Outdoor Classroom Topics & Tools

Agricultural Crops Plot – A crops plot can be a small field or plot of corn, soybeans, tobacco, wheat or hay crops. In this plot, various farm practices could be demonstrated, such as contour farming, conservation tillage versus conventional tillage, and crop rotation. An area farmer might assist with planting seed and harvest. The plot will allow students to look at the importance of conservation farming and understand the dynamics of their food supply.

Amphitheater – An amphitheater is basically an outdoor theater, usually oval or circular, set aside in the outdoor classroom with seats facing an outdoor stage or raised area. The area can be used as the gathering place or teaching area.

Animal Tracks Plot – An area of sand or mud can be designated for an animal tracking plot. The plot can be as small as 4 feet by 4 feet and marked for animal tracks. Areas along pond banks and stream edges can be used to view animal tracks. Table scraps, cracked corn and other baits could be placed in the tracking plot to entice animals to "step" in. Remember that protein foods will attract rodents.

Arboretum – An arboretum is an area of woods where different trees are established or planted. The area can be mowed with maintained walking trails throughout the arboretum or allowed to grow up into various successional stages. Each tree in the area should be marked with its common and scientific name, uses and characteristics.

Archaeological Area – An area set aside for students to learn about archaeological digging, tools and techniques is fun and exciting. Inside the archaeological digging area, students may search and uncover historical artifacts or substitutions for "real" ones made. The artifacts can be purchased. The site also could be used as an area to study soils and history.

Berry-Producing Shrubs – Berry-producing shrubs provide a wonderful display of color through foliage, flowers and fruit. Producers such as blueberry, flowering dogwood and crabapple help attract many different types of wildlife into the outdoor facility. Normally they grow quickly and can help slow soil erosion.

Elevated Walkway or Bridge – Elevated walkways and bridges allow a person to get above nature and look into ecosystems, such as streams and grasslands, without disturbing the habitat. Bridges over streams are very useful for getting water samples and exploring aquatic organisms. The walkway or bridge can be constructed very easily with driven poles and boards.

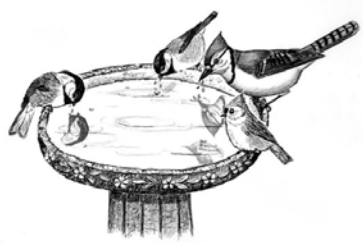
Erosion Control Demonstration Area – Select a site in the outdoor classroom to set up an erosion control area and demonstrate how erosion affects the soil. Select an area with approximately 5 percent slope and about 15 feet wide. Scrape out or rip all existing grass and vegetation in this area until bare ground is exposed. Next, split the section of ground into three equal parts. The first section should be left alone, the second section should be covered with large stone or rip rap and the last section should be sewn in rye grass or a similar plant. A collection container should then be placed at the downhill section of the demonstration and used to collect and measure the amount of sediment from each section after a rainfall or planned flood.

Existing Timber Stand – A pre-existing woodlot inside the outdoor classroom can be used for studying modern forestry practices, tree identification, species diversity, wildlife and watershed management. Most existing timber stands may need to be thinned out or improved. Talk to the local or area forester about timber stand improvements.

Garden Plot – Everyone should experience planting and managing a garden at some point in his or her life. The garden plot can be as small or as large as desired. Remember that many young people are not in school during critical growing seasons and even harvest time. When planting a garden, consider planting fruits and vegetables that do not require constant care and that can be harvested and enjoyed during the school year, such as cool-season fruits and vegetables.

Bird Blind – A bird blind is simply a boxed frame made of wood or metal with wire woven around it. Branches with leaves and other natural vegetation are then laced across the wire to provide a sense of camouflage. The blind is placed near feeders or at the edge of brushy areas with a hole or viewing area left clear. Bird noises can be mimicked through human calls or audiotapes.

