

Who is responsible for returning lab material to the proper location?

Student



What does "flammable" mean?



Can catch on fire

Don't place flammable object by a flame

What does "corrosive" mean?

harmful- can damage skin/eyes



In any emergency, what is the first thing you should do?

Tell the Teacher



Objective: Students will identify and describe appropriate safety measures for the science classroom

To get out: Signed Safety Contract - Turn this in

To get: Blue Warm Up Paper

Homework: Safety Quiz Tomorrow

**Agenda: Radish Seed Lab Set Up
Review Safety Scenarios**

Lab Set up:

Testable Question: How does the concentration of salt (NaCl) in water affect the speed of germination of radish seeds?

Materials:

20 radish seeds (10/petri dish)

salt water solution

paper towels

ziploc bags

Name
0 mg/L
Pd ___
Table # ___

Name
_____ mg/L
Pd ___
Table # ___

Label your ziplock bags

Procedures:

Each group will get 2 ziploc bags.

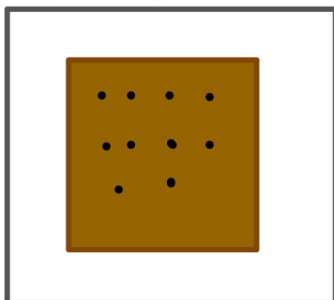
1 ziploc bag will be their control group:

Distilled Water + 10 seeds in a paper towel

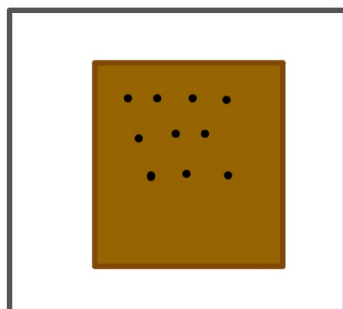
1 ziploc bag will be their experimental group:

Salt Water solution + 10 seeds in a paper towel

Label your ziploc bag with concentration and your names



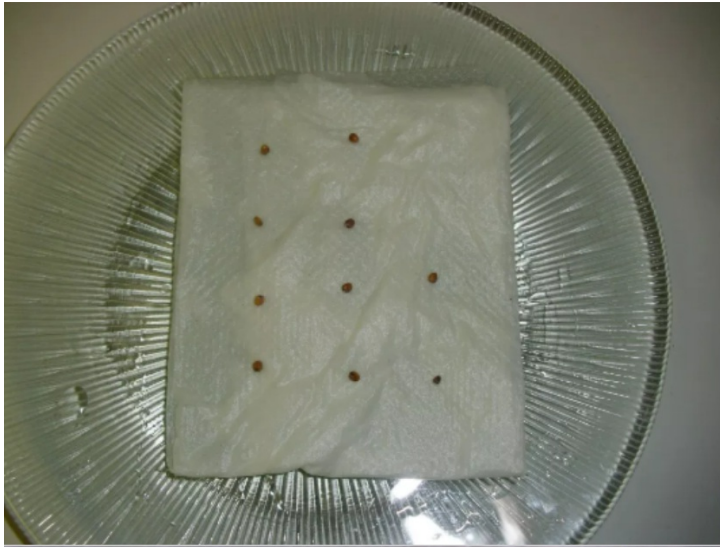
**Control Group:
Distilled water
+ 10 seeds**



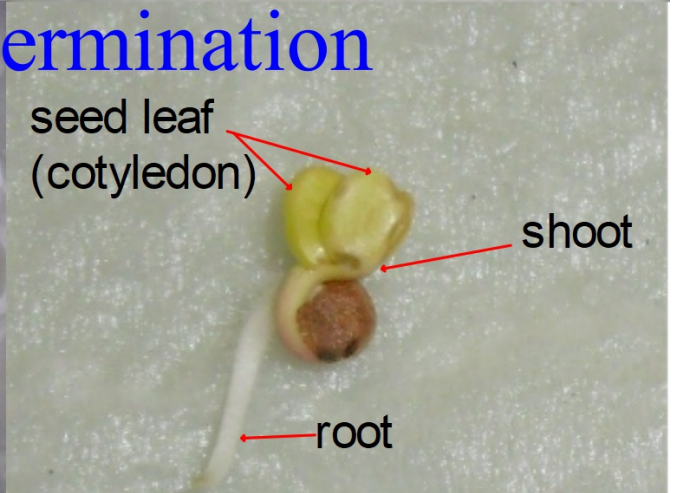
**Experimental Group:
Salt water solution
+ 10 seeds**

Each row in the class will have a different salt water solution to test:

100 mg/L salt water
250 mg/L salt water
1000 mg/L salt water
3000 mg/L salt water



Seed Germination



A SALT CONCENTRATION GUIDE in mg/L:

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67.5	Harms forest pine trees
100	Maximum allowed in NYC drinking water
226	Kills tiny freshwater plants and animals
250	Tastes salty. Maximum allowed in drinking water by the Environmental Protection Agency
400	Will kill some freshwater frogs
1,000	Will kill some freshwater fish like trout. Considered to be brackish or salty water
3,000	Lowest salt level found in the New York/New Jersey estuary
30,000	Highest level in the New York/New Jersey estuary
32,000	Average in ocean off of Long Island and New Jersey

Name _____ Date _____ Period _____

CER
Effect of Saline Water on Seed Germination

Testable Question

How does the concentration of salt (NaCl) in water affect the speed of germination of radish seeds?

