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## 32. CONTOUR MAPPING

**Overview:** Students will construct a contour map.

**Objective:** Students, using homemade measuring devices, will construct a visual contour map of a small hill.

**Time needed:** 1 hour

**Group Size:** 4

**Age appropriateness:** 5th Grade and up

**Site:** Any small hill in the Garden. **CAUTION!** If the students will be leaving the marked pathways, please see the site steward about the least dangerous areas. Please note that this activity could potentially be damaging to important habitats at the Garden because of students trampling plants and animal homes. Adult supervision is a must for this activity. Also, students should be warned about potential hazards due to carelessness around cactus.

**Background:** Surveyors and engineers use topographic information to develop plans. This activity will give hands-on experience constructing a topographic map, but in the real world, much more sophisticated equipment is used.

**Materials:**

Provided at the Garden

Yard or Meter stick per group

10 popsicle sticks per student

Construction level

Provided by the classroom teacher

10 feet of string per group

Colored marker set for each group

**Preparation:**

**Pre Activity:** Students could start small by mapping their bedrooms and their classrooms with basic map symbols. After teaching what contour maps are, students could map small dirt piles using the procedure outlined here.

**Procedure:**

1. Divide class into groups and pass out materials. Assign roles to group members--rod person, level person, point person, map maker.
  2. Send groups to the "mappable" areas in the Garden.
  3. The rod person stands on a flat surface next to the mound holding the stick.
  4. The level person ties the string onto the stick, beginning at the 6" level and moving up in 6" increments. The level person ensures that the string is kept taught and level for all readings.
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5. The point person places the popsicle sticks with a colored mark or measurement indicating the proper height. There should be 3 to 10 points for each level of the rod and be repeated from at least 4 directions.
  6. Students repeat the procedure until they have mapped the length of the stick. The mound may be longer than the stick that the students are using. They could improvise by tying on a ruler or another stick.
  7. From their physical contour map, students make a crude drawing of the map using the points as indicated by the popsicle sticks.
  8. Class discussion might center on whether they mapped enough points or whether their elevation increments were too big or too small.

**Modifications:** Project can be done using any increment so long as the tools being used will accommodate those measurements. Metrics could also be used.

**Extensions:** Students could make a contour map of a larger area as a class project. A 3-D model could be constructed from their map.

**Reference List:**

See activity "Operation SONAR"

Fred Croxen, AWC

Local surveyors or engineers

Be Expert With Map & Compass: The Orienteering Handbook, by Bjorn Kjellstrom

**Time of Year:** any

**\*\*This activity was created from a activity done at the Yuma Conservation Garden by Fred Croxen, AWC.**

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Figure 1

CONSERVATION GARDEN & DUCK POND

