Bay Area Scientists in Schools Presentation Plan

Lesson Name What's in your water?
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Grade Level 5th **Standards Connection(s)** 5-ES: Fresh water is limited and can be made more available to meet needs through recycling and avoiding waste.

Teaser:
Your opportunity to tell teachers and kids what's going to be fun and interesting about your visit!

Water is one of the most important resources in the world. We use water every day for important things like staying hydrated, showering, washing clothes, farming and having fun. But where does water come from? Is it safe to drink any water you find? How does water from a source turn into the water you get from the faucet?

Objective: *As a result of your lesson, what will students learn? What will they be able to do?*

Vocabulary/Definitions:

3 – 6 important (new) words

- Filtration
- Microorganism
- Purification

Materials:

What will you bring with you?

- Dirty water
- Cups
- Coffee filters
- Microscopes
- Sample slides

What should students have ready (pencils, paper, scissors)?

Cleared desks

Classroom Set-up:
Student grouping, Power/Water, A/V, Light/Dark, set-up/clean-up time needed

Students should be in groups of 2 or 3 (no more than 10 groups)

Classroom Visit

1. **Personal Introduction:** **5 Minutes**
   Who are you? What do you want to share with students and why? How will you connect this with students' interests and experiences?

   I'm Gautham, I study bioengineering. My job is to study very small cells. Cells are really small so your eyes need help to be able to see them. In the lab we use fancy microscopes help us see small things.

   Topic Introduction: **10 Minutes**
   What questions will you ask to learn from students? Big Idea(s), vocabulary, assessing prior knowledge…

   Water is a very important resource for our survival. How do we use water in our everyday lives?
   Write their answers on the board and discuss.

   Where does the water you use come from?
   Discuss answers, when someone says faucet, ask how water gets to the faucet.

   We use water for many applications. For a lot of these, it's important to have clean water. Contaminated or dirty water can cause health problems (for example, diarrhea). Where could you find some dirty water? How about clean water?
   Discuss answers
   What is the difference between dirty and clean water? How could we make dirty water cleaner?

2. **Learning Experience(s):** **45 Minutes**
   What will you do, what will kids do? Demonstrations, hands-on activities, images, games, discussion, writing, measuring… Describe in order, including instructions to kids.

   <u>What's the difference between clean and dirty water?</u>
   Demonstrate how water could be filtered with 1-2 coffee filters.

   Distribute dirty and filtered water samples to each group.
   What is the difference between clean and dirty water?
   Ask students to write observations based on the color, smell, anything but taste.

Teach students how to make samples for the microscope. Divide class into groups (no more than 10 total groups), have students make samples and look at them under the microscope. Students should record their observations.

3. **Wrap-up: Sharing Experiences** _____ **Minutes**
   Putting the pieces together – how will students share learning, interpret experience, build vocabulary?

   After viewing samples, class will share observations with each other.
   Discuss: what are the differences between clean and dirty water? What could be the cause of these differences? Why would this be important?

4. **Connections & Close:** _____ **Minutes**
   What else might kids relate this to from their real-life experience? How can they learn more? Thanks and good-bye! Clean-up.

Total 60 Minutes

Follow-up – After Presentation

Suggest students write a letter explaining "How we learned about _____?"
List or attach examples of activities, websites, connections for additional learning.
Attach worksheets, hand-outs, visuals used in classroom presentation.

Students can make their own water filters.
http://www.state.nj.us/education/21cclc/casp/lsc/unit2/Lesson10.pdf

Name:_____

What's in your water?

Draw what you see in the microscope!

Unfiltered Water

Filtered Water

Describe what you see in the unfiltered water

_____

_____

Describe what you see in the filtered water

_____

_____

What differences do you see between the filtered and unfiltered water?

_____

_____

What similarities do you see?

_____

_____

Why is it important to purify our water?

_____

_____

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Nombre: _____

Las cosas en el agua

Dibuja lo que ves en el microscopio.

Agua sin filtrar

Agua filtrada

Describe lo que ves en el agua sin filtrar

_____

_____

Describe lo que ves en el agua filtrada

_____

_____

¿Cuáles son las diferencias entre las aguas?

_____

_____

¿Cuáles son las semejanzas?

_____

_____

¿Por qué es importante purificar el agua?

_____

_____