Materials

20 radish seeds (or more depending on supplies available)
salt
water
paper towels
2 or more plates, weigh boats or other container for seed germination

Procedure

1. Make a claim that answers the Testable Question.

Claim:	 <hr/> <hr/> <hr/>
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Plan your experiment below

Independent Variable (one thing you are changing)	Dependent Variable(s) (what are you measuring)	Controlled Variables (all the things that must stay the same)

2. Label the test containers with the water treatment being tested in that container. Remember to include a control condition.
3. Place a folded paper towel on each of the containers you are using for the experiment and add enough of the water being tested to be very wet.

**Get out this paper
and fill out the claim**

Testable Question: How does the concentration of salt (NaCl) in water affect the speed of germination of radish seeds?

Concentrations we are using in this lab:

0 mg/L (distilled water)

100 mg/L

250 mg/L

1000 mg/L



3000 mg/L

Make a claim that answers the Testable Question

Claim

Radish seed germination will be affected at __ concentration

Planning our experiment below:

Independent Variable (one thing you are changing)	Dependent Variable (s) (what are you measuring)	Controlled variables (all the things that must stay the same)
Salt concentration 	% germinated 	# of seeds amount of water amount of time



4. Place at least 10 seeds on the wet paper towel.
5. Cover with a second damp towel moistened with the same water as the bottom towel.
6. Monitor the progress of the seeds and record data according to the experimental plan. Remember to cover the seeds with the correct moist towel after each observation.

Evidence/Data:

- Salt concentration being tested in experimental group: _____ mg/L
- Number of seeds per treatment group: 10
- Number of radish seeds germinating:

Time (Day)	Control Group 0 mg/L NaCl		Experimental Group ____ mg/L NaCl	
	Number of seeds germinating	%	Number of seeds germinating	%
0	0	0	0	0
1				
2				
3				
4				

Calculating %: $\frac{\# \text{ observed germinating}}{\text{Total number of seeds}} \times 100 = \%$



Make a poster in your group that shows/tells how the scenario should be prevented and how we should respond to minimize the harm.

Class Example:

1) A student is working hard on a chemistry lab experiment that uses a strong acid. Halfway through the lab, the student gets hungry and starts eating a bag of chips. When the student licks their fingers, they start to have a severe reaction.

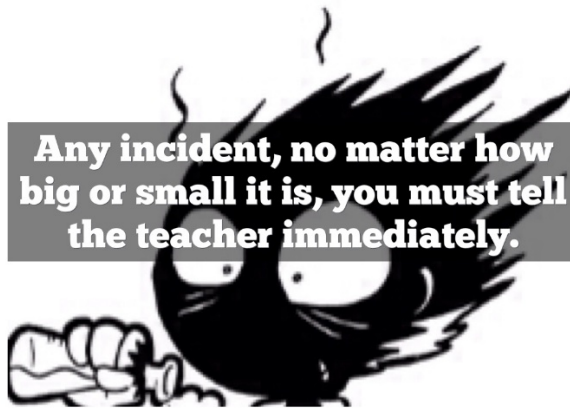
**Prevention:
No Eating in lab**



or you can end up like
Zandra

Response

Any incident, no matter how big or small it is, you must tell the teacher immediately.



2) During a chemistry experiment, a student carefully pours an unknown solution from a test tube into a beaker. Another student sneaks up behind them and surprises their friend. The student accidentally drops the beaker on the floor, and pieces of glass land on their sandaled feet.

3) A student with long hair (or loose clothing) is heating a solution over a Bunsen burner. As the student leans over the burner to reach for something, their hair (or clothing) catches fire.

4) A student is excitedly telling their friend their plans for the weekend, and is not listening to the teacher's lab instructions. During the lab, the student mixes two of the wrong chemicals together and an uncontrolled chemical reaction occurs.

5) A student is in the middle of a science experiment where they have to boil a solution for a long time. When the student gets bored and wanders over to talk with their friends, a sweatshirt they left on the desk near the hot plate catches fire.

6) A student is working on a lab where they are trying to identify an unknown substance. The student decides to smell the solution by taking a big breath over the test tube. They immediately start to cough and their lungs are burning.

7) A student is rushing to finish their chemistry lab. They accidentally spill some acid on the desk, and decide to clean it up with a paper towel before leaving. In the next class, a student sits down at the desk and starts to have a reaction to the acid.

8) A student is adding small drops of acid to a solution. They are leaning in closely to count how many drops of acid they are adding. The acid splashes and gets in their eyes.

9) A student had a lot of chemicals left over from the investigation. The bell rings and the student dumps the chemicals down the sink. A student from the next class period turns on the sink and the water splashes into their eyes. Their eyes turn red and are itching.

Groups share out their scenario and poster

THE TEACHER!

