



Creating a New Organism

Student Sheet



Procedure:

1. Mix 1 teaspoon borax into 1 cup of water in a bowl.
2. Stir until the borax is completely dissolved.
3. In a separate container, mix 1/2 cup (4 oz.) white glue with 1/2 cup water.
4. Stir until completely dissolved.
5. Add three drops of food coloring, if desired.
6. After you have dissolved the borax and diluted the glue, you are ready to combine the two solutions. Stir one slime solution into the other. Your slime organism will begin to polymerize immediately.
7. The slime organism will become hard to stir after you mix the borax and glue solutions. Try to mix it up as much as you can, then remove it from the bowl and finish mixing it by hand. It's okay if there is some colored water remaining in the bowl.
8. The slime organism will start out as a highly flexible polymer. You can stretch it and watch it flow. As you work it more, the slime will become stiffer and more like putty. Then you can shape it and mold it, though it will lose its shape over time.
9. Don't eat your slime and don't leave it on surfaces that could be stained by the food coloring.
10. Place your slime organism in a Ziploc bag.



Creating a New Organism

Teacher Sheet



Purpose:

Laboratory professionals' use many different chemicals when they are working. This station is just an example of how chemicals can be used to create new and excited things. This station is designed to be purely fun...Enjoy.

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9. Don't eat your slime and don't leave it on surfaces that could be stained by the food coloring.
10. Place your slime organism in a Ziploc bag.

Observation Questions:

What happened when you mixed the two bowls together?

The glue mixed with the other solution to create a chain of molecules that locked together loosely. Steel undergoes a similar process of mixing under high temperatures but its molecules are locked tightly together, making it rigid.

Do you think the food coloring slowed the reaction or made it harder to form?

No, because it was a small amount.

What would happen if you added too much or too little water?

Too much water might end with runny watery slime, too little and your slime would be hard.



Lab Chemical Engineering Station

Student Sheet



Procedure

1. Take the tube labeled A and dip a piece of the litmus paper in the solution.

a. Did the strip change color? (circle): Yes No

b. What color is the strip?

c. Is it an Acid, Base or Neutral?

2. Take the tube labeled B and dip a piece of the litmus paper in the solution.

a. Did the strip change color? (circle): Yes No

b. What color is the strip?

c. Is it an Acid, Base or Neutral?

3. Take the tube labeled C and dip a piece of the litmus paper in the solution.

a. Did the strip change color? (circle): Yes No

b. What color is the strip?

c. Is it an Acid, Base or Neutral?

Something to think about:

1. What do you think the PH of your blood is and why?

2. How much of your body is made up of water?

3. Is water an Acid, Base or Neutral?



Lab Chemical Engineering Station

Teacher Guide Sheet



Purpose:

The purpose of this exercise is to help the children to get a better understanding of Ph by measuring several solutions and recording their findings. Measuring the different levels of chemicals and hormones in the body are key roles that a Medical Technologist performs.

1. Ph is the measurement of the acidity or base of a solution.
2. The Ph scale ranges from 0 – 14 with 7 being neutral and < 7 acidic, > 7 basic

Procedure:

1. Make sure that all of the students have on gloves, lab coats and goggles before starting.
2. Provide each student with one cup of test tubes which are labeled A,B and C.
3. Have the student take a strip of litmus paper and dip it in the test tube labeled A (lemon juice) which is an Acid.
4. Have the student record their observations on the student worksheet.
5. Follow steps 1 – 4 for tubes B (soapy water) & C (water).

Final Eruption (acid base reaction) **3 minutes before switch**

1. Pour the contents of tube A into tube D and watch what happens.

Observation Questions:

Tube A:

Tube A is filled with vinegar. Ask the students what it smells like, looks like and what they think it is. Have them to refer to the Ph chart to determine if it is Acidic, Basic or Neutral. What other things are they aware of that are acidic (Acid, citrus fruits, batteries)?

Tube B:

Tube A is filled with soapy water, ask the students what it smells like, looks like and what they think it is. Have them to refer to the Ph chart to determine if it is Acidic, Basic or Neutral. What other things are they aware of that are Basic (soaps, hydrogen peroxide, green leafy vegetables)?



Lab Chemical Engineering Station

Teacher Guide Sheet (Con't)



Tube C:

Tube A is filled with water, ask the students what it smells like, looks like and what they think it is. Have them to refer to the Ph chart to determine if it is Acidic, Basic or Neutral. What other things are they aware of that are Neutral (water, tears)?

Tube A and D:

Acids and bases react with each other in interesting ways!

What do you think the Ph of your blood is and why?

1. Blood Ph is 7.4 and slightly basic so that it can work with the other parts of the body and help to fight of diseases.
2. Your body is made up of 60% water. Since water is neutral it works perfectly with your body and does not damage or harm your organs.
3. Water is neutral.