Bird Feeders and Baths – Bird feeders and baths provide excellent food and water sources for many different species of birds. Providing the proper type of feeder with the right type of food can attract mourning doves, woodpeckers, chickadees, blue jays, finches, sparrows and cardinals. Of course, during the summer months it is important that at least one birdbath be available in an outdoor facility. Under dry conditions, birdbaths can attract more birds than any feeder.



Bulbs, Corms, and Tubers – Fall is the time to plant bulbs, corms and tubers. The result will be a well-developed display of colorful flowers. The bulbs and tubers can be planted in a flowerbed or along trails, walkways, signs and entrances. Students may also use bulbs, corms and tubers to gain experience and knowledge about landscape maintenance.

Butterfly Garden – To have a productive butterfly garden, attract these peaceful vibrant insects with colorful, attractive flowers. Plant species like butterfly weed, daylilies, goldenrod, lilac and purple coneflower in the garden. Another option might be to purchase or build a butterfly house. The enhancement will be a great place for students to collect and study butterflies and moths.

Compost Pile – All outdoor classrooms with a vegetable garden or horticultural plot should consider adding a compost pile. A compost bin can be constructed or purchased relatively inexpensively. Grass clippings, leaves, table scraps and other debris placed in the bins can turn into some very rich topsoil in a short period of time. Once again, remember that protein foods attract rodents.

Creek or Stream – Streams and creeks provide an excellent place for students to observe aquatic plants and animals. They also provide a great opportunity to perform dissolved oxygen, pH, temperature and types of water quality tests. Streams also add a water source and possible food source for wildlife.

Geological Site or Rock Pile –Cementing a variety of different rocks together can form a rock wall. Rocks can also be piled up in an area of the outdoor classroom to provide a great place to study geology.

Groundwater Monitoring Hole – If constructed properly, this feature can be an excellent way for students to observe how the water table fluctuates. Students may also be able to look at the difference in the movement of ground water in different soil types that might be available in the outdoor facility. To construct a monitoring hole, first dig a hole 4 to 5 feet deep with an auger or post hole digger. Then cut a piece of PVC pipe 1 foot longer than the hole and drill several holes throughout the entire pipe. Place the pipe in the hole and pack dirt around it to secure it in place. The pipe should be covered when not in use.

Historical Area – The historical area could pertain to anything related to history. One area in the outdoor classroom might display historical relics from the Civil War, old farming equipment or state themes. Another section could recognize former presidents with a marker or favorite tree. An area outlined like the state with state plants and geographic markers is especially impressive.

Horticultural Demonstration Area – This area can be a squared plot with many types of grasses, turf, ground cover, herbs, nursery plants and ornamentals, or flowers. The horticultural area could also be used to show the differences in pesticide use for weeds, insects or diseases.

Insect Traps – Students could have an educational experience in entomology through the study of different types of insect traps. The traps may be constructed by the students or purchased. Each trap may vary in design, size, whether it uses an attractant or not, and depending on the type of insects sought.

Marsh or Wetland – A marsh or wetland area can easily be developed in a manner similar to digging a pond. A marshy area should not be deeper than 3 feet throughout the surface area of the pond, thus helping to promote aquatic plants and many amphibians and insects. The potential outdoor classroom site may already contain a marsh or wetland area. In this case, aquatic life is more than likely present. It's important to protect edge habitat in these areas through construction of a dock or observation and sampling site.

Native Grasses and Wildflower Plot(s) – The addition of native grasses and wildflowers may add to the effects of the outdoor classroom area. Research the local area to see what grasses and wildflowers are native and how the plants or seeds can be obtained. Many seed companies will donate seeds at the end of the season. The seeds can be kept and planted the next season, even though they might have a decreased germination rate. Native grasses are oftentimes readily available in the seed bank and may only require a controlled burn or tillage of the soil to get them started. Native grasses and wildflowers are attractive at the entrance of the classroom, near signs or along trails and walkways. These native grasses and wildflowers are also very beneficial to wildlife.

