Ms. Dietsch's 7th Grade Science Class

Dear Family and Students,

Thank you for your patience and flexibility during these trying times. Below is a list of assignments that students should be completing at home to ensure they are continuing to learn the 7th Grade Science Curriculum. These assignments can be turned in a paper or sent to me digitally as attachments (my email is listed below). All of these assignments will be posted on the Mifflin School Website and on my google classroom page which is also linked below. If possible please have students download and create an account using the zoom app, either on their phones or a computer they will be using to complete work. Zoom is a virtual meeting app that I plan on implementing in the next couple weeks for homework help and to go over notes with the students. Here is a link for students to download zoom: https://zoom.us/signup . Further instructions for zoom will be posted on my google classroom page. If students have any trouble with assignments they can post comments on the google classroom page or send me an email using the address below. Here is a list of work they should be completing over the next week:

- ☐ **Unit 4: Presentation 2: Water Quality Guided notes**- students should use presentation to fill in the blanks of the student guided notes page.
- ☐ **Water Pollution Webquest**- use the given links to answer the questions
- ☐ **Water Pollution Extended Response Questions**- use the given pictures to brainstorm and answer the questions. Remember the R.A.C.E. strategies

Please take care and stay healthy. Do not hesitate to contact via email for questions and concerns.

Sincerely,
Elizabeth Dietsch M.Ed.
7th Grade Science Teacher
Mifflin Middle School
edietsch@columbus.k12.oh.us
Link to Ms. D's Google Classroom Page
Google Classroom Code: **immdsl3**

Ms. Dietsch 7th Grade Science

Name: _____ Date: _____ ` Class: _____

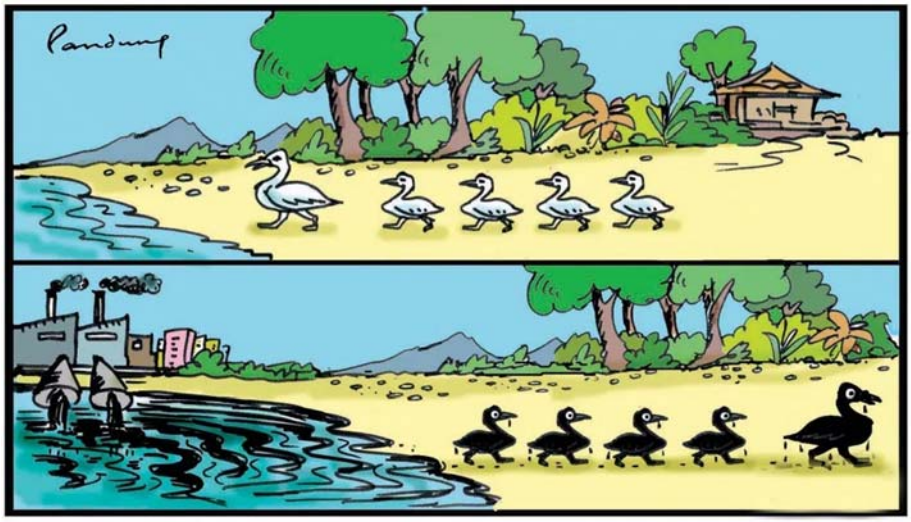
Water Quality: Open-Ended Responses

Directions: Brainstorm some responses to the questions we will be exploring in this unit. Use your R.A.C.E. strategies ☺

1. What are some factors that determine if bodies of water can support life? Think about the bodies of water around NYC, such as the Hudson River or Bronx River.

2. If you want to swim in a river, what are some things you might consider before jumping in?

3. Look at the before and after picture of the statue below. What has happened to the ducks? What is in the water that might have caused the damage?



Ms. Dietsch 7th Grade Science

Name:_____ Per._____

Water Pollution, Biodiversity, and Biomagnification

Prior Knowledge: In this lesson you will learn about biomagnification and then act as an environmental detective, trying to solve the ecological problems affecting the Peril River. Before beginning, use the Learning Scale below to rate your knowledge of biodiversity, water quality, and biomagnification. Place a check in the before box. You will re-rate yourself in the after box after the lesson.

Rating Before Lesson	Learning Scale	Rating After Lesson
	4 I can teach others how biodiversity is impacted by water quality and how chemicals can build up in organisms through biomagnification.	
	3 I can explain how biodiversity is impacted by water quality and how chemicals can build up in organisms through biomagnification.	
	2 I can describe some ways that biodiversity is impacted by water quality and understand that chemicals can build up in organisms through biomagnification.	
	1 With help, I can identify how pollution affects water quality and how biomagnification works.	
	0 I do not understand how biodiversity is impacted by water quality or and how chemicals can build up in organisms through biomagnification.	

