

Student worksheet - activity on: Water resources and water pollution



Generic green skills

Cognitive competencies:

- Environmental awareness and a willingness to learn about sustainable development
- Systems and risk analysis, skills to assess, interpret and understand both the need for change and the measures required

Technological competencies:

- Management systems (waste, energy, water)



Learning objective

You will be able to:

1. Clarify your ideas about water pollution
2. Classify point-source and non-point source water pollution causes and present possible solutions
3. Present a systematic view on a non-point source water pollution



Format

Individual work, group work and whole class



Resources needed

A4 paper, A3 paper, pens, concept information sheet



Time required

2 hours



Assessment

You will be assessed based on:

Your answers presented in the two tables and a presentation by your group.

The description of student activities

Activity 1:

During the class:

Fill in the below table *individually*. State whether it is a true or a false statement. During the *class discussion* you will need to justify your decision (10 minutes).

Only less than 1% of water is available for human use.	
80% of the world's wastewater is largely treated.	
Atmospheric deposition does not cause water pollution.	
The biggest consumer of fresh water resources is the agricultural sector.	
When released into rivers and lakes, greywater becomes a valuable fertilizer.	
If treated, wastewater can be used for fire-fighting, garden watering and toilet flushing.	

This activity provides you with the opportunity to identify and clarify your ideas about water resources and water pollution.



Activity 2:

Before the class:

Read the concept information sheet carefully.

During the class:

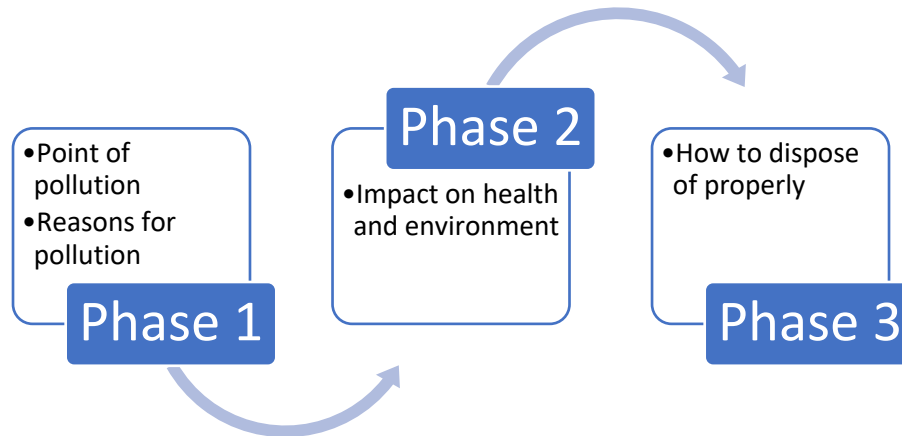
1. Get yourself together in groups of 5 to 6, and, based on the concept information sheet, together classify the following as point-source or non-point source (10 minutes).

*Pollution can occur in different ways. If it is from a single location such as wastewater discharged from an oil factory, it is called **point-source pollution**. If the source is multiple and different, it is called **non-point source pollution**.*

Boats in a lake	
Oil dumped in a swale	
Pipe discharge from a wastewater treatment plant into the river	
An animal owner neglecting to clean up their pet's waste	
Homeowner washing a driveway with a hose	
Automobile leaking brake fluid	
Construction site erosion	
Pouring lawn clippings into a canal	
Factory illegally dumping waste into a local waterbody	
Effluent from a failing septic tank	
Pouring antifreeze down the storm drain	
Spraying a garden to eliminate bugs	
Over-fertilizing a garden	
Runoff from a parking lot	

(NOTE: The table above is retrieved from the internet. For the full citation, please refer to the references)

- Now pick two examples: one from point-source and one from non-point sources of water pollution from the table above. Each group should choose different examples. Discuss with your teacher which examples to choose (5 minutes).
- In your group, discuss and create two diagrams (one per example) of how the process of pollution happened. You may refer to the following figure below (35 minutes).



- Select a presenter from your group to explain your diagram to the class. Each group has five minutes to present (20 minutes).
- During the presentations by other groups ask questions to clarify the points.



Reference:

The US Environmental Protection Agency, Midwest Research Institute, Florida Community College Consortium for Pollution Prevention Education and Florida Department of Environmental Protection. (2007, 08 24). *Protecting Our Water Resources: Student Activities for the Classroom*. Retrieved from Stormwater Education Toolkit: http://www.stormwater.ucf.edu/toolkit/vol3/Contents/pdfs/Student%20Activities/student_activities.pdf