Land-Use Model
Student Activity Sheet

Background
Land-use plans are drawn up by planners, but they are created with the combined input of various members of a community. Along with three other people, you are meeting to plan the development of 400 acres of land for your growing city. Your team is comprised of the following four members.

- **Planner:** concerned with creating a plan that encourages the sort of growth that will attract businesses and new citizens to the area
- **Developer:** bought the land from the city and is interested in the right to build housing and shopping centers
- **Conservationist:** interested in preserving open space and natural areas from further development
- **Law Enforcer:** ensures that all of the laws and regulations are met for any new development project

Materials
- Graph paper, colored pencils pens

Procedure
1. Have each team member select one of the four jobs above.
2. Use all or part of a large piece of graph paper as your map. Mark off an area that will represent the 400 acres. Determine the approximate scale and label the sides of your area accordingly.
3. The planner will color in the map as follows:
   a. 40 acres of fresh waters (rivers and/or lakes) colored light blue.
   b. 80 acres of wetlands that are right next to some of the fresh water, colored light purple.
   c. 40 acres of land that is too sloped for building colored tan.
   d. 240 acres of land that is good for development colored light green.
4. Once the land is colored in, it cannot be altered. That will be the land you work with.
5. After the area is colored in, the group must discuss how and where to put the following items:
   a. 40 acres for a landfill
   b. 20 acres for utilities such as power plants and water treatment facilities
   c. 40 acres for parks and wildlife
   d. 40 acres for housing. Try to put the houses near a beautiful area
   e. 40 acres for shopping

LAWS
- At least 10 percent of each type of habitat must be preserved.
- Landfills must be at least two acres away from all housing, wetlands, and fresh water sites
- Roads and bridges may cross rivers and wetlands, but they must go around large natural areas.
- There must be no building over wetlands, slopes, and fresh water. Only parks may partially cover these habitats and roads/bridges may cross them
Sustaining Biodiversity

f. 20 acres for anything that the group agrees to add. For example, you could add a few acres for community gardens or for sports and playing fields. The law enforcer cannot suggest anything, but if the group can’t agree on what to add, the law enforcer may cast the deciding vote.

g. 40 acres of roads and bridges (you can divide an acre up so that you can build long, thin roads, rather than create short, fat roads that are an entire acre thick). Make sure at least one road goes into and out of town.

6. The law enforcer should make sure that the plans abide by the planning regulations by checking the map for violations.

7. Create a key under the map to show which areas are which. For example, an R denotes a road or bridge. Use a pencil at first in case changes are to be made. Once plans are final, use a pen to draw in items.

Analysis

1. Did everyone on your team agree on the plan or were there conflicts of interest? Explain.
2. Were you able to get everything your team wanted into the plan or did you face any problems. Describe what happened.
3. How did the features of the land constrain the plan that you made? Did you encounter any problems?

Conclusions

4. Does the plan your group created meet the needs of all of the group members? Does it allow for development while preserving the environment?
5. How will you plan affect the biodiversity of the area?
6. How do you think this land planning simulation compares to the real-life process of land-use planning?

Extension

7. Look in the newspaper or on the internet for a story about a land-use controversy in your area. Identify the different members involved. Role-play with your team to see what forces will bear on the controversy.