Task 1: Introduction to Biomagnification and DDT

Use the link below to watch the "Biomagnification and the Trouble with Toxins" video by the Amoeba Sisters.
Tiny URL: http://tinyurl.com/zqq4v99 Full URL: https://www.youtube.com/watch?v=TZk6vcmLcKw
As you watch, answer the questions below.

1. Describe the process of biomagnification in 3-5 complete and well thought out sentences._____

_____

_____

_____

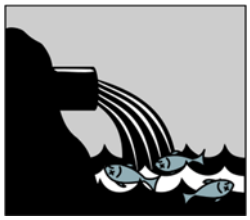
2. Describe how DDT moves through the food chain, eventually harming bald eagles. _____

_____

_____

_____

_____



Task 2: The Peril River Problem Virtual Game Activity

Use the link below to play the "Eco-Detectives: The Peril River Problem" interactive game. Click "Start a New Game" to begin. Read the screens and follow the directions to complete the game. As you complete the game, answer the following questions on the handout.

Tiny URL: http://tinyurl.com/jc4yn4s
Full URL: https://biomanbio.com/HTML5GamesandLabs/EcoGames/ecodetectiveshtml5page.html

Ms. Dietsch 7th Grade Science

Part A: Species Diversity and Abundance - Click on "Species Diversity and Abundance"

1. The number of different species in an area is called species diversity or _____

2. In what year was the biodiversity of species living near the Peril River the highest? _____

3. Has biodiversity in the Peril River increased or decreased over time? _____

4. Look at the graph. What groups of animals decreased in number since 1950? _____

5. What can you conclude about species diversity and abundance in the Peril River watershed system? _____

_____

Part B: Water Quality Issues - Click on the "Water Quality Issues" picture.

6. Where is the clear blue water sample of water from? _____

_____

7. Where is the green sample of water from? _____

_____

8. Click on the clear sample. How many algae and bacteria are in this sample? _____

9. Click on the green sample. About how many algae and bacteria are in this sample? _____

10. What are the photosynthetic plant-like organisms that are making the water green? _____

11. What are the microorganisms that act as decomposers in an ecosystem? _____

12. What is dissolved oxygen? _____

13. What is the average dissolved oxygen for Test Site 1? _____ What is it for Test Site 6? _____

14. What can you conclude about the dissolved oxygen levels in the Peril River watershed system?

_____

15. What dissolved oxygen range is optimal, or best, for aquatic organisms? _____

16. How does dissolved oxygen affect living organisms in the river? _____

_____

Part C: Investigate the Problem – Click on "Investigate and Experiment" tab.

17. Hover your mouse over the three hypotheses of why the river is in trouble and write them in the space below.

1. _____
2. _____
3. _____

18. Click on Hypothesis 1. What are nitrates and where are they found? _____

_____

19. Why can excessive nitrates be a problem? _____

_____

20. Click "Yes" to continue to investigate. Complete the testing and graph and analyze your data in the video game.
Where are the nitrate levels the highest? _____

Where are the nitrates coming from?_____

21. Click on "Test Other Hypotheses". Then, click on "Hypothesis 2". What are acids?_____

_____

22. Continue to Investigate by clicking Yes and test each site. Is there any acid pollution entering the River?_

23. Click on "Test Other Hypotheses". Then, click on "Hypothesis 3". What are pesticides?_____

_____

24. What are two negative effects of pesticides? _____

_____

25. Continue to Investigate by clicking Yes and test each site for pesticides. Graph and analyze your data.
    Where is the pesticide concentration the highest?_____
    Where is the pesticide pollution coming from?_____

26. Chemical analysis identified the pesticide as what banned chemical? _____

27. What is the crime committed by the organic farm? _____

28. What animal has the highest level of DDT in its tissues?_____

29. As DDT moves up the food chain, it becomes _____(more/less) concentrated. Why? _____

_____

_____

30. What happens to pelicans when they have a high level of DDT in their bodies? _____

_____

Part D: Restoration – Click on "Home" tab and then the "Restoration" tab.

31. Read the screen and choose 2 recommendations to fix the ecological problems of the Peril River. List your recommendations below.
    a. _____
    b. _____

32. What animals have increased in abundance since the reduction of DDT in the environment?

_____

33. Has biodiversity in the oceans surrounding Peril River increased because of your plan? _____

34. Describe the two samples of water in the microscope. _____

35. Describe the average dissolved oxygen concentrations in both samples. _____

36. Compared to the original condition of the river, how has monitoring nitrate run-off and eliminating DDT affected the water quality of the Peril River ecosystem? _____

_____

_____

_____

_____

_____

Ms. Dietsch 7th Grade Science

Write Your Final Score Here:_____