

Dear Living Environment Students,

Mrs. Most needs your help! She was last seen at school yesterday, but no one can seem to find her! Local authorities believe she was *kidnapped*! The only evidence left at the crime scene consists of one big blob of... well, we're not sure what it is. Since it was sitting here all night, authorities have reason to think that it has possibly changed color.

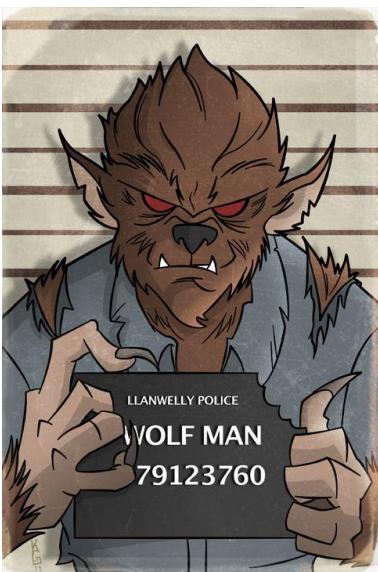
Authorities have already narrowed down their search to three suspects: a werewolf, a witch, and a ghost. There are suspect samples on file (after all, they have been suspects before!) in the following forms: witch's blood, ghost slime, and werewolf slobber. Your task is to test each substance and determine whether or not it contains a **starch**, a **lipid**, or a **sugar (glucose)**. You will also test the substance that was left at the scene of the crime (the blob), so you can compare it to the suspect's samples. If there is a suspect sample that shares similarities to the "blob" we found, then that suspect must have been the one who committed the crime. The authorities will use your results to identify and incarcerate the perpetrator. Your student teacher, Ms. Umile, will help you today.



Sincerely,

The 5th percent of Suffolk County Police Department

Suspect Photos



Jeh-Leih-Loh





Name _____ Date _____ Period _____

Lab Partners _____

Spooky Suspects Lab

Safety first!

1. You need goggles, an apron, and gloves! Remember to be extra careful when carrying glassware and using chemicals. NEVER taste or drink any chemicals. Don't remove chemicals from the front station... just carefully carry your whole test tube rack to the front lab table, use the chemical you need, and then bring the rack back to your lab station to analyze the results with your group. NEVER use your hands to touch glass that has been in hot water... remember, *hot glass looks the same as cold glass!* If you get burned, let your teacher know immediately. At the end of the lab, be sure to clean/organize your station and glassware, dispose of your gloves, hang up your apron, and wash your hands with soap and water.

Procedure

To avoid cross-contamination, the samples must each have their own test tube.

TEST TUBE A: WITCH BLOOD

TEST TUBE B: GHOST SLIME

TEST TUBE C: WEREWOLF SLOBBER

TEST TUBE D: THE BLOB

Starch Test:

2. Label each tube and squirt 2 droppers of each sample into the assigned test tubes.
3. Bring your rack to the front lab table and add three drops of Lugol's iodine solution to each test tube. Gently swirl each tube around to mix it.
4. Check your results:
 - a. MAJOR color change → positive (+) for starch
 - b. It stays the original color → negative (-) for starch
5. Record the results for each sample on your data table.
6. Now rinse out your test tubes in the sink until they are squeaky clean, and put them back in the test tube rack.

Glucose Test:

7. Squirt 2 droppers of each sample into the assigned test tubes.
8. Bring your test tube rack to the front and add three drops of Benedict's solution to each test tube. Gently swirl the tubes around. Now use a pair of test tube tongs to carefully grip and hold the test tube in the boiling water "cauldron" for two minutes. ****Point the top of the test tube AWAY from yourself or other students while it's heating to avoid accidental injuries!****
9. After 2 minutes is over, use your tongs to remove the tubes from the cauldron, and carefully put them back into your test tube rack. **DO NOT TOUCH THEM**, or else you will get burned!
10. Check your results:
 - a. MAJOR color change → positive (+) for glucose
 - b. It stays the original color → negative (-) for glucose
11. Record the results for each sample on your data table.
12. **WAIT UNTIL THE TEST TUBES ARE COMPLETELY COOLED OFF**, and then you can rinse them out in the sink. (If you try to rinse them while they're still hot, the cold water can make them shatter!)
13. While you're waiting for them to cool, you can start the next test...

Lipid Test:

14. Label 4 pieces of brown paper with the names of each sample.
15. Using the dropper, smear a few drops of each sample onto the correct brown paper piece. Let the samples sit for 5 minutes.
16. Check your results:
 - a. Paper is translucent (you can see through it) → positive (+) for lipids
 - b. Paper is opaque (you cannot see through it) → negative (-) for lipids
17. Record the results for each sample on your data table.
18. Throw your brown paper pieces into the trash.

Clean up:

19. Please rinse and clean all of your glassware, wipe down your station, throw away your gloves, and hang up your apron.



Data Table

Directions: Record the results for each test in the table below.

Was it positive (+) or negative (-)?

	Indicator	Witch Blood (A)	Ghost Slime (B)	Werewolf Slobber (C)	The "Blob" (D)
Starch Test					
Lipid Test					
Glucose Test					

Results:

20 Look at your data table. Which sample(s) had something in common with the "blob" of evidence found at the crime scene?

21 What do these results mean? Based on the evidence, which suspect appears to have kidnapped your teacher?

Dear Ms. Umile,

Thank you so much for coming in to teach today! I have taken the day off to go daytime trick-or-treating with my friends the witch, the ghost, the werewolf. I'm so sorry about the mess we left here last night. As we were leaving, the witch slipped on some of the ghost's slime and cut her elbow, which started bleeding... which then caused the werewolf to start slobbering everywhere. It was pretty gross... but luckily, I found a Band-Aid, so everyone is fine! :)



Please be nice to my students, because they are the best students I've ever had. Don't forget to give them all a piece of the Halloween candy that I left for them. Also, tell them to have a happy Halloween, and that I will see them tomorrow!

Sincerely,

Mrs Most

Stock Solutions

Combine the ingredients in each list to create the stock solutions. Each solution will be enough for six groups of students, so you can double or triple the recipes to meet your needs.

Witch blood

500 mL vegetable oil

10 drops red food coloring

Shake vigorously

Ghost slime

2/3 box plain gelatin

500 mL water

10 drops green food coloring

Werewolf slobber

1/4 cup of instant mashed potato flakes

500 mL water

5 drops green food coloring

5 drops red food coloring

The blob

50 mL vegetable oil

1/3 box plain gelatin

1/8 cup instant mashed potato flakes

300 mL water

5 drops red food coloring

5 drops green food coloring

Other Materials Needed:

Lugol's iodine solution

Benedict's solution

Brown paper bag pieces (one per group)

Beaker of water (the "cauldron")

Hot plate (to heat water)

Test tubes (4 per group)

Test tube racks (1 per group)

