

Safety Contract Agreement

STUDENT

I, _____
(Student's name) have read and agree to follow all of the safety rules set forth in this contract. I realize that I must obey these rules to insure my own safety, and that of my fellow students and instructors. I will cooperate to the fullest extent with Mrs. Gillum and fellow students to maintain a safe lab environment. I will also closely follow the oral and written instructions provided by the instructor. I am aware that any violation of this safety contract that results in unsafe conduct in the laboratory or misbehavior on my part, may result in being removed from the laboratory, detention, and/or receiving a failing grade.

Student signature

Date

PARENT OR GUARDIAN

Dear Parent or Guardian:

We feel that you should be informed regarding the school's effort to create and maintain a safe science classroom/laboratory environment. With the cooperation of the instructors, parents, and students, a safety instruction program can eliminate, prevent, and correct possible hazards. You should be aware of the safety instructions your son/daughter will receive before engaging in any laboratory work. Please read the list of safety rules above. No student will be permitted to perform laboratory activities unless this contract is signed by both the student and parent/guardian and is on file with the teacher. Your signature on this contract indicates that you have read this Student Safety Contract, are aware of the measures taken to insure the safety of your son/daughter in the science laboratory, and will instruct your son/daughter to uphold his/her agreement to follow these rules and procedure in the laboratory.

Parent/Guardian Signature

Date

Teacher Stamp

Book Completion Stamp:

/25 pts

Take Home Test Score:

Pg 1: ___/ 12pts Pg 2: ___/18 pts

Pg 3: ___/ 15 pts Pg4: ___/ 20 pts

pg 5: ___/ 10pts Pg8: ___/12 pts

Total Score: ___/ 87 pts

HOW TO...

1

Follow Safety Rules during an Experiment

Name

Date

Class

Read over the following safety rules. They will prepare you to work safely in the laboratory. Then, read them a second time. Make sure you understand and follow each rule. Your teacher may wish to add additional rules for your classroom. Ask your teacher to explain any rules you do not understand.

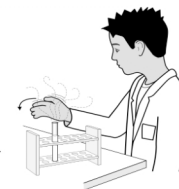
General Rules

1. Always get your teacher's permission to begin any activity in the lab.
2. Read all directions for an experiment before beginning the activity. Carefully follow all written and verbal instructions as directed by your teacher. If you have questions, ask your teacher.
3. Be sure you understand *all* safety symbols included in the procedures. (Read the section on Safety Symbols in this How To.)
4. Use the safety equipment provided for you. Safety goggles and a lab apron must be worn.
5. Do only the experiments assigned or approved by your teacher.
6. Never eat or drink in the lab. Never inhale chemicals. Do not taste any substance or draw any material into your mouth.
7. No playing, running, pushing, or loud talking are permitted during an experiment.

Other rule(s):

Using Chemicals and Equipment Safely

8. Never use lab glassware as containers for food or drink.
9. If you spill any chemical, quickly wash it off with water. Report the spill to your teacher immediately.
10. Never force glass tubing or a thermometer into a rubber stopper or rubber tubing. Have your teacher insert the glass tubing or thermometer.
11. Keep all materials that can burn away from flames. Never reach across an open flame!
12. When heating a test tube, always point the mouth of the test tube away from yourself and others. Chemicals can splash or boil out of heated test tubes.
13. Never bend over and directly smell gas to sniff a gas. Your teacher will demonstrate a safe technique used by chemists to smell an unknown sample when they suspect an invisible gas may be produced. The technique is called wafting.



Use these words to fill in the blanks below!

accident alone before chemicals chipped Clean
 glass/glassware (used twice) Goggles gum hands Horseplay
 location minor safety Shoes taste touch instructor heat

- 14. Do not pick up a container that has been heated until you are sure it has cooled. Hold the back of your hand near the heated container. If you can feel the heat on the back of your hand, then it is too hot to handle. Use an oven mitt.
- 15. Never heat a liquid in a closed container. The expanding gases could blow the lid off the container, or blow the container apart.

