Name _____ Date _____ Period _____

WATER POLLUTION

Directions – complete the following activities to learn how water is polluted and the affects it has on different communities.

ACTIVITY 1 – WATER POLLUTION GRAPHING ACTIVITY

PURPOSE: To describe and identify the link between land use activities within a watershed and water quality.

BACKGROUND: A watershed is an area of land from which all the water drains to the same location such as a stream, pond, lake, river, wetland or estuary. Watersheds can transport **nonpoint source pollution**. Nonpoint source pollution is associated with rainfall and snowmelt runoff moving over and through the ground, carrying natural and human made pollutants into water sources. Examples of nonpoint source pollutants are fertilizers, pesticides, sediment and gas and oil. Pollutants accumulate in watersheds as a result of various human driven and natural events.

Land Use	Activities	Pollution Problems
Agriculture	Tillage, cultivation, pest control, fertilization, animal waste	Sediment, nitrate, ammonia phosphate, pesticides, bacteria
Construction	Land clearing and grading	Sediment
Forestry	Timber harvesting, road construction, fire and weed control	Sediment, pesticides
Land Disposal	Septic systems	Bacteria, nitrate, phosphate
Surface Mining	Dirt, gravel, and mineral excavation	Sediment, heavy metals, acid drainage
Urban Storm Runoff	Automobile maintenance, lawn and garden care, painting	Oil, gas, antifreeze, pesticides, paints

MATERIALS: 1 small bag of Skittles per group and colored pencils

PROCEDURES:

1. Each bag represents a "water sample" from a watershed.
2. Separate and count the number of each pollutant and graph them on the paper. **You cannot eat the skittles until you are finished with the graph!**
3. Each color of skittles represents a different kind of pollutant.

    PURPLE = Sediment
    RED = Pesticides
    GREEN = Fertilizers
    YELLOW = Oil and Gas
    ORANGE = Bacteria
4. Create a bar graph to show the amount of each type of pollutant in the water sample.
5. What pollutant was the most common?

Water Sample — graph with y-axis "Amount of Pollutants" (0 to 20) and x-axis "Types of Pollutants"
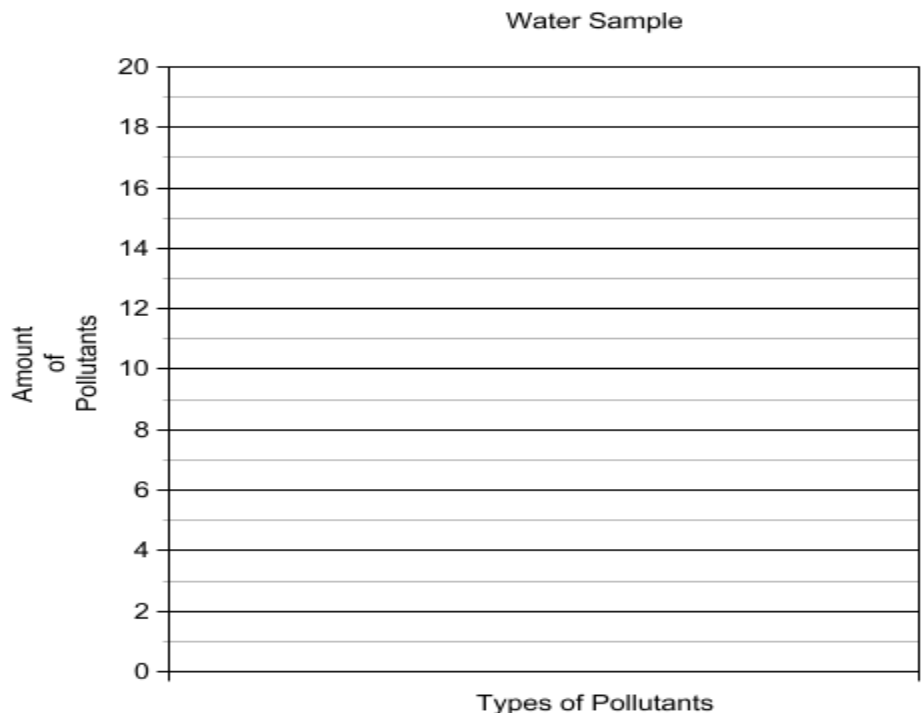
6. Where is a possible cause for this water samples most common pollutant?

7. What "Land Use" activity is possibly responsible for this water quality sample? (*hint – use the table above, which one best fits using the data table)

ACTIVITY 2 – THE GREAT PACIFIC GARBAGE PATCH

Use the article to answer the following questions.

1. The Great Pacific Garbage Patch is as large as what state in the US?

2. What is the North Pacific Gyre commonly known as?

3. Why can't the plastic be seen from the sky?

4. What is a gyre?

5. What are the only ways the trash leaves the gyre?

6. Where is the trash from?
    a. _____% from _____
    b. _____% from _____
    c. Color in and label the pie graph to show the sources of the ocean's garbage
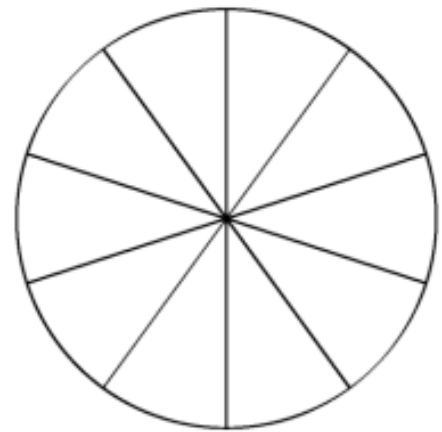
7. What does "biodegrade" mean?

8. Is plastic biodegradable?

9. Explain how plastic "breaks down"

10. What is a "nurdle"?

11. What are 2 ways nurdles damage bodies of fish?
    a.

    b.

12. What are the consequences of sea turtles and dolphins eating plastic bags?
    a.

    b.

13. How many sea birds day eating plastics each year?

14. How many marine mammals die from plastics each year?

15. What are common entangling traps for fish, birds, and other marine life?

    a.

    b.

    c.

16. List the ways you can help reduce the size of the Great Pacific Garbage Patch

What Can We Do To Help?	
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	

ACTIVITY 3 – WORLD'S MOST POLLUTED BODIES OF WATER

Directions – watch the video to complete the data table below and answer the following questions

NAME OF BODY OF WATER	LOCATION	TYPE OF POLLUTION	CAUSE OF POLLUTION
RIO TINTO RIVER			
CITARUM RIVER			
TUALATIN RIVER			
LAKE KARACHAY			
LAKE KIVU			
THE BLUE LAGOON			
MATANZA-RIACHUELO RIVER			
CUYAHOGA RIVER			
BURIGANGA RIVER			
MARILAO RIVER			

ANALYSIS QUESTIONS

1. What is the most common type of pollution?

2. What is the most common cause of water pollution?

3. What is the most common effect that the polluted water has on people and the environment?

4. Do people living in those areas rely on the polluted water to survive or do they have other water resources?

5. Using the data table, which body of water would you say is the most dangerous? Make sure you explain your reasoning.