Nesting/Roosting Boxes – Properly designed and placed nesting boxes can be added to the outdoor facility to attract different types of wildlife. The boxes can be designed for songbirds, wood ducks, bats, owls, squirrels and other small mammals. The boxes can be easily designed with standard woodworking tools or purchased at retail stores. A technology/vocational class could also construct them as a class assignment.

Orchard/Vineyard – If the climate allows, find an open area in the facility to develop an orchard. Young people can learn how farmers raise apples, peaches, pears, grapes, brambles and other small fruits. Let students participate in the design of the orchard/ vineyard. Allow them an active part in the planting, maintenance and harvest of the fruit to get the full benefit of the growing and harvesting cycle.

Outdoor Seating Area – Ample seating areas in the outdoor classroom are very important. The seats can be as simple as a 5-foot 2" x 6" on two 4" x 4" treated posts at various locations along the trail. Arranging some picnic tables under a shelter so that students can have a place to meet, write or observe would be a positive addition.

Permanent Water Source – A permanent water source will be an important necessity for the outdoor classroom. With the vast amount of plant life, keeping them watered during the dry months will be crucial to their survival. A pond or a water hose from the local school or community building is a possible water source.

Pioneer Garden – Planting gourds, corn, squash, herbs and grain will take the students back to the time of early settlers. The plants can be used to make tools and utensils that Native Americans and early settlers used.

Pond – Constructing a pond will be a great opportunity to teach water quality and pond volume as well as study fisheries management and aquatic plants. The pond should be constructed deep enough to manage a small fishery. On a smaller scale, a great option would be to construct a mini pond approximately 4 feet deep and 5 to 6 feet across the surface. The mini pond can be used for similar purposes and educational opportunities. The mini pond will also attract many amphibians and aquatic plants that create extraordinary learning experiences. If the pond is located on a school or community site, it is important to check on liability issues.

Soil Profile Area – An area set aside to study soils is very important. A soil pit labeled with the different soil profiles does the best job of explaining the different soil types, textures and profiles, but it might also hold water and be a hazard if not covered properly. A stream bank or bank cross-section can be used to accomplish the same goal. A core sample, if done properly, is also useful.

Time Capsule – A time capsule can be a grand opportunity to record history and might be a fun venture for students. Current environmental and natural resource issues, news articles or photographs could be buried in a designated area in the outdoor classroom using a water- or rust-proof container placed in a secure area.

Trails – Trails may be the most important feature of the outdoor facility. Consider establishing the trails and then planning the rest of the features around them. Spend time on the layout and design so the trail remains safe, easy to maintain and compatible with important features of the outdoor classroom. When establishing the trail, land terrain may also be an important factor. Give consideration to the prevention of erosion, the placement of culverts and the type of top soil layer to provide for walking. Consult the local Extension agent or soil conservationist for further assistance.

Trees and Woodlands – Establishing a tree or woodland plot is a perfect opportunity for forestry management education. If possible, use an existing woodlot and make additions to it. If the woodlot is not available, get the students involved in measuring, marking and identifying the tree plot. Site selection is very important. Planting a black willow in upland terrain or a flowering dogwood in shallow soils would not be a good choice. Ask a state or local forester to assist with the project.

Weather Station – A weather station can be as large or as small as funds allow. The same concepts can be viewed regardless of the size. Weather patterns and trends, temperature, precipitation and wind speeds can be observed over time and recorded on a computer. All weather-observing equipment must be stored in a secure area to prevent theft or vandalism.

Wildlife Brushpiles – Brushpiles can be established very easily at the beginning of any outdoor project. If developing the outdoor classroom from scratch, simply ask the dozer operator to place fallen trees in areas compatible with the development plan. These brushpiles also can be established with old Christmas trees or dead, fallen trees. Brushpiles help attract many different types of wildlife and provide hiding, nesting and resting cover for many birds, reptiles and small mammals.

Wildlife Food Plots – Food plots can provide an extra food and cover source for wildlife. A wide variety of plants can be used in food plots including millet, corn, wheat, sorghum, milo, sunflowers, rye, clovers, oats and soybeans. Most food plots are two acres or less. Plots are often arranged in a long, narrow fashion. Plots may be placed close to edges, fencerows or near water. Contact the local Extension agent for assistance with soil samples and other wildlife food plot establishment recommendations.