Other rule(s):

End-of-Experiment Rules

- 16. Always turn off all burners and disconnect electrical devices.
- 17. Clean up your work area and return all equipment to its proper place.
- 18. Dispose of chemicals and other materials as directed by your teacher. Place broken glass and solid substances in the proper containers. To avoid contamination, never return chemicals to their original containers. Never pour untreated chemicals or other substances into the sink or trash containers.
- 19. Wash your hands after every experiment.

Report any (1) _____ or injury to your instructor immediately, no matter how (2) _____ it may appear. Never work (3) _____. No student may work in the laboratory without an (4) _____ present. Do not (5) _____ a equipment, chemicals, or other materials in the laboratory are until you are instructed to do so. No food, drink, or (6) _____ is allowed in the laboratory. Keep (7) _____ away from face. Do not touch, (8) _____, or smell any chemicals unless specifically instructed to do so. Never fool around in the laboratory. (9) _____, practical jokes, and pranks are dangerous and prohibited. Know the (10) _____ and correct use of all (11) _____ equipment. Work areas should be kept clean and tidy at all times. (12) _____ all work surfaces and equipment (13) _____ leaving the lab. Return all equipment clean and working order to the proper storage area. Dispose of (14) _____ as instructed. Long hair must be tied back and dangling jewelry and loose or baggy clothing must be secured. (15) _____ must completely cover the foot. Never handle broken (16) _____ with your bare hands. Use a brush and dustpan to clean up broken glass. Place broken or waste glassware in the designated glass disposal container. Examine (17) _____ before each use. Never use (18) _____ or cracked glassware. Never use dirty glassware (19) _____ must be worn when working with chemicals, (20) _____, or glassware.





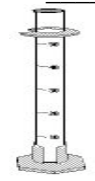




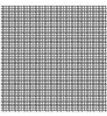
First Aid in the Laboratory	
Injury	Safe Response
Burns	Apply cold water. <i>Call your teacher immediately.</i>
Cuts and bruises	Stop any bleeding by applying direct pressure. Cover cuts with a clean dressing. Apply cold compresses to bruises. <i>Call your teacher immediately.</i>
Fainting	Leave the person lying down. Loosen any tight clothing and keep crowds away. <i>Call your teacher immediately.</i>
Foreign matter in eye	Flush with plenty of water. Use eyewash bottle or fountain. <i>Call your teacher immediately.</i>
Poisoning	Note the suspected poisoning substance and <i>call your teacher immediately.</i>
Any spills	Flush with large amounts of water. <i>Call your teacher immediately.</i>

First Aid

- 20. Always report all accidents or injuries to your teacher, no matter how minor. Notify your teacher immediately about any fires.
- 21. Learn what to do in case of specific accidents.
- 22. Be aware of the location of the first aid kit, but do not use it unless instructed by your teacher.
- 23. Know the location of the emergency equipment such as fire extinguisher and fire blanket.
- 24. Know the location of the nearest telephone and whom to contact in an emergency.

Take Home SCIENCE LAB SAFETY TEST (pg3) + ___/15pts

Name the Equipment:

31. 	32. 	33. 	34. 	35. 
a. Florence flask d. test tube holder	b. graduated cylinder e. Erlenmeyer flask	c. beaker		
36. 	37. 	38. 	39. 	40. 
a. funnel b. micropipette c. wire gauze d. volumetric flask e. goggles				

Name the item:

Look at the definition below and match it to the scientific equipment (pick the correct spelling!!)

