Student Sheet

Title: Mutant Radishes name_____

Introduction: Scientists have known for some time that radiation is harmful to DNA and can cause mutation. Sometimes the mutation is positive and the organism is better able to survive. Most often, mutations are harmful. In this activity you will germinate radish seeds that have been radiated to different degrees. Radiation is measured in "rads". The more rads, the more radiation the seeds have received. You will see the effect of radiation on radish seed germination and growth and see if more radiation produces more mutations. You will also choose a form of radiation to expose seeds to and design your own experiment.

Materials: control radish seeds, irradiated radish seeds, petri dishs, paper towels, small beaker

Procedure, Part 1

1. Label the lid of your petri dishes. One is control, the other two are the tests. On the test lid write the number of rads your seeds had. You are assigned _____rads and _____rads
2. Observe the radish seeds for the next 8 days. Record observations on data sheet. Trade dishes with other groups for the ones you don't have.
3. On the final day, pick a seedling that represents each dish and draw it.

Prediction: How will the radiation affect the germination and growth of radishes?

Data:

Dish	Date	Observations and final drawings
Control		
50,000 rads		
150,000 rads		
500,000 rads		
4,000,000 rads		

Procedure, Part 2

1. With your group, research and decide what type of radiation you would like to expose some radish seeds to.
2. Decide the length of time they will be exposed.
3. You will have about a week to radiate the seeds. Some may need to be exposed the entire time, depending on the form of radiation you chose.
4. Have the seeds ready on the date your teacher asks.

Your procedures:

5.

6.

7.

8.

9.

10.

Your data:

Radish Analysis:

Part 1

1. What was the main difference between the control seedlings and the irradiated seeds?

2. How did increasing the amount of radiation affect the radishes?

3. Where does radiation come from in nature?

4. What controls seed development and growth?

5. Do you think these results would be useful in determining the effect of radiation on people? Why?

6. Why would an experiment that would provide information regarding the effects of radiation on people be difficult to do?

Part 2

7. How did the radiation your group chose affect radishes?

8. If you were going to do the experiment over, what would you do differently?

Conclusion: