

Leave Your Mark

Overview

Students will be given a riverfront parcel of property to develop. Their development will be assigned a pollution footprint value, and their parcel may also be assigned some ‘need’—a school, a factory, a shopping mall. After discussing the pros and cons of these developments, students will work in teams to plan a riverfront town.

Background

Pollution is used as the starting point of this exercise, followed by ventures into land use planning and development. The activity allows students to grapple with the notion that as people develop land they have an impact on present and future land use patterns and on the environment—the hydrosphere, atmosphere, and biosphere.

Materials

Materials for small groups

- One parcel of riverfront land (pre-printed sheets of paper) per pair of students
- Colored pencils
- *Pollution Point* pieces (black line masters below)
- *Needs* cards (black line masters below)

Preparation

- Cut out the supply of bright *Pollution Point* pieces.
- Cut out the supply of *Needs* cards.

Procedure

- Start by informing the class that each pair of students will be responsible for a large piece of wooded riverfront land in a new valley, and that they have unlimited resources to develop their piece of land as they see fit. Ask the pairs to jot down a few ideas of what they want to do with their piece of land. Pass out the pre-printed land parcels and have the students draw their plans on the piece of paper.
- Circulate while the students work and add a bit to the land boom by talking about what the students are doing so other students can hear and then add to or modify their own plans. The hope is that students will really go all out and not just build simple huts in the woods.
- When the students have finished with their plans, collect the pieces of property and place them together using the county names (alphabetically) printed on each piece as shown in this chart.

Anson	Burke
Caswell	Duplin
Edgecombe	Forsyth
Gaston	Hoke
Iredell	Jones
Knox	Lincoln
Mecklenburg	New Hanover
Orange	Pender

- Gather the class around the now completed map of the valley and ask one group to tell what they have done. As the developers talk, calculate a pollution footprint value based on some idea of what the developers have placed on the land. For example, a hotel would have more of an impact than a house. Place the appropriate number of cut out *Pollution Points* pieces (or some other tokens like foam peanuts) on the land without explanation and then ask the next group to describe their development plans.
- Move through a few groups, assessing the plans and adding the pollution footprint to each map. When students ask what the deal is with the pollution paper pieces, explain that you are determining the pollution footprint for each plan and describe what values you are giving to the plots. For example, a car could earn one piece, large areas of pavement could earn 5 pieces, and a development that attracts lots of people might earn 50 pieces. The scale is a bit loose and depends on what the students decide to put on their land. After giving a few pollution footprint values to land parcels, challenge the rest of the students to think about the possible sources of pollution on their parcels and have them propose their own pollution footprint values.
- Once all parcels have been assessed a pollution footprint value, ask the students what happens to pollutants that are released close to a river. Ask the students to push their pollution pieces into the river. The teacher can then start to sweep them down stream. Ask the students what they think happens to pollutants in river water and start a general discussion of pollution and its impact.
- Remove the pollution pieces and ask the students to write a list of things they will need in order to live on their developed piece of property. Remind students that this is a previously unsettled valley, so their list must be comprehensive. Ask them how they will get water or electricity if they are having trouble thinking of needs. Generate a class list of needs.
- Return to the laid out map of the valley and start assigning ‘bad’ zoning areas to various parcels from the stack of pre-printed *Needs* cards. Students will be faced with shopping malls, strip malls, fast food restaurants, bridges, highways, bus or train stations, schools (elementary, middle, and high), hospitals, industrial parks, factories, water reservoirs, drinking water treatment plants, waste water treatment plants, power plants, garbage dumps, toxic waste dumps, feed lots, hog farms, airports, post offices, banks, gas stations, etc. Some students will complain about the problems (*not in my backyard*), and those who did not arbitrarily get assigned

- a negative development may be happy, but it will point out that these things have to be somewhere.
- Pass out two new parcels of land that are connected across the river to groups of 4 students. Ask the students to design on a larger scale a city for 10,000 people. Their plan must accommodate the needs of such a town and place at least 10 of the ‘negative’ necessities in their plan.

Reflection/Discussion

As a class, discuss some of the positive and negative aspects of the growth of a town on a river. Why are so many towns and cities around the world located on or near rivers? How is the river a resource for a town? What happens to the rivers in these situations? Who is responsible?

Assessment

Ask students to write about positive and negative elements of development in their own area.

SHOPPING MALL	STRIP MALL
FAST FOOD RESTAURANT	BRIDGE
HIGHWAY	BUS STATION
APARTMENT COMPLEX	HOUSING DEVELOPMENT

ELEMENTARY SCHOOL	MIDDLE SCHOOL
HIGH SCHOOL	FACTORY
RESERVOIR	DRINKING WATER TREATMENT PLANT
WASTE WATER TREATMENT PLANT	POWER PLANT

LANDFILL	TOXIC WASTE DUMP
HOSPITAL	HOG FARM
AIRPORT	POST OFFICE
BANK	GAS STATION