41. Wooden rack used to store and keep test tubes in an upright position.
a. Test Tube Rack b. Test Tube Holder c. Test Tab d. Wooden Holder
42. Named after its inventor, Emil Erlenmeyer. Used to store, mix, and prepare liquid chemical solutions.
a. Erlenmeyer Glass b. Erlenmeyer Flask c. Beaker d. Florence Flask
43. used to measure the volume of liquids
a. o-ring b. evaporating dish c. graduated cylinder d. Beaker
44. Device that provides a heat source in the form of fire.
a. Butan Burner b. Bunsen Burner c. Butson Burn d. Fire Up
45. Used to protect the eyes in experiments where there is risk of eye hazards.
a. Safty Goggles b. Safety Googles c. Safety Glass d. Safety Goggles

Discussion Questions: IS THIS WHAT YOU SHOULD DO? (15pts)
Answer **yes/no** for each situation and **summarize with 1 sentence** on **WHY** this is the answer, based on what you know about safety in the lab.

2. For each situation below, write yes if the proper safety procedures are being followed and no if they are not. Then give a reason for your answer.

a) In the middle of an experiment, Marcus is thirsty. He rinses out a beaker, fills it with water, and takes a drink.










b) The directions for an experiment tell you to pour a small amount of a potassium sulfate solution into a beaker. You put on safety goggles before pouring the solution into the beaker.

c) During an experiment, Kathleen is curious about what will happen when two substances are mixed together. The directions for the experiment do not say to mix these substances together, but she does it anyway.

d) One step for an experiment tells students to use an alcohol burner to boil a solution. So Maria pulls back her long hair into a ponytail.

e) On a warm spring day, Isabel takes off her shoes. She walks barefoot to the sink to clean her team's glassware.

f) While washing glassware at the end of an experiment, Richard splashes some water on Ben. Ben splashes him back to get even.

SAFETY SYMBOLS		
Dress Safely		
	Safety Goggles	Always wear safety goggles to protect your eyes in any activity involving chemicals, flames, or heating, or the possibility of broken glassware. Wear your goggles any time when there is even the slightest chance that harm could come to your eyes.
	Lab Apron	Always wear a lab apron when you are working with substances that could stain or burn your clothing.
	Tie Back	Always tie back long hair to keep it away from any chemicals, flames, or equipment. Remove or tie back any article of clothing or jewelry that can hang down and touch chemicals, flames, or equipment. Roll up or secure long sleeves.
	Shoes	Do not wear open shoes or sandals.
Heating and Fire Safety		
	Flames	You may be working with flames from a burner, candle, or matches. Before using a burner, make sure you know the proper procedure for lighting and adjusting the burner, as demonstrated by your teacher. Never leave a lighted burner unattended. Never reach across a flame.
	Extreme Temperature	Use an oven mitt when handling hot materials. Before picking up a container that has been heated, hold the back of your hand near it. If you can feel the heat on the back of your hand, it is too hot to handle. Use an oven mitt to pick up a container that has been heated.
Chemical Symbols		
	Toxic	Do not let any poisonous material come in contact with your skin and do not inhale its vapors. Wash your hands when you are finished with the activity.
	Glassware	You are working with materials that could break, such as glass containers and thermometers. Handle breakable materials with care. Do not touch broken glassware. Do not use any glassware that is chipped or cracked.
	Irritant	Always wear gloves when you are working with substances that can irritate the skin or mucus membranes.

Take Home SCIENCE LAB SAFETY TEST (pg2) + ____/18 questions

True / False Questions

Answer True (choice A) or False (choice B) for each of the questions 13-

- ___ 13. Helping to clean the classroom/lab is the job of each student.
- ___ 14. If Mrs G makes a change in the lab procedure, ignore it, and do what the lab manual says to do.
- ___ 15. Eating or drinking is O.K. in the science lab room because students clean well after labs.
- ___ 16. Place your nose directly above the test tube to smell the substance inside it.
- ___ 17. To remove an electrical plug from its socket, pull the plug itself, not the cord.
- ___ 18. If a lab chemical is clear it's probably ok to drink.
- ___ 19. If you are using a mercury thermometer instead of an alcohol thermometer and it breaks, it's ok to go ahead and clean it up. Mercury is a safe chemical to touch.
- ___ 20. You will be required to give your teacher a \$100 deposit to cover possible glass breakage. (just kidding!)
- ___ 21. Do not eat or drink in the classroom without Mrs G's permission
- ___ 22. Flying paper airplanes and playing is fine in Mrs Gillum's lab
- ___ 23. Feel free to perform unauthorized experiments. Mrs Gillum really wants you to discover the scientific method!
- ___ 24. Tie back all loose hair and clothing when conducting experiments.
- ___ 25. Walk in class. Never run or move quickly.
- ___ 26. Tell MrsG about any cuts, burns, or injuries that happen immediately!
- ___ 27. Wear safety goggles only when using chemicals. You won't need them for any other thing!
- ___ 28. In case of chemical spill, tell your friends, notify MrsG then clean it u
- ___ 29. Everyone works, but only Mrs Gillum cleans up! She likes being the momma!
- ___ 30. When mixing acid and water, always add the acid to the water--never the other way around!

