

Arcosanti Merit Badge and Conservation Day:



Proposed program schedule:

0800-0830 Check-in/opening gathering

0830-1230 Walking Tour of the facility and
educational lecture:

- Discuss the Landscape Architecture of the site, or some portion of it
 - Entry / Exit paths, parking, sun/shade use, and amenities
 - Measure the main entry way to the facility and discuss how landscaping can be improved for erosion and comfort/utility
- What is erosion and how is it managed?
 - What is soil? (kinds/composition)
 - Name, discuss, and identify three types of erosion
 - Describe and identify erosion control practices
 - Mark direction arrows on a site plan of water run-off
 - Shrubs and groundcover impact on erosion and aesthetics
- What is a Watershed? River basin? Aquifer?
 - How are people living in each area affected by where they live?
 - Identify a watershed on a contour map and in the field if possible
 - How do different uses affect the water supply?
- Discuss the water cycle and water/waste treatment process

1230-1330 Lunch (self-provided "Brown Bag")

1330-1630 Session

- Participate in erosion control work
- Plant/seed an area of at least 1/5 acre or 100 plants
- Continue discussion of any areas not covered in the morning

1630-1700 Closing words and check-out / departure

- Supplies (Scouts bring):
 - Gloves / hats / water / rock rakes / 10 essentials
 - Brown Bag lunch (limited cooler space available)
 - Merit Badge worksheets/pamphlets (optional)
 - Pens, pencils, blue cards
- Supplies (Arcosanti / program provides)
 - Site plan & topographical map of site
 - Graph paper/drawing paper

Soil and Water Conservation Merit Badge:

<https://www.scouting.org/merit-badges/soil-and-water-conservation/>

1. Do the following:

- Tell what soil is. Tell how it is formed.
- Describe three kinds of soil. Tell how they are different.
- Name the three main plant nutrients in fertile soil. Tell how they can be put back when used up.

2. Do the following:

- Define soil erosion.
- Tell why soil erosion is important and how it affects you.
- Name three kinds of soil erosion. Describe each.
- Take pictures of or draw two kinds of soil erosion.

3. Do the following:

- Tell what is meant by conservation practices.
- Describe the effect of three kinds of erosion-control practices.
- Take pictures of or draw three kinds of erosion-control practices.

4. Do the following:

- Explain what a watershed is.
- Outline the smallest watershed that you can find on a contour map.
- Outline, as far as the map will allow, the next larger watershed that also has the smallest one in it.
- Explain what a river basin is. Tell why all people living in a river basin should be concerned about land and water use in the basin.
- Explain what an aquifer is and why it can be important to communities.

5. Do the following:

- Make a drawing to show the hydrologic cycle.
- Demonstrate at least two of the following actions of water in relation to soil: percolation, capillary action, precipitation, evaporation, and transpiration.
- Explain how removal of vegetation will affect the way water runs off a watershed.
- Tell how uses of forest, range, and farmland affect usable water supply.
- Explain how industrial use affects water supply.

6. Do the following:

- Tell what is meant by water pollution.
- Describe common sources of water pollution and explain the effects of each.
- Explain the terms: primary water treatment, secondary waste treatment, and biochemical oxygen demand.
- Make a drawing showing the principles of complete waste treatment.



7. Do TWO of the following:

- a. Make a trip to TWO of the following places. Write a report of more than 500 words about the soil and water and energy conservation practices you saw.
 - i. An agricultural experiment
 - ii. A managed forest or woodlot, range, or pasture
 - iii. A wildlife refuge or a fish or game management area
 - iv. A conservation-managed farm or ranch
 - v. A managed watershed
 - vi. A waste-treatment plant
 - vii. A public drinking water treatment plant
 - viii. An industry water use installation
 - ix. A desalinization plant.
- b. Plant 100 trees, bushes, and/or vines for a good purpose.
- c. Seed an area of at least one-fifth acre for some worthwhile conservation purposes, using suitable grasses or legumes alone or in a mixture.
- d. Study a soil survey report. Describe the things in it. Using tracing paper and a pen, trace over any of the soil maps, and outline an area with three or more different kinds of soil. List each kind of soil by full name and map symbol
- e. Make a list of places in your neighborhood, camps, school ground, or park that have erosion, sedimentation, or pollution problems. Describe how these could be corrected through individual or group action.
- f. Carry out any other soil and water conservation project approved by your counselor.

