



Vermont Institute of Natural Science
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GRASSES – Adaptations – SLIDE SHOW (Grades 3-6)

1. RHODE ISLAND BENT
Grasses cover a third of the world's land area, and half of the United States. There are about eight thousand different kinds of grasses in the world, like this Rhode Island Bent.
2. FOXTAIL
The names of some grasses suggest that they look like something else, like "Foxtail"...
3. SQUIRREL TAIL
..."Squirrel Tail"...
4. BOTTLE BRUSH
...and "Bottle Brush".
5. TIMOTHY
Timothy grass was named after Timothy Hanson, a colonial farmer who promoted its use as an animal feed.
6. CORN TASSEL
You might be surprised that corn is a grass...
7. SUGAR CANE
...so is sugar cane...
8. BAMBOO
...and so is bamboo.
9. PHRAGMITES (MARSH REED)
Special adaptations have helped grasses to be successful. They can withstand dry soil, fires, hot summers, and cold winters. And they are able to thrive in many different areas, even in places where few other plants can grow. These marsh reeds are growing in a disturbed salt marsh.
10. GIRL WITH GRASS PLANT
What's the first thing you notice about the shape of a grass plant? [*Pause for answers*] Its leaves and stems are slender enough to bend in the wind without breaking, yet wide enough to gather sunlight.
11. GIRL WITH GRASS ROOTS
Many grasses can spread very quickly with underground stems called *rhizomes*. These grow leaves on top and roots below, helping the plant cover large areas. In one four-month old rye plant, the total combined length of all the roots was measured to be about 387 miles! If a piece of a rhizome is cut off, it grows into a new plant. This is one reason why some kinds of grass, such as witch grass, can be so difficult to get out of a garden!

12. DUNE GRASS

Up to 90 % of the grass plant is below the ground. The roots form a dense mat of tangled small rootlets, which are very good at gathering rainwater. These dense roots hold on to soil, preventing erosion and allowing the grass to grow on windy dunes or in mucky marshland.

13. GRAZING SHEEP

Grass roots store food and water for the plant. If the grass gets dried out, burned over, or grazed by animals, it can use this stored food and water to grow back again. Because grasses contain large amounts of cellulose and silica, animals that graze on them must have special adaptations to their teeth and digestive systems. Animals like deer, cows, and sheep have multi-chambered stomachs where bacteria help break down the cellulose in grasses. These animals also grind their food with flat back molars and “chew their cuds”.

14. NODES

Unlike other plants, grasses can sprout new leaves from any of the *nodes* along the stem.

15. HAYFIELD

This means that most grasses can be mowed over and over and still grow back green and healthy.

16. GOLDENRODS IN OLD FIELD

If a field is mowed regularly, the grass plants’ tangled roots out-compete other plants. When a field is not mowed, a variety of wildflowers and shrubs move in – fireweed, lupine, blackberry, and others, which give way in their turn to fast-growing trees – poplar, beech, birch, and white pine – as the field returns to forest. What does that tell us about this field of goldenrod? (*apparently this old field has been abandoned*)

17. SWEET VERNAL GRASS

You might not have noticed their flowers, but grasses do bloom. Their flowers don’t have to be large or brightly colored because they are not pollinated by insects or birds. How else might the pollen be spread from one plant to another ? (*wind*)

18. SHEEP FESCUE

Here you can see the dangling, pollen-laden flower parts, called *anthers*, that are well-adapted for wind pollination. Do you see the feathery *pistil*? (*upper center of slide*) It is ready to catch the pollen.

19. BROWN SEED HEAD

The reason for all these flowers is to make seeds, and grass plants make lots of them. The seeds will spread to create new grass plants elsewhere.

20. CHILD WITH FOOD

Bearing plenty of seeds is an adaptation that is helpful to humans, too! Our most important foods are made from the seeds of grasses. How many grasses have you eaten today?