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Spring 2020

"We Mean Green" Environmental Science Club

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General Information Sheet

WE MEAN GREEN
Environmental Science Club Spring 2020

Grade Level: Third Grade - Fifth Grade

Number of Attendees: 8-12 (Average Attendance: 9)

Length of Club: 10 Weeks, 1 Class/Week, 1 Hour/Class

Content Area: Science

Goal of Club: This club seeks to promote environmental awareness to elementary students through hands-on activities, videos, and discussion.

Resources: Each extra resource is footnoted in the corresponding lesson plan. See Resource page for information/links.

General Directions: Use this meaningful and engaging curriculum to capture the attention of the students and promote awareness of the environment.

Tips and Tricks: Always keep the hands on activities, they are the most effective way to get kids involved and excited. Also be sure each student feels important and has a job to do during each activity. It keeps everyone focused on their unique task and ensures a more positive outcome.

Output or Final Products: Students will not have a comprehensive “final project” rather they will have the products of each hands-on activity/craft to take home with them.

LESSON PLANS

Week 1: Introduction to Environmental Science

Length of Activity: Presentation: 15 minutes, Activity: 30-40 minutes

Supplies: Notecards, Pencils, Access to Computer, Projector

Directions: Following a brief “get-to-know-you” name game, give a brief presentation over the importance of environmental science and different topics which will be covered. Following this presentation, each student was given their moment in the “hot seat”. They were asked two questions: one more about pop culture, “would you rather”, etc. and the other a topic involving environmental science.

Conclusion of the Activity: Each student was given a note card and asked to write something they would like to learn about in this club.

Parts of the Activity that Worked: The kids liked answering questions directly asked to them and the chance to draw pictures on their notecards.

Parts of the Activity that Didn’t Work: Some kids had trouble focusing on the task at hand. This may be because the plan was not hands-on enough.

Links: Presentation

https://docs.google.com/presentation/d/1YCUtS_R4YAmIJEdhM_0DLpFypKUqvq2p8f06HnBUohc/edit?ts=5ea0e3ef#slide=id.p

Week 2: The 3R’s (Reduce, Reuse, Recycle)

Length of Activity: 45 minutes

Supplies: Cardboard from toilet paper tubes, Scissors, glue sticks, colored string, construction paper, craft pom poms, googly eyes, orange/yellow tissue paper

Directions: Students will be creating dragons from the supplies provided (including many commonly recyclable house supplies like the cardboard from toilet paper, string, and tissue paper). Cut the green construction paper to fit around the toilet paper tube. Next, add two green pom poms to the top of one side of the tube and two to the bottom of the same side. Glue the googly eyes to the pom poms on one end. Rip pieces of orange and yellow tissue paper. Glue these strips around the side opposite of the googly eyes.

Conclusion of the Activity: Reflect on how students can recycle everyday items or make them into crafts like shown in this activity

Parts of the Activity that Worked: All of the students participated and seemed to enjoy the activity. Almost everyone followed the instructions, and many asked to make multiple crafts.

Parts of the Activity that Didn't Work: A few students talked over us as we tried to teach, this would cause the entire class to lose focus and no longer engage in the activity. We did not have any construction paper, so we had to use a foam material instead which did not glue together well.

Week 3: Overfishing Activity

Length of the Activity: 20 minutes + 15 minutes reflection and explanation

Supplies: Three containers, goldfish crackers, plastic spoons

Directions: Students will be divided into three groups and each group will have one container (or “pond”) in front of them. 20 goldfish crackers will be added to each container and each student will be given a spoon. This spoon acts as a fishing rod and students will be given 10 seconds per round to grab as many goldfish as they want per round. Students will be “fishing” at the same time. Each student must catch at least one fish to continue on to the next round. At the end of each round, one fish is added per one fish which is remaining in the pond. The number of fish (carrying capacity) may not reach over 40 fish. If a pond runs out of fish, the group can no longer fish.

