

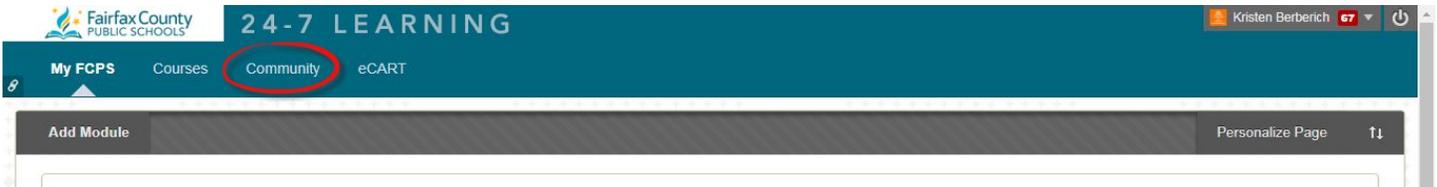
Course	Honors Biology
Teacher Names & Email Addresses	Jefferson - majefferson@fcps.edu Berberich - kmberberich@fcps.edu Hill - rhill3@fcps.edu Cuevas-Mehra - micuevasmehr@fcps.edu
Assignment Title	Required Honors Biology Assignment Fast Plants Webquest to prepare for Science Fair Project
Date Assigned	Summer 2018
Date Due	Due: 9/4 (O), 9/5 (W)
Objective/Purpose of Assignment	To prepare for the freshmen science fair
Description of how Assignment will be Assessed	Questions 1-9 will be assessed in September (3 points) Questions 10-11 will be assessed with the Literature Review assignment in October (10 points)
Grade Value of Assignment	The Science Fair is a total of 50 points that will be included in the Final Exam Grade added at the end of the school year.
Tools/Resources Needed to Complete Assignment	Internet access to website and databases
Estimated Time Needed to Complete Assignment	3 hours

Required Honors Biology Assignment
Fast Plants Webquest to prepare for Science Fair Project
Due: 9/4 (O), 9/5 (W)

Hayfield Science Fair Blackboard

All of the resources throughout the Science Fair are posted in a Blackboard Community. You will self-enroll into this community to access these materials:

1. Go to <https://fcps.blackboard.com/> and login with your Student ID and password.
2. Click on the Community tab (see below)



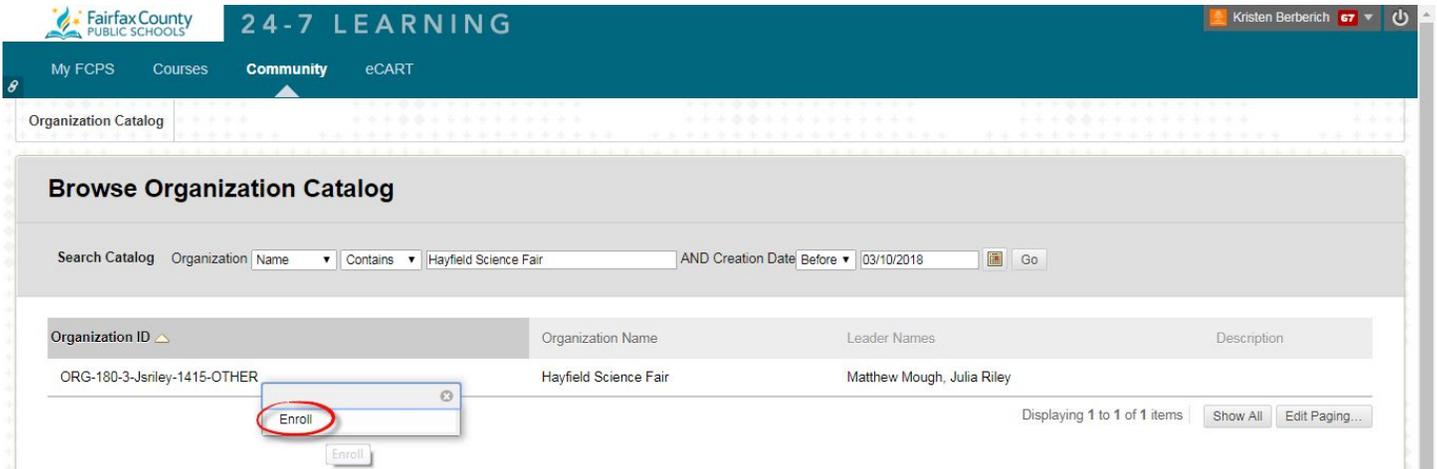
3. In the Organizational Search box type in "Hayfield Science Fair" and click "Go" (see below)



