

## Lesson Plan - Sophie Kent-Purcell - Option 1: Science

### Materials

- Potting soil
- Grass seed (rye grass is good as it will sprout in 5-10 days<sup>1</sup>) (this is not the kind of grass on Sable island (Marram grass) but is easier to get for this experiment - you can mention this to the kids and even talk about the differences like its height)
- Plastic cups, clay pots, or small glass jars for planting the seeds in (glass jars are ideal because you can see the roots growing and they can be reused) 3 x how ever many groups you plan on having (Max 6 kids per group)
- Three spray bottles
- House salt
- White vinegar
- Markers
- Paper
- gravel

### Plan

- Prepare the materials needed above
- Follow the preparation steps for the planting activity found below before the lesson
- Read the book (in the attached file) and ask the below questions on the appropriate page
- Stop reading after page 6
- Do the planting activity found below
- After the plants have grown discuss differences and read pages 7 & 8
- After this get each kid to draw a picture of how animals use grass on Sable Island, and/or a picture comparing grass grown with polluted/salt water vs grown with fresh water

### Objectives

- Show how animals rely on plants, even those as common and small as grass
- Showcase the importance of keeping fresh water clean and how pollution directly impacts plants and animal
- Teach the difference between fresh and saltwater
- Teach what plants need to grow with an emphasis on water

### Measuring Success

- Can the students describe why grass is important on Sable Island? (how animals use it)
- Do students know what kind of water plants need to grow? And the kind of water they can't grow in?

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<sup>1</sup> Reddigari, M. (2020, September 24). *Solved! the fastest-growing grass seeds for a (nearly) instant lawn.* Bob Vila. Retrieved April 30, 2022, from <https://www.bobvila.com/articles/solved-the-fastest-growing-grass-seeds/>

- Do students understand how putting garbage next to water will affect plants (in very broad terms)?

### **Discussion questions: Page 1**

- Has anyone been to an island before?
  - What was it like?
- What's special about an island compared to other types of land?
  - Looking for it's completely surrounded by water
- Has anyone heard of sable island?

### **Discussion question: Page 2**

What kind of living things do you think the little girl would see on this island?

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- A: Animals Q: what kind of animals?
  - A: Birds, yes there are a lot of birds that live on or pass through sable island Q: where do you think these birds sleep on the island? A: Trees, there is only one tree on the island that's not enough room for all the birds, what other plants might they use for their bed/bedroom/shelter?
  - A: Any other bigger animal, there aren't any of those on sable island ,but there are wild horses (wild meaning they don't live on a farm and don't have any humans to take care of them) if these horses don't live on a farm and have hay to eat? What do they eat?
- A: Plants Q: what kind of plants?
  - Yes to flowers
  - No to trees
  - No to bushes
  - When the answer is no talk about how it's very winding and hard for big things to grow, get them to think about little things that might grow there
  - Yes to grass! This grass isn't like the grass on your lawn, it's taller than your knees

### **Discussion Question: page 3**

Does anybody know what kind of things animals and plants like this need to live, think about the kind of things you need ?

- Food. yes they need energy, for the animals this often comes from the plants (for plants it comes from the sun)
- Shelter yes, animals especially tiny critters and birds, need places to stay safe while they sleep and take care of their kids
- Water, yes!

### **Discussion Question: Page 6**

Has anyone ever tasted ocean water? What did it taste like? Did it taste good? Do you

know what made it taste like that?

### Activity

- **\*\*Preparation\*\***
  - Prepare 3 spray bottles:
    - One with water from the tap, label “fresh water”
    - One with water from the tap + 35grams of salt for every liter of water used, label “salt water”
    - One with water from the tap + plus 4 tablespoons vinegar for every liter of water used ( this is simulating acid rain, which is caused by chemicals emissions from factories mixing with water in clouds, not from garbage near water sources, but will have the same effect and the latter is easier to explain and conceptualize for kids), label “polluted water”
- Tell the class that we’re going to plant three pots of grass and water them with different types of water just like Anna did and then we’ll see what the difference is in how they grow
- Put newspaper or similar on the floor/desks to avoid getting dirt everywhere (or if possible do the activity outside)
- Split the class into small groups, 5 or 6 being the max so that each kid gets to participate
- Give each group 3 small pots (see materials list)
- Get them each to put a little bit of gravel in the pots (just enough to cover the bottom of the pot)
- Ask the class what the next thing we need to put in the pots is? The answer being dirt
- Give each group a tupperware/ bowl filled with potting mix soil and some spoons and tell the to fill the pots but not all the way to the top (have an example to show, it should be around  $\frac{3}{4}$  full)
- Ask them what the next thing we need to grow grass is? The answer being seeds!
- Give each group a container of grass seed and tell them to sprinkle grass seed on top of the soil in the soil and then GENTLY press the seeds into the soil

- Using a paper label (or just a piece of paper to go under each pot) get each group to label (with pictures) each of the pots as one of fresh water (happy faces, rain clouds), salty water (salt shaker ocean creatures), and polluted water (sad faces, garbage), and also make sure each kid puts their name on each pot label. If this is too much for the group just get them to put an F for fresh water an S for salt water and a P for polluted water
- For this first day water (spray) with fresh water, the kids can do this, but show them how to spray and not put too much (soil should be damp)
- Ask them if they know how plants get their energy? The sun! So we should put our plants in the window so the can get sunlight
- Put the pots in the window in three groups (the different watering types) on trays to avoid water getting anywhere it's not supposed to, with the labels so each group can identify theirs
- If in a rush, you can begin watering with non-fresh water the day after, but this will likely cause the ones watered with salt and polluted water not to sprout at all, so....
- For better results, water them all with fresh water until they sprout and then begin watering each with the designated type of water to see how the non-fresh water ones will look much more unhealthy
- Create a list of kids names in each group and each day get the next kid (or next three kids if each is gonna water one pot) on the list to water the pots with the correct spray bottle
- Once the effects of the different water is evident, ask the kids about what they see
  - How did the one with salt water grow
  - What about the polluted one?
  - And how about the one with fresh water?
  - Which one worked the best?