Landscape Architecture Merit Badge:

<https://www.scouting.org/merit-badges/landscape-architecture/>

1. Go to a completed landscape project that a landscape architect has designed. Before you visit the site, obtain a design plan from the landscape architect, if available.
2. After completing requirement 1, discuss the following with your counselor:
 - a. Tell whether the design had separate spaces, a defined point of entry, a clear path system, and sun and shade variety.
 - b. Discuss how any structures, the designated seating, eating, or parking areas, suited the overall design.
 - c. Explain how the design reflected consideration for the comfort, shelter, and security of the users.



- d. Discuss how the choice of trees, shrubs, and ground covers used in the project contributed to its appeal and function.
3. Identify five shrubs, five trees, and one ground cover, being sure that you select examples of different shapes, sizes, and textures. With the help of your counselor or a local nursery, choose plants that will grow in your area. Bring pictures of the different planting materials or, if possible, examples of their branches, leaves, or flowers to a group such as your troop or class at school. Be prepared to tell how you might use each in the design of a landscape and the maintenance that would follow.
4. After obtaining permission from the appropriate authority, look at and study a place of worship, school grounds, or a public building and identify where most people arrive by bus or car. Then do the following:
 - a. Using a measuring tape, measure and draw the main site entry and its nearby area. Define the scale of your drawing. Be sure to include the driveway and sidewalk or path that leads to the building's main entry. Indicate any sidewalks, structures, trees and plants, lights, drains, utilities, or other site furnishings within the study area. Make two copies of this plan and save the original, then do 4(b) and 4(c) using the copies.
 - b. On one copy of your site plan, use directional arrows to indicate where the water drains across the site, where ditches occur, and where water stands for a longer period of time.
 - c. Decide how you can make the place safer and more comfortable for those using it. Redesign the area on another copy of the plan. You may want to include new walks, covered waiting areas, benches, space-defining plantings of trees and shrubs, and drainage structures.
5. Identify three career opportunities that would use skills and knowledge in landscape architecture. Pick one and research the training, education, certification requirements, experience, and expenses associated with entering the field. Research the prospects for employment, starting salary, advancement opportunities, and career goals associated with this career. Discuss what you learned with your counselor and whether you might be interested in this career.

World Conservation Award:

- Earn the Environmental Science OR Sustainability merit badge.
- Earn the Soil and Water Conservation OR Fish and Wildlife Management merit badge.
- Earn the Citizenship in the World merit badge.
- Participate in a conservation project (minimum 3 hours) that addresses a need common to more than one country.



Scouts should Be Prepared by doing the following:

1. Review the following Websites for helpful answers and resources:
 - a. <https://www.scouting.org/merit-badges/soil-and-water-conservation/>
 - b. <https://www.scouting.org/merit-badges/landscape-architecture/>
 - c. <https://gis.yavapaiaz.gov/> search “500-04-001”
 - i. Basemap: ESRI imagery
 - ii. Map Layers:
 1. Land Use: Hydrology Labels and Public Land Labels
 2. Contours: Central 2ft 2012 – 88 NAVD Vector
 3. Flood Information: FEMA Flood Plain and Watershed HUC 8
2. Be able to define:
 - a. Soil (include the three main parts and nutrients in fertile soil)
 - b. Soil Erosion (include three types and why it is important)
 - c. Conservation Practices (include three kinds of such practices)
 - d. Watershed
 - i. River Basin (include how land use affects people in a river basin)
 - ii. Aquifer (include why it’s important to communities here in Arizona)
 - iii. Impact of vegetation, industry, and farming on the watershed and water supply
 - e. Hydrologic Cycle (Water Cycle)
 - f. Water pollution and sources and effects of different types
 - g. Waste water treatment includes:
 - i. Primary water treatment,
 - ii. Secondary waste treatment,
 - iii. Biochemical oxygen demand
3. Bring drawings/sketches of the following:
 - a. Soil Erosion (two types) – will point them out in the field as well
 - b. Soil Erosion Practices (three types) – will point them out in the field as well
 - c. The Hydrologic Cycle (a.k.a. the water cycle)
 - d. Waste Treatment steps (check out a video or diagram)
 - e. The water runoff and watershed (Scroll in and out on the GIS map for help)
4. Learn more to be engaged:
 - a. Identify three jobs in Landscape Architecture and for one include:
 - i. Education / Training / Certifications
 - ii. Employment and salary expectations
 - b. Bring questions for the experts!
5. Bring
 - a. A hat, work gloves, water, rock rakes (if you have them), and the 10 essentials
 - b. Brown Bag Lunch (limited cooler space but you can bring your own)
 - c. Merit Badge Worksheets / Pamphlets (optional)
 - d. Pens, pencils, notepad, blue cards