4. You should see one organization with the Organization ID: ORG-180-3-Jsriley-1415-OTHER. Hover your mouse over the ID and a circle will appear. (see below)



5. Click this circle and a drop down menu will appear. Click “Enroll.” (see below)



6. Click “Submit” in the bottom right corner.



7. You are now enrolled in the Hayfield Science Fair Blackboard Community!

8. Almost everything we will use this year is under the “For Freshman” tab.

Hayfield Science Fair Blackboard Community Webquest

Look around the “For Freshmen” tab and answer the following questions.

1. How many total points is the Science Fair (look at “How to Keep Track of your Science Fair Grade”)? _____
2. When do you start data collection for the practice round (look at the Science Fair Calendar)? _____
3. When do you start data collection for the experimental round? _____
4. When is the Literature Review due? _____
5. Where do you turn in the Research Plan? _____
6. Is the Abstract a group assignment or an individual assignment? _____

Photosynthesis

Your Science Fair experiment will involve growing plants. In order to successfully complete your science fair project you will need to have an understanding of Photosynthesis.

1. Watch the Amoeba Sisters video titled "Photosynthesis and the Teeny Tiny Pigment Pancakes" found at <https://www.youtube.com/watch?v=uixA8ZXx0KU> and write a strong paragraph summary or attach your notes from the video.

