share with the rest of the class.

Reinforcement and Assessment:

Students have will present their work to the class.

DAY 5 (Present)

Objective:

Students will present their work to the class.

Time required:

One class period of 45-50 minutes

Materials:

Presentation materials produced by the students.

Methods and Procedure:

Student groups will be randomly selected to present their work to the rest of the class.

Reinforcement and Assessment:

The rubric will be used to grade the presentations.

A quiz will be given after the completion of all the presentations. The quiz will ask the students to list and give a use for five local plants.

EXTENSIONS:

A great extension of this unit plan would be to explore the history of common “drugs” like aspirin, antiseptics, and etc. The unit could also be applied by comparing what we did in class with the current rainforest exploration by drugs companies.

The application of Local Plants in Native American and Contemporary Society Grading Rubric

A. Research & Refinement

0	4	8	10
Poor/ Incomplete No Information	Inadequate Information but no plant “research & refining”	Adequate Information and plant “research & refining”. You have a plant product.	Outstanding Information but no plant “research & refining”. You have a plant product plus you have pictures of the process.

B. Class Time Use

0	4	8	10
Poor/ Incomplete Not working	Inadequate Has to be reminded to get back on task multiple times.	Adequate On task most of the time.	Outstanding Always working

C. Presentation

0	4	8	10
Poor/ Incomplete No presentation.	Inadequate Unorganized.	Adequate Organized / Clear presentation with visual aids (poster board / plant).	Outstanding Organized / Clear presentation with visual aids (poster board / plant) and entertaining.

Quiz

0	2	4	5

Poor/ Incomplete Can not identify any local plants.	Inadequate Can identify two local plants.	Adequate Can identify three local plants.	Outstanding Can identify five local plants.
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