

## Soil and Water Conservation Merit Badge at Cub Run RECenter

The Soil and Water Conservation Merit Badge is a 4 hour class. Scouts should bring a snack/lunch and be prepared to hike outside to look at conservation practices around the RECenter.

PARENTS – Merit badges are done with the buddy system. We highly recommend that a parent attend the program with their scout, even if scouts have a buddy. There are some difficult concepts in this merit badge – contour lines and topographic mapping, as well as many hands on activities involving watersheds. Scouts (and the instructor!) do better if a parent is available to help out – and to keep scouts on task. We will need at least two parents to stay for the entire class. Please be prepared for the possibility that you may have to stay for the entire program and not just drop off your scout.

PREWORK – Scout should research and define soil and how it is formed #1A. Scouts should also pick one of the activities in #7 to do outside of class. We will be doing #7D (soil report) in class. A second topic should be chosen for completion of the badge.

Please bring to class:

- Pework
- Camera or sketch book (opt) – we will be observing/drawing conservations practices
- Snack/lunch
- Appropriate clothing for hiking around the recenter to observe erosion and conservation practices.
- Blue card, pen and pencil. Clipboard would be useful.

Here are the requirements that we will be covering in the class. \*\* Denotes prework

### Soil and Water Conservation Requirements

1. Do the following:
  - a. **\*\* Tell what soil is. Tell how it is formed.**
  - b. Describe three kinds of soil. Tell how they are different.

- c. Name the three main plant nutrients in fertile soil. Tell how they can be put back when used up.
2. Do the following:
  - a. Define soil erosion.
  - b. Tell why soil conservation is important. Tell how it affects you.
  - c. Name three kinds of soil erosion. Describe each.
  - d. Take pictures of or draw two kinds of soil erosion.
3. Do the following:
  - a. Tell what is meant by "conservation practices".
  - b. Describe the effect of three kinds of erosion-control practices.
  - c. Take pictures of or draw three kinds of erosion-control practices.
4. Do the following:
  - a. Explain what a watershed is.
  - b. Outline the smallest watershed that you can find on a contour map.
  - c. Outline, as far as the map will allow, the next larger watershed which also has the smaller one in it.
  - d. 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.
5. Do the following:
  - a. Make a drawing to show the hydrologic cycle.
  - b. Demonstrate at least two of the following actions of water in relation to the soil: percolation, capillary action, precipitation, evaporation, transpiration.
  - c. Explain how removal of vegetation will affect the way water runs off a watershed.
  - d. Tell how uses of forest, range, and farmland affect usable water supply.
  - e. Explain how industrial use affects water supply.
6. Do the following:
  - a. Tell what is meant by water pollution.
  - b. Describe common sources of water pollution and explain the effects of each.
  - c. Tell what is meant by "primary water treatment," "secondary waste treatment," and "biochemical oxygen demand."
  - d. Make a drawing showing the principles of complete waste treatment.
7. **\*\* Do TWO of the following: (We will do (d. soil report) in class; you need to do one other)**
  - 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.

1. An agricultural experiment.
  2. A managed forest or a woodlot, range, or pasture.
  3. A wildlife refuge or a fish or game management area.
  4. A conservation-managed farm or ranch.
  5. A managed watershed.
  6. A waste-treatment plant.
  7. A public drinking water treatment plant.
  8. An industry water-use installation.
  9. 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 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 having 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 merit badge counselor.