Name_____

Restoring the American Chestnut

Step 1: Read the following entry about the chestnut blight from *forestpathology.org*.

http://www.forestpathology.org/dis_chestnut.html

Step 2: Answer the fungus questions.

Define:

Ascomycete

Ascospore

Blight

Cambium

Canker

Conidia

Mycelium

Parasite

Pathogen

Vascular bundle

Using your book and internet dictionaries, answer the following:

1. List the general characteristics of fungi.

2. List the general conditions in which fungi like to grow.

Name_____

Restoring the American Chestnut

3. What is the main reproductive part of a fungus?

4. What do most fungi send out through their mycelium?

5. Is this fungus likely to be unicellular or multicellular since it is an ascomycete?

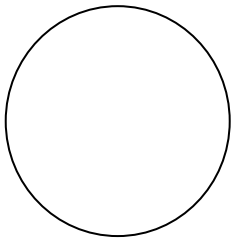
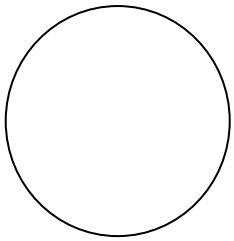
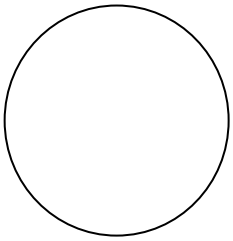
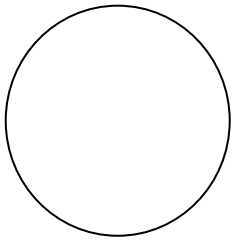
6. Why is this fungus considered to be a parasite?

7. Is there a cure for this disease? Explain.

Step 3: Fungus Among-us

Fungal spores are around us right now. They are in the air, on surfaces, even on you. If a spore finds a suitable spot, with the right conditions, it will grow. You may even be able to see mycelium and spore sacks if it grows enough.

1. In groups of two, obtain a petri dish that has been filled with growth medium. Place your and your partner's initials on the bottom of the petri dish.
2. Take the lid off of the petri dish so that the growth medium is exposed to the air for 2 minutes. At the end of 2 minutes, replace the lid and tape sides closed. You should not open the dish on the remaining days.
3. In the space provided, draw what your petri dish looks like.
4. You will observe your dish for the next 4 days and each day you will draw your observations. On the final day of observation, observe your dish under a magnifying glass and record your findings.

Day 1: 	Day 2: 
Day 3: 	Day 4 (with magnifying glass): 

Name_____

Restoring the American Chestnut

Step 4: Celery lab

The fungus that attacks the American chestnut tree enters through cracks in the bark and blocks materials from flowing through its vascular tissue. We will illustrate how this kills the tree by using celery as an example. Some of the vascular tissue in celery is in the "strings." If we interrupt water flow through the "strings" we will see how this affects the plant.

1. Get three 50 mL beakers for your group of two. Place your and your partner's initials on the outside of each beaker. Also, label the beakers C for control, 1N for one notch, and 3N for three notches.
2. Fill each beaker with 40 mL of water and place 1 drop of red food coloring in each beaker.
3. Get three pieces of celery for your group. Make a fresh cut across the bottom of each celery stalk approximately 1 cm from the end. Measure the length of each piece of celery in cm and record the information in the chart provided.
4. Place one stalk in the beaker labeled "C."
5. For the second stalk, cut a V-shaped notch in the side of the celery. Make sure it is at a height that will be above the water line in the beaker. The notch represents the area of the stalk that is damaged by the fungus. Place this stalk in the beaker labeled "1N."
6. Finally, cut three V-shaped notches in the last piece of celery at various heights. Again, be sure that the notches are at heights that will be above the water line. Place this stalk in the beaker labeled "3N."
7. You will record your observations in the chart provided for a total of 4 days. Each day, measure how far the water has moved up the stalk, the food coloring is to help you see this. Also note if the water seems to be evenly distributed in the stalk (can you see red in all of the vascular tissue?)

Celery stalk	Height in cm of stalk	Height in cm water moved up stalk	Did the water move evenly up the stalk
C: Control		*Day 1*	*Day 1*
		Day 2	*Day 2*
		Day 3	*Day 3*
		Day 4	*Day 4*
1N: 1 notch		*Day 1*	*Day 1*
		Day 2	*Day 2*
		Day 3	*Day 3*
		Day 4	*Day4*
3N: 3 notches		*Day 1*	*Day 1*
		Day 2	*Day 2*
		Day 3	*Day 3*
		Day 4	*Day4*

What is the purpose of the vascular tissue, what happens to the plant if the vascular tissue becomes damaged? Write a short paragraph to explain your answer using the data you collected.

Steps 3 and 4 adapted from "Charlie Chestnut," a teachers curriculum guide from The American Chestnut Foundation.