Classroom Activity: Wetlands!

Goal: To familiarize students with the value of wetlands, what makes the habitat special, and their function in relation to filtration of water and erosion prevention.

Overview: This activity does have a bit of docent-led dialog, organized into three sections

- Introduction & Poster discussion
- Wetland components discussion
- Experiment with models

Keep the activity and discussions moving quickly, without going too deep in any one direction

Set -up:

- Set up near a sink if possible.
- Fill spray bottles with water
- Wet those sponges that fit under the carpet in the model.
- Display the poster so that students can see it easily from the table and the docent can point to it.
- Have handy the "water+land=wetland" sign
- Have handy the examples of cut tule to pass around when talking about wetland plants
- Put these items off to the side so students don't see them but you have easy access:
  - Both of the wetland models
  - The nutritious food display
- If needed, sprinkle dry soil **ONLY on the model without the wetland** before each group. Only a small amount of dirt is needed

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Introduction Discussion: (With the poster in view)

The Laguna de Santa Rosa is made up of lots of habitats, including wetlands. At this activity we are going to learn about wetlands.

- ***Does anyone know anything about wetlands?***

Possible answers: they are wet; lots of animals live there—birds, mammals, insects, amphibians; they help clean the water. (You will find that some classes have a lot of knowledge, and some almost none.)

Accept all responses then hold up the "water+land=wetland" sign.

Let's look at this poster to find out why freshwater wetlands like the Laguna de Santa Rosa are important

- ***What else do you notice about this wetland?***
  - **Yes! There are lots of animals. Can you name some of them?**
- ***What do animals need to live?***
  - **Just like us they need food, shelter and water.**
  - **Because there are so many animals here, we can tell that wetlands provide lots of food, shelter and, of course… water!**

- **Look here!** (point to magnified image on poster) **There are even very small plants and animals living in the water that we can only see with a microscope.**
- **These small plants and animals start lots of food webs.**
- **Who might eat those tiny plants and animals?**

What about the special plants in the wetland?

- **Some have their roots right in the water!**
- **Can most plants grow in water like this, with their "feet wet" all the time? Probably not because their roots might rot.**

Some wetland plants like tule & cattails have a special design with lots of air spaces in the stem and roots that move oxygen around and keep the roots from rotting. *(*Point out on poster) (pass around tule notice the holes at the cut.)

- *Does anyone know a word that means "special design that helps it live?" ADAPTATION! Tule & cattails are **adapted** to living in the wetland.*
- *Another reason their roots are important is because they help hold the soil in place to prevent erosion (the wearing away) of the land. (*Hold up erosion sign*)*

Do you see evidence of other adaptations that would make the animals good at living in a wetland? (long legs on wading birds, long bills for catching fish, webbed feet for swimming, feet with long toes to keep from sinking in mud, etc.)

Let's take a close look at the soil.

- What do you notice about the soil? Does the soil remind you of anything you have seen?
  - *With the holes, the soil looks kind of spongy doesn't it?*
  - *What do sponges do? They can soak up and hold water!*
  - *So does wetland soil!*
- *Wetlands are important to **us** because they can help prevent flooding in our neighborhoods since they soak up and hold water.*

Water, soil, plants and the habitat they create make wetlands like those in the Laguna really special and important for animals and for us!

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Now I am going to show you some items from a wetland.

(Start by passing around the cattail fluff.)

- **Has anyone seen this before?**
- **It is from this plant here** (*point to cattail on poster*)
    - It is the cattail seed with its hair-like structures that help the seed disperse on the wind
    - **Can you think of ways and animal could use that?** (line a nest, eating the seeds attached to the fluff)

Here are some more objects from a wetland.

(Pass around box with butterfly, etc.)

- **What is in here?**
- **If you were an animal living in the wetland, what would these objects look like to you?** ***Nutritious food!***

Some animals live in the Laguna wetlands all the time. Others, like many types of ducks, just come here for the winter when the Laguna is full of rain water. Other birds just visit the Laguna as a stop during migration.

- **Why?** *(Because of the available water, food and shelter!)*

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Now, let's do an experiment...

- **When scientists want to understand how something works, they often create a representation of what they are studying, called a <u>model</u>.**
- **To help us understand more about wetlands and how they work when they are next to creeks, or rivers or lakes or even the ocean, we made two models:**
    - **one model with a hillside that has a wetland next to the creek t (Imagine the green tape and the rug represent wetland plants)**
    - **and the other hillside model does not have a wetland next to it**
- **Let's create a rainstorm to see what happens to creeks when rain water begins to flow down the hill and across the land.**
    - **Do you have any predictions about what will happen?**

Pass spray bottles to students and invite them to spray water down on the **land** portion of each model. Try giving each student "3 sprays" then pass the bottle. Try not to wet the poster!

Wow! What happened? Let's examine our results...What do you notice about the water?

- The model of the creek without the wetland plants has a lot more water in the creek and that water is muddy! Not much water made it into the creek on the model with the wetland. The water that did make it in is cleaner!

Let's use these sponges to investigate further.

Instruct students to use one sponge to soak up muddy water and squeeze into one container. Use a **different sponge** to soak up water from the model with the wetland (if any!) and squeeze into a **different container**. Pass around containers for student to examine.

Why is there so much dirt in the water of the model without the wetland?

Erosion is why the water is full of dirt! The land is being worn away!

Why does the model with the wetland have less water that looks cleaner?

Because wetlands soak up water—like a sponge! Wetlands provide food and shelter for animals AND wetland plants filter the water and plant roots help prevent erosion of the creek banks.

- **Can you think of anything else that plants could "catch" and keep out of the creek?** (Trash, chemicals)

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Wrap-up:

So, what have you learned about the Laguna and its wetlands?

(Re-open poster)

- There are lots of animals in wetlands. Some live there all the time and others just use it during migration.
- Wetlands like those in the Laguna provide food, shelter and nesting places for animals.
- Wetland plants have special adaptations to move oxygen to their roots.
- Wetlands filter & help clean the water
- The roots of wetland plants help prevent the wearing away of the land (erosion)

Prepare for next group:

- Clean water off the table
- Put models, spray bottles & food box out of sight
- Make sure there is enough water in spray bottle & refill if necessary