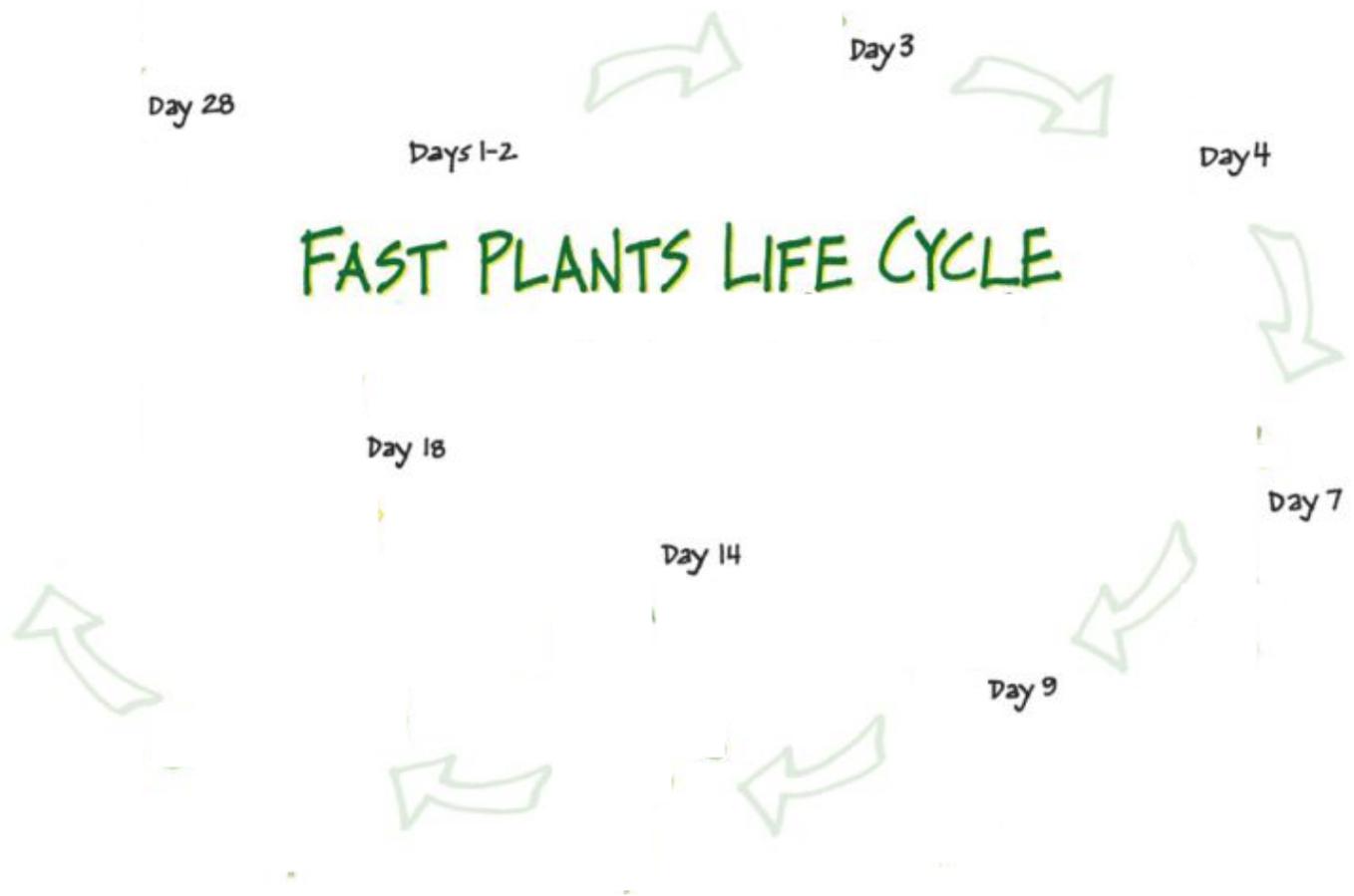
Wisconsin Fast Plants

The specific plant you will be using to conduct your experiment is called Wisconsin Fast Plant. To become familiar with these plants, go to www.fastplants.org and answer the questions below. Click on the blue circle to the right on the website called "Origin of Fast Plants"

1. What is the scientific name for Fast Plants? _____
2. What plants are Fast Plants closely related to? _____
3. List the four reasons that these plants are suitable to use in the laboratory:
 - a. _____
 - b. _____
 - c. _____
 - d. _____

Click on the tab at the top called "Grow." Scroll down to the Life Cycle of Fast Plants diagrams. Click on each day to see more information.

4. On the next page, draw the life cycle of Fast Plants and label the following parts: (you have to read the information to figure out where each part is)
 - a. Seed
 - b. Root
 - c. Stem
 - d. Cotyledon
 - e. Meristem
 - f. Flower
 - g. Seed pod



