Lesson Plan: Pollution

Student’s Name

Institutional Affiliation
Pollution

Subject: Ecology, Geography, General Science

Grade(s): 9-12

Procedures

Students will be asked to name water ecosystems. Learners may talk about oceans, lakes and rivers, marshlands and ponds. Then, they will be asked about any factors that make a contribution to the destruction and pollution of ecosystems. I will list their answers on the chalkboard. The list will contain thermal effluents, sewer sludge, radioactive wastes, beach erosion, and destruction of marshlands.

Students’ Activities

The class will be divided into several groups. Each of them will make investigations on one of the listed factors. Students in every group will have to make their research on the way of factor’s effect on the water systems that are located in their area, and methods that are applied for stopping the negative effect of these contributors.

After completion the research, each group will select one of the mentioned above water ecosystems that was affected by appointed negative factor. The students will have to develop the environmental-impact statement. This statement should contain the following elements:

1. A description of the present ecosystem’s status of the environment.
2. A description of various ways of factor’s influence on the selected ecosystem.
3. A description of current ways for stopping the negative influence of the factor.
4. Proposition of methods that will stop negative influence in the future.

After completion of the statement, students of each group will describe their investigations to the class.

The groups will be asked the following questions:
1. Describe the relationship between technological advances, growth of population, and dumping of the ocean.

2. Discussion of changing the ways of traditional use of the ocean.

3. Providing answers on brainstorm “environmentally friendly.” The questions will concern cleaning wastewater, electricity generation, developing land and fuel production.

4. Discussion of the various alternatives of dumping of the ocean for preventing pollution of commercial seafood and wildlife in the future.

5. Discuss the reasons and backgrounds of developing the international cooperation in such spheres as fishing, oil drilling, and disposal of radioactive waste to save the ocean for the use of people in the whole world.

The students will be asked to perform the following activity in their homes:

Bring to the class solid wastes, which were accumulated in their homes during one week. The class will be divided into several groups. Each group will receive one bag with wastes. The groups will be asked to divide the waste in their bag according to its character and put into several other bags. There will be several categories of new bags: one for metals, a separate bag for plastics, glass and rubber; and one for organic materials and paper. During these operations, students have to use rubber gloves.

After completion of this task, the students will weight all the waste of a different nature. The results obtained by different groups will be combined.

Then, students will have to calculate the character of garbage per member of a particular family that is accumulated during one day. For this, the weight of each bag should be divided on the number of family members and the obtained figure should be divided on 7 (number of days in a week). On the basis of the received results, students will determine the amount and character of waste that each member of the family generates each year.
Learners will analyze the obtained information and make pie charts for illustration their discoveries. They will determine which kind of waste is the leading and describe reasons of it. Students will calculate the total amount of garbage generated by the whole population of the USA (250 million people) with an assumption that student’s family represents the general population.

Afterward, students will have to develop different alternative use of the collected waste, which will be other than recycling: for example, shoes made from the old rubber tire treads.