

Turbidity Station

Turbidity: a measurement of the clarity of water. Measured in JTUs

Directions:

- Begin by recording your observations about the three water samples
- Next, record what you think may be affecting the turbidity of the water (Why is it cloudy or clear?)
- Test and record the turbidity of each water sample
 - For each sample:
 - Place the beaker on top of the large secchi disk
 - Compare the clarity of the secchi disk with the provided Turbidity card and record your result in JTUs
- Answer the reflection questions on your data sheet.

Sample	Observations	Cause?	Turbidity (JTU)
A			
B			
C			

1. Why should we care about how cloudy water is?

2. What might be some ways to improve the turbidity of water?

Chemical Filtration Station #1

Nitrate: A negatively charged ion made of Nitrogen and Oxygen. Occurs in animal waste, through decomposition, and industrial fertilizer. Acts as a plant fertilizer in aquatic environments. High levels can be toxic for living organisms.

Ammonia: A positively charged ion made of Nitrogen and Hydrogen. Occurs naturally and in industrial waste. Used by plants after it is “fixed” into Nitrates. High levels are toxic for living organisms.

Directions:

1. First answer the two pre-investigation questions on your data sheet
2. Then, record your observations of the water samples in your data sheet.
3. Next, test and record the beginning Nitrate and Ammonia levels of the water sample.
 - a. Follow the directions given for each test carefully and record your results in your data sheet.
4. For the water sample, investigate how the activated carbon effects the Nitrate and Ammonia Levels.
 - a. Pipette 5mL of the water sample into a test tube.
 - b. Add 3-5 activated carbon pieces.
 - c. Cap the test tube
 - d. Invert repeatedly for 1 minute.
 - e. Record your observations in your data sheet.
 - f. Re-test the “cleaned” water sample using the Nitrate and Ammonia tests from step 3 and record your results in your data sheet.

Pre-Investigation Questions:

1. How do you think water filters (such as Brita or one connected to a refrigerator) work?

2. Draw a diagram of how you think a water filter works here:

Observations	Pre-Nitrate	Pre-Ammonia	Post-Observations	Post-Nitrate	Post-Ammonia

Chemical Filtration Station #2

Directions:

1. Record your observations of the water sample in your data sheet.
2. Test and record the beginning Nitrate and Ammonia levels of the water sample.
 - a. Follow the directions given for each test carefully and record your results in your data sheet.
3. For the water sample, investigate how the Filter Media effects the Nitrate and Ammonia Levels.
 - a. Pipette 5mL of the water sample into a test tube.
 - b. Add One scoop of the filter media.
 - c. Cap the test tube
 - d. Invert repeatedly for 1 minute.
 - e. Record your observations in your data sheet.
 - f. Re-test the "cleaned" water sample using the Nitrate and Ammonia tests from step 2 and record your results in your data sheet.
4. Answer the post-investigation questions

Observations	Pre-Nitrate	Pre-Ammonia	Post-Observations	Post-Nitrate	Post-Ammonia

1. Why do you think it is important to know the Ammonia and Nitrate levels in our water sources?

2. How do you think the activated carbon and filter media will work over repeated uses?

Biological Filtration Station

Directions:

1. Record your observations of each water sample in your data sheet.
2. Note and record the beginning Nitrate and Ammonia levels of each water sample
3. Answer the investigation questions on your data sheet.

Sample	Observations	Pre-Nitrate	Pre-Ammonia	Wednesday Nitrate	Wednesday Ammonia	Friday Nitrate	Friday Ammonia
A							
B							

1. What do you notice about the object sitting in the water samples?

2. What do you predict will happen to the Nitrate levels throughout the week?

3. Why?

4. What do you predict will happen to the Ammonia levels throughout the week?

5. Why