ACE MENTOR PROGRAM
ARCHITECTURE • CONSTRUCTION • ENGINEERING

ACE ACTIVITIES
SITE TOPOGRAPHY + MODELING

DEVELOPED BY:
THE ACE MENTOR PROGRAM OF GREATER NEW YORK

Site Topography Modeling

created by Clifford Marvin,
with Skidmore, Owings & Merrill,
for the Greater New York affiliate

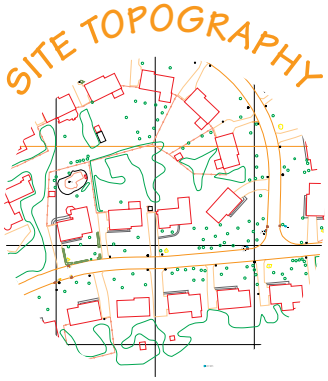
Educational Goals Introduce a technique for building models that illustrates the natural topography of an area, and introduce students to the concept of scale.

Description Students develop a scaled site topography map.

Time 15 minutes reviewing per session

Materials

- 1/32" thick chipboard (one-ply), approx. 30" x 40"sheets
- Dried flowers
- An architect's and an engineer's scale (several scales depending on size of group)
- Glue
- Scissors, several pairs
- Topographic maps (U.S. Geological Survey is a good source) to show as examples.



In preparation for the class, mentors should precut the chipboard into 6"x 6" squares. The fastest way to accomplish this is to use a mat or utility knife and a steel, straight-edged ruler. The quantity of chipboard you will need will depend on the size of the group. A minimum of ten squares will be needed by each student, more for the more creative students. Approximately 30 squares can be cut from each sheet of chipboard.

Show students topographic maps and at least one model prepared in advance. Students can prepare their models based either on the actual topographic maps that a mentor brings to a session or on an imaginary topography. Since human beings often change the topography of an area to accommodate a building, imagining topography is a skill well developed by landscape architects and civil engineers.

Once the basic topography is established, the models can be decorated with trees (dried flowers), lichen or some other moss-like substance, scaled-down people or buildings, or colored (blue for water).

Explain the concept of scale by mentioning that in order to execute a design, it would be impractical to draw full size drawings. Instead,

drawings must be scaled down to a manageable size. The rough scale of the models the students will be working on is 1/32" = 1'-0", or 1/32th scale. If they are available, architect's scales can be provided to students in order to build their models, though it is not absolutely necessary. Rulers can be used.

Students can take home their models and further embellish them if they wish. The students could build a larger scale site as a future group project, once again, real or imaginary. Larger scale buildings, trees, etc. would accordingly be placed on the model.

THINK GREEN!

Open a discussion on the implications of changing topography. How can the natural landscape best be utilized to the advantage of a community? Consider:

1. Weather patterns,
2. Electricity needs
3. Alternative forms of energy and sources
4. Natural shelter
5. Etc.

Facilitate an expanded conversation on the dangers of changing natural topography. This is an appropriate time to bring current events into the conversation. Consider:

1. Current weather stories
2. Damage to natural water sources (lakes, oceans, rivers)
3. Global warming
4. Rising energy costs

For groups particularly interested in LEED, open a discussion on heat island effect and related LEED credits. This would be an excellent time to explain the dangers of heat island effect and realistic ways to handle it when designing new buildings (green roofs, light colored roofs, etc).

Developed by U.S. Green Building Council