Conclusion of the Activity: Reflect on what this activity is simulating and introduce key words such as, carrying capacity, overfishing, sustainability, and other terms which relate to this activity.

Parts of the Activity that Worked: The students were able to understand the above concepts at a basic level through visual representations and would answer our questions and relate them back to their own life. Everyone was engaged in the activity and competitive in the game. Students were able to apply the basic concepts of the game to real world examples when we went over it in a reflection.

Parts of the Activity that Didn't Work: A few students got upset during the game if they felt another student “stole” their fish. One or two of the students kept trying to eat the goldfish which we were using in the demonstration instead of waiting for the leftover, clean goldfish.

Week 4: Ecosystem and Food Web Activity

Length of the Activity: 20 minutes + 10 minutes clean up and reflection

Supplies: Ball of yarn, Notecards and Markers

Directions: Go over the meaning of food webs, ecosystems, food chain (producer, primary, secondary), herbivores, carnivores, omnivores...we will do this by having kids match the term to

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the definition on the white board and having a quick discussion. We will ask them for examples and see what they already know about the topic. Note cards with different animals will be passed out to each student and the ball of yarn will be given to one of the kids. They will then make a connection to another animal/plant and get to pass the yarn ball while still holding the string. As more and more connections are made, a “web” will begin to form and they will see how many species are interconnected in an ecosystem

Conclusion of the Activity: Talk about the web and all the connections that were made. Clean up the yarn and make sure the room is clean.

Parts of the Activity that Worked: Students enjoyed tossing the yarn and making connections to different animals. They were far more inclined to participate in the discussion when it was hands on and interactive.

Parts of the Activity that Didn't Work: While most of the students were able to use the string responsibly and listen to our directions and questions, a few of the students would mess around with the string in their hand. We had to monitor those students closely to make sure they didn't wrap the string around themselves.

Week 5: Abiotic and Biotic Factors

Length of the Activity: 25 Minutes Activity 20 Minutes Worksheet

Supplies: Whiteboard, worksheets from the Toronto Zoo Website, and writing utensils for each student.

Directions: Discussion time and introduce new terms (abiotic, biotic, etc)...why are these important to organisms. Next play the Hit the Whiteboard game...terms written on the board and situations are read, two students have to hit the correct term (abiotic vs biotic)...winner stays for next round while other student returns to seat. Hand out worksheet (courtesy of Toronto Zoo)

Conclusion of the Activity: Reflect on what everyone has learned.

Parts of the Activity that Worked: Students enjoyed the competition of hitting the board and the satisfaction of knowing the correct answer.

Parts of the Activity that Didn't Work: It got a bit out of hand with students getting upset if they got the wrong answer.

Links: <http://www.torontozoo.com/pdfs/AquaLinks%20lesson%202.pdf>

Week 6: Environmental Changes

Length of the Activity: 45 Minutes

Supplies: Green fabric 4' x 4', Brown fabric 3' x 3', Green construction paper, Notebooks for each student

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Directions: Read a script version of "The Great Kapok Tree: A Tale of the Amazon Rain Forest" by Lynne Cherry. Give each student a role to read. Watch the "Chameleon Changing Colors" video and discuss with students what is going on. Start the activity: Put the green fabric piece on the big table. Take the construction paper that has been cut into squares and scatter them on the fabric. Have the students stand around the table, backs facing the table so they cannot see.

Explain what each things represent

1. Green fabric = forrest
2. Green paper squares = mantis
3. Students = birds that want to "eat" the manti

Signal the students to turn around and grab as many manti they can in 10 seconds. After 10 seconds, signal the students to stop collecting. Students will then count how many of the manti they have collected. Reset the activity, but this time replace the green fabric with brown fabric. Add all the manti onto the new fabric. Repeat the same "capturing" procedures.