- **ALWAYS** listen to/ask for help from/follow the instructions of the **TEACHER!**
- **Tell me EVERYTHING!**



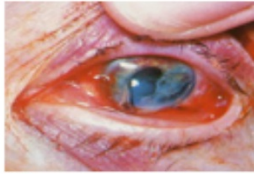
Your Clothes

- Tie back your hair
- No loose clothes or dangling jewelry
- NO sandals!
Closed toed shoes only!
- Let me know if you wear contacts

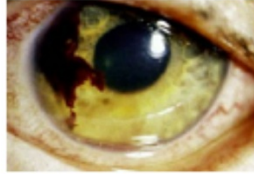




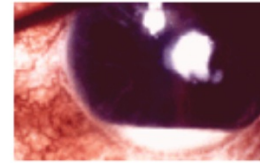
GOGGLES!!!1!!!1!



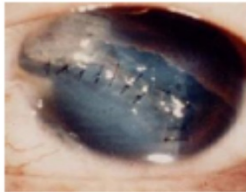
Sharp trauma



Blunt trauma



Chemical splash



Broken glass



Eye penetration



Pencil

- **NOT NEGOTIABLE!**

- I don't care that they hurt your head, make a red mark on your face, look lame...whatever, get over it



The Experiment

- **READ** the directions and only do what they ask you to!
- **Don't touch anything until instructed**
- **Don't smell, touch, or taste stuff...it's weird**



Your Work Area

- **Keep it clear and clean!**
- **No unnecessary papers, keep things dry**
- **No backpacks in the walkway!**
- **No horseplay! You're not being wacky...you're just a jerk**



Chemicals

- **FLAMMABLE:** Can catch on fire easily
- (shouldn't be near an open flame)



- **CORROSIVE:** Dissolve materials easily, including clothes and skin



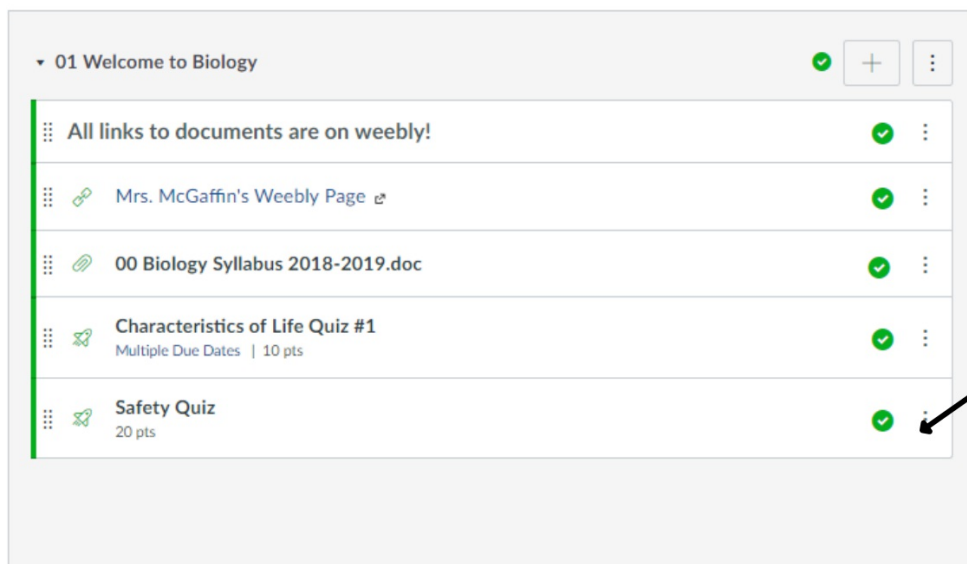
Safety Scavenger Hunt

1. **Goggles- Rule 21:** Must be worn with hazardous chemicals or glassware. Glasses don't count!
2. **Fire Extinguisher- Rule 10:** Know safety equipment locations. You will NEVER use this equipment
3. **Teacher- Rules 2, 3, 4, 6, 12, 25, 26, and more I'm sure:** Tell me EVERYTHING
4. **Fire Exit- Rule 10, 18:** Know fire exit procedure even during lab.
5. **Trash Can- Rule 10:** Know safety equipment locations
6. **Fire Blanket- Rule 10:** May be used, but only by me
7. **Emergency Shut-Off Buttons (2 of 'em)- Rule 10**
8. **Eyewash/Emergency Shower- Rule 10, 27:** If chemicals get on your skin or eyes, you may need the eyewash or shower only AFTER telling the teacher.
9. **Exits (3 of 'em)- Rule 10**
10. **Walkways- Rule 9, 8:** Keep walkways clear and your work area clean.



On your chromebook go to myMCPS classroom

Take the Safety Quiz



The screenshot shows a classroom dashboard titled "01 Welcome to Biology". It contains a list of items, each with a green checkmark and a three-dot menu icon on the right. The items are:

- All links to documents are on weebly!
- Mrs. McGaffin's Weebly Page [↗](#)
- 00 Biology Syllabus 2018-2019.doc
- Characteristics of Life Quiz #1
Multiple Due Dates | 10 pts
- Safety Quiz
20 pts

An arrow points to the three-dot menu icon next to the "Safety Quiz" item.