Cross Curriculum Outdoors

Art: Students could make pencil sketches of natural landscapes or animals, design markers and signs, and create promotional material. Other possibilities include using leaves, flowers or bark as textural features or for decorations along with other natural findings.

English: The outdoor facility can provide a great opportunity for students to keep a journal on the developmental progress of the outdoor classroom. Students may also want to sit in the natural area and write poems or essays about their surroundings. Writing news articles on the outdoor classroom's success would be an excellent opportunity to practice journalism. A monthly newsletter might also be developed.

History: The outdoor classroom can be used to study methods of how early settlers and Native Americans used natural resources to make artifacts, grow food, make clothes and live off the land. Students may also look at the history of the outdoor classroom site to see how it has changed over time. Students may document the outdoor classroom's appearance at present for other students to observe changes at a later date. The outdoor facility could also be used to study other cultures.

Family and Consumer Sciences:
Students could learn how to grow a vegetable or flower garden and the economic benefits of doing so. Outdoor cookery or food preservation could be practiced, as well as the study of edible natural plants. The students may even want to help plant some of the shrubs and trees. Natural items could be used as decorative features of the home or classroom.

Health/Safety: Students could locate poisonous plants in the outdoor classroom, identify them and study potential human health effects. Students could practice first aid by simulating outdoor scenarios. Students may also want to search the outdoor classroom for potentially unsafe areas and describe what should be done to correct the problem. Natural remedies might also be planted and discussed.

Life Skills: As young students face the challenges of becoming teenagers and young adults, they need certain skills to prepare them for future situations. The outdoor classroom is filled with opportunities that can help young people gain skills and knowledge in citizenship, ethical decision-making, leadership, teamwork, responsibility, achieving goals, building relationships, communication and self-esteem. Knowledge and skills in these areas maybe attained through hands-on projects, learning by doing, making positive contributions to society and by participating or leading organized outdoor activities in the outdoor classroom.

Mathematics: The outdoor classroom is a prime area to study mathematics, especially in the developmental stages. Math students may assist in calculating featured plots, determining the size of the developed area or measuring slope and elevation. Students could also measure tree heights and diameters, weigh large outdoor objects and tabulate volumes. They can also learn to use a map and a compass. Measuring, cutting and constructing habitat boxes and feeders are also direct applications of math concepts.

Music: Music students could study how different cultures use nature as a part of their music. Students may consider making instruments from items they find in the outdoor classroom. Students could study other musicians who use nature as their inspiration, and possibly use the outdoor classroom in preparing their own music.

Physical Education: Outdoor classrooms provide prime opportunities for PE students. Activities such as hiking, running cross country, exercising and playing outdoor games can be included in the class curriculum. Students may also create games from objects they find in the outdoor facility and many of the activities can be combined with other subjects. Measure the walking trails and post distances so that "walkers" can set and achieve goals for regular exercise.

Science: The outdoor classroom is a "natural" science lab. Science students can conduct experiments that should only be attempted outside. Students could study aquatics, soils, animals, air, weather and plants and how living organisms interact with each other, as well as biology, chemistry, ecology or geology. Natural communities and ecosystems found in the outdoor facility can also be observed.

Technology: An outdoor classroom is an excellent facility for students to learn more about the use of different technologies. Students can take digital cameras into the outdoor classroom and capture images of insects, flowers, snakes, animals and other natural scenes. The images can be used to design Web pages or presentations about the outdoor classroom. Students may learn new concepts of Global Positioning Systems and Geographical Information Systems.

Vocational Agriculture: Vocational agricultural students will have plenty of objectives in their curriculum that will include and involve the outdoor classroom facilities. For instance, students can study pond management, forestry management or participate in land judging. Other areas to consider include designing trails; participating in building shelters, bird feeders and picnic tables; or growing the flowers and plants needed for the facility.