Conclusion of the Activity: Ask the students the following reflection/discussion questions: Why did changing the color of the fabric change how many manti you could collect? How does this activity represent deforestation and population decrease? How could the manti adapt if their habitat is destroyed?

Parts of the Activity that Worked: The students were really interested in reading the script and even asked to read it again but with different parts. They grasped the main points of the skit and answered our questions and how it related to our lesson plan. Most of the students found the camouflage activity fun and this kept their attention for a few rounds.

Parts of the Activity that Didn't Work: We did not initially assign roles and asked who wanted to read which parts. This caused some complaints and took away time from the lesson. To fix this issue, we assigned roles and let those who wanted to switch with others do so.

Links: Chameleon Video <https://www.youtube.com/watch?v=ioblgpA5eTo>

The Great Kapok Tree: A Tale of the Amazon Rain Forest"

<http://www.thebestclass.org/uploads/5/6/2/4/56249715/greatkapoktree.pdf>

Week 7: Water Cycle Information and Activity

Length of the Activity: 45 minutes

Supplies: 15 ziplock plastic bags (Gallon bags), Color markers (e.g. Sharpie Permanent Markers or any non-erasable markers), Water, Blue food coloring, Packing tape or duct tape

Directions: Discuss the water cycle diagram to students by drawing it up on the board. Have students draw the water cycle on to their own plastic bags. Warm water in a pot on the stove in the little kitchen and add it to each kids individual plastic bag. Add blue food coloring into the water in the bag so the water is more visible to the students. Zip the plastic bags and secure them with duct tape/packing tape. Use the tape to hang the bags on the wall so the students can view

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what is happening with the water. As the water begins to evaporate, condensation will form droplets. The droplets will come together making a “cloud”. As the droplets become larger they will slide down the inside of the bag. This is the precipitation stage.

Conclusion of the Activity: Break down and explain what is happening to the water in the bag by using the on board depiction:

1. Evaporation: The water evaporates. Why?
2. Condensation: Why is the water starting to become droplets? (refer to the board and the pictures on the bag that demonstrates condensation).
3. Precipitation - What happens to the water after it is in the cloud? Why is the cloud “shaking”?
4. Collection: Finally the water drops back into the bottom of the bag. How can we tie this into the glass of water activity before.

Week 8: Ocean Graham Cracker Snacks and Magic School Bus

Length of the Activity: 45 Minutes

Supplies: A box of graham crackers, Vanilla frosting, Blue food coloring (for frosting), Package of goldfish crackers, Sprinkles (optional), Plastic knife and spoon to spread frosting(12), Plastic cups for water, 2 pairs of gloves for food prep, Pencils and crayons

Directions: We will be watching “The Magic School Bus in the City” (Season 4 Episode 12) while one of us prepares graham cracker snacks that students can eat while watching. This episode is about the students trying to live as wild animals in the city. While they are in the zoo, the students say that the animals would not be able to live on their own in the city. However, after living as animals in the city, they find that raccoons, foxes, opossums, etc. are able to live on their own in the city. While students watch, we will have them fill out this worksheet we created over topics they cover in the show.

Conclusion of the Activity: Go over the answers and what they learned through this video. With any time remaining, we will have students draw their favorite animal in its natural habitat on the bottom of their paper.

Parts of the Activity that Worked: The students really liked being engaged with us and having a fun snack. The worksheet went over much better than we initially thought as well.

Parts of the Activity that Didn’t Work: We premade the snack to decrease how messy it would be, so the original plan changed there.

WORKSHEET BELOW

Magic School Bus Worksheet

- 1. Why did the bus walk away from the students after they all turned into animals**
- 2. Where did the foxes hide from Jake?**
- 3. What food did the wild raccoon eat?**
- 4. Which animal could smell the scent of the bear?**
- 5. What three reasons make wild animals able to live in the city?**
- 6. Why could the other animals live in the city but the bear couldn't?**

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Draw your favorite animal in its natural habitat here!