



*Kentucky Agriculture &  
Environment in the Classroom, Inc.*

## **Create a Genetically Modified Organism (GMO)**

The following activity was developed by nationally-recognized West Hardin Middle School teacher Leslie Meredith. The lesson was presented at the National Agriculture in the Classroom Conference.

### **Purpose:**

- Students will learn how a GMO is created for real-world application.
- Students will investigate and discuss the advantages and disadvantages of using genetic modification and biotechnology in our food supply.
- Students will determine a challenge in food production and create a new organism from multiple organisms to be a solution.
- Students will create a visual representation of their GMO.
- Students will give an oral presentation about their GMO to the class.
- Students will write a slogan and article about their GMO.

### **Background:**

View the resources at <https://www.teachkyag.org/lessons/biotechnology-dna-amp-gmo-resources>. Many of the lessons provided have wonderful background information.

## Create a Genetically Modified Organism (GMO)

Your task is to create a new GMO that will help feed the world's growing population.

1. What is the name of your organism? \_\_\_\_\_
2. What is your "base" organism? \_\_\_\_\_
3. What different organisms (genes) have you combined to make your "**new and improved**" organism?  
How does each *gene* help your organism to be productive? (*answer these questions below*)

Source of the genes (organisms)	Purpose of the gene

4. Explain the benefits (environmental, nutritional, medicinal...) of your modified organism? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
5. Explain the characteristics that help feed the world's growing population? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
6. What are some concerns people might have about the new organism? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
7. **\*On the back of this paper.** Draw a picture of your new organism, write the name & **color** it.
8. Create a slogan to help promote your organism & write it under your drawing and on the blank below.  
\_\_\_\_\_

## GMO Design Checklist

### Design: (75 pts)

- A unique name has been created.
- At least 2 foreign genes have been used and an explanation has been included for the purpose of inserting these genes.
- The organism is creatively designed to help the environment (or at least it will not hurt our precious environment.)
- The GMO has the potential to help feed our growing population.
- Societies concerns are well thought out and include ideas we discussed in class.
- The picture is creative, a mixture of the different organisms and has color.
- The slogan is included with the picture.

### The presentation: (25 pts)

- Clear, loud voice while presenting.
- Each question on the worksheet is addressed during the presentation.
- The picture is shown to the class.
- Questions are answered to the best of the presenter's knowledge.

## New Organism Article

### I. Introduction

- A. Attention grabber (General statement, question, or statistic) \***Hint**, see if either of these questions can help you get started.
  - a. Is the demand for food greater than the supply?
  - b. What happens when the world can no longer feed itself?
- B. Introducing the organism
  - a. How the organism was created exactly
  - b. Description of the organism
  - c. Name (What is it called)
  - d. Why was the organism created/invented?

II. Habitat or biome (describe where it lives). How does that effect how it grows, and helps to feed the growing population?

III. Food source (Predator, prey, carnivore, herbivore, etc.)

IV. Hunting techniques (stalk, ambush, run down, infrared, heat sensor, radar, sonar)

V. Mating and gestation period

VI. Life span

VII. Conclusion

## GMO article

### *Genetically modified organism Rubric*

Name \_\_\_\_\_

\_\_\_\_\_/10 Project is on topic.

\_\_\_\_\_/10 All pieces of the introduction are complete.

\_\_\_\_\_/10 All pieces from the 2<sup>nd</sup> paragraph about the organism's niche are included.

\_\_\_\_\_/10 All pieces from the 3<sup>rd</sup> paragraph about the life span are included.

\_\_\_\_\_/10 The conclusion wraps up the article nicely.

\_\_\_\_\_/10 Student writes with ownership and pride.

\_\_\_\_\_/15 It is seen that project was completed independently with original thought and the writing is creative and completed neatly.

\_\_\_\_\_/15 Proper spelling, punctuation & capitalization.

\_\_\_\_\_/10 The writing was completed on time.

Total \_\_\_\_\_/100 Points