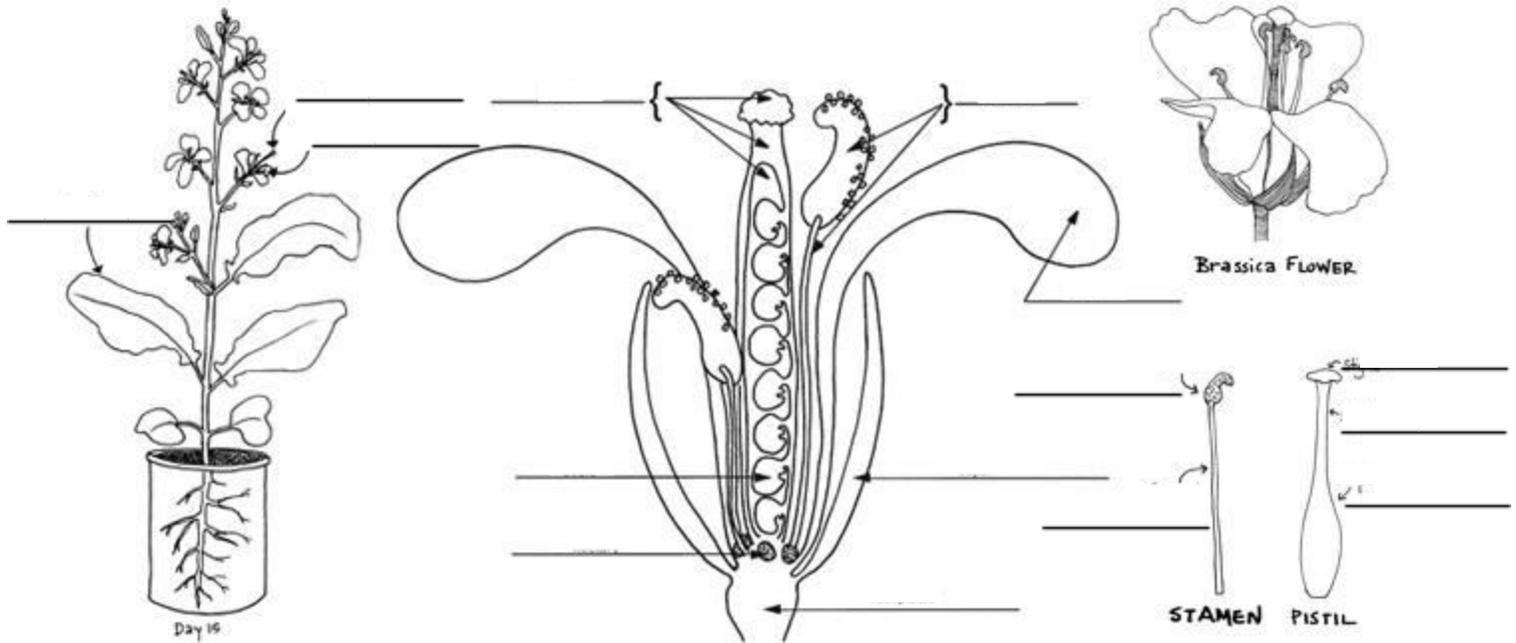
5. Click on Days 21-40. What is found inside a seed? _____

Scroll up the page and find the yellow circle titled "Plant and Tend." Then click the "Learn More" just below that circle. Scroll down and watch the Germination video.

6. What is germination? _____

Scroll down to "Flowering." Click on the pdf titled "Structures and Functions Basics: Flowers and Bees."

7. Using the diagrams on the pdf, label the parts of the flower below:



8. Go back to the Wisconsin Fast Plants website and click on "Seeds" at the top of the page. Scroll through the different seed variants available. Choose 3 and describe how each variant differs from standard Fast Plants. (You will be provided with seeds and a growing location at school).

- a. _____
- b. _____
- c. _____

Choosing Variables and Designing your Experiment

1. Watch the PREP program video titled "Arabidopsis Control Variables" found at <https://www.youtube.com/watch?v=hjCvIbYoi-w>.
 - a. Which variable could also be called the "cause" in an experiment? _____
 - b. What are the four big control variables to watch for when growing plants?
 - i. _____
 - ii. _____
 - iii. _____
 - iv. _____
 - c. Why is it important to "control" these four variables in a scientific experiment? _____

2. **Experimental Question:** To develop your science fair project, you will grow Wisconsin Fast Plants under a condition/environment that is different from the wild. This condition will be your independent variable! Scientists perform experiments like this to gather information that helps the community make decisions about agriculture, medicine, and public services like trash disposal, irrigation, pollution, recycling, public transportation, etc. Scientists do not do experiments just to "advance our knowledge." Experiments, including yours, are done to provide solutions to real world problems. Research a real world problem related to growing plants that you are interested in. Write a question that you want to explore with your experiment:

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3. **Background Information:** Before you make your hypothesis for your experiment, you will gather background information. Look for 3 articles from reputable websites (.edu, .org, or .gov) that interest you and pertain to:
- a. Wisconsin Fast Plants' growth and development
 - b. The research capabilities of Wisconsin Fast Plants (why is it good for research?)
 - c. Other ways this plant has been used in research
 - d. Photosynthesis and what plants need in order to grow
 - e. How plants react to their environment
 - f. Environmental conditions that are linked to your question (ex. if you are interested in copper, research how copper could get into a plant's environment and how plants react to copper in the soil, water, or air)
4. **Writing:** For each article/website, write a summary. Each summary should be half a page (three articles so you should have a total of 1.5 pages of writing), Times New Roman font, font size 12, double spaced, with standard margins (1 inch top, bottom, sides), and in your own words.