Take Home SCIENCE LAB SAFETY TEST (pg1) + ___/12 questions

1. When you work with lab chemicals and Bunsen Burners, long hair must be:
 - a) cut off
 - b) combed neatly
 - c) held back with your hands
 - d) tied back
2. If you see something in the classroom/lab that is dangerous, tell MrsG
 - a) after class
 - b) after school
 - c) at once
 - d) when you have the time
3. You should prepare for each lab activity by reading all instructions:
 - a) before you start to work
 - b) when the lab is done
 - c) while you're at the doctor's office receiving first aid for chemical burns
 - d) when you become confused while you are working
4. The correct way to move around the classroom/lab is to:
 - a) run
 - b) skip
 - c) hurry
 - d) walk
5. Playing (not working) in the lab or bothering another person is:
 - a) all right if your work is done
 - b) all right if the friend doesn't mind
 - c) always against the rules
 - d) not really dangerous
6. Before you touch an electrical switch, plug or outlet:
 - a) your hands must be clean
 - b) your hands must be dry and clean
 - c) make sure no one else is touching it
 - d) Don't!! Have a friend do it!
7. In case of fire in the lab, tell the teacher at once, and then:
 - a) open the doors
 - b) leave the building
 - c) remove the burning material
 - d) try and put it out
8. To prevent accidents during lab activities, you should:
 - a) follow your teacher's instructions
 - b) use shortcuts
 - c) ask someone else what to do
 - d) hurry ahead of the others
9. If you are hurt during a lab tell the:
 - a) nurse at once
 - b) MrsG at once
 - c) class at once
 - d) doctor after school
- 10) If acid gets on your skin or clothes, wash it AT ONCE with
 - a) oil
 - b) soap
 - c) sulfuric acid
 - d) water
- 11) To correctly dilute acid you must:
 - a) pour lots of water into the acid
 - b) add acid to the water
 - c) pour acid and water into a beaker at the same time
 - d) you never have to dilute acid
- 12) When using dangerous chemicals or hot materials, you should:
 - a) not worry about safety glasses
 - b) wear safety glasses only if you don't have eyeglasses
 - c) stand behind your friend who's wearing safety glasses
 - d) ALWAYS wear safety glasses

Follow Safety Rules during an Experiment

You Try It!

1. Explain why the laboratory procedures in the following pictures are unsafe.



a)



b)



c)






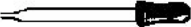








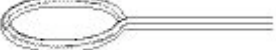
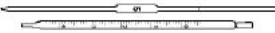




d)



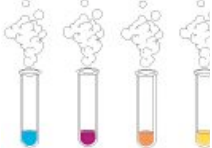




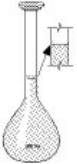
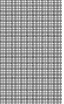


e)

Scientific Equipment to know

Bunsen Burner - heat source 	Beaker - holds liquids while they are being stirred or heated 	Crucible Tongs - used for picking up crucibles & crucible covers only 
Crucible - containers used for "strong" heating 	Electronic Balance - used for weighing substances 	Eyedropper - used to transfer small amounts of liquids 
Erlenmeyer Flask - used to store solutions 	Evaporating Dish - used for heating solids 	Funnel - assists in transferring liquids to containers with smaller openings 
Forceps - used to