

GMO Web Quest

Name: _____

- Identify and classify plant pests (i.e., insects, pathogens, weeds, diseases, animals)
- Select and use methods of asexual plant propagation for desired traits (e.g., grafting, layering, cuttings, cloning)
- Select and apply macronutrients, using basic application methods, and recognize the effect on plants and environment

Go to the website: <http://www.pbs.org/wgbh/harvest/>

Next you will select different tabs to complete activities. If you do not have a printer, just answer the 20 questions on a sheet of paper!

CLICK ON GUESS WHAT'S COMING TO DINNER?

When you click on each item on the dinner table, a short explanation on what new modifications are being made with this item will be displayed. Click your way around the table to explore what is changing on our dinner table!

1. What is changing with how we can cook French fries?
2. Which food may one day replace getting a vaccine in the traditional form of a shot?
3. Where (in the world) will the vaccination technology be the most beneficial?
4. Into what three crops are we trying to add vitamins and minerals not normally found in the crop?
5. How would the change in coffee production be a benefit to the coffee producer?

ENGINEER A CROP

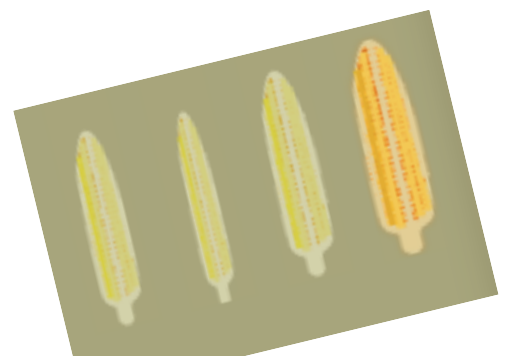
First you must read the introduction paragraphs on the left side of the screen. This explains the difference between selective breeding and transgenic breeding. There are two lab activities that you will conduct.

First click on **Selective Breeding**

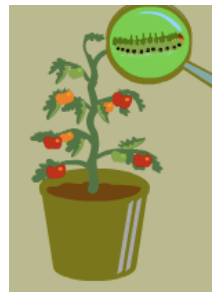
6. After reading the first slide, what trait are you trying to selectively breed for?

7. Click begin, and try to select the cob that will pass on the best genetics for the trait we are breeding for. How many generations did it take before you got to the optimum crop?

8. What are the negatives for this type of plant breeding?



Click on **Engineer a Crop** again, and this time select **Transgenic Manipulation**
First you must read the introduction paragraphs on the right side of the screen.



9. What type of transgenic plant are you going to create in this lab?

10. What does Bt stand for? What does it do?

Click on **Begin**.

Step 1 Take the toxin gene from a stretch of Bt DNA and combine it with a vector.

11. What is a vector?

12. What gene besides Bt has been added to the vector?

Step 2 Add the vector to the bacterium.

13. Why do we put the vector into the bacterium?

Step 3 Move the bacteria to the growth medium for bacteria

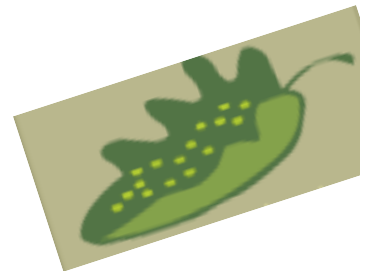
14. How fast do bacteria grow?

15. In this case it's a good thing, but in what cases can it be bad?

Step 4 Add pieces of the tomato plant's leaf to the bacteria.

16. What genes are being added to the tomato leaf pieces?

17. What is the nucleus of a cell?



Step 5 Move the plant cells to the growth medium for plants.

18. Why did we move the plant cells to a different media?

Step 6 Spray herbicide on the plant cuttings.

19. Why do we spray the plant cells with herbicide? What are we left with?



Step 7 & 8 Transfer the plant to the growth chamber. Examine the plant to determine if it has the desired trait.

20. How do we know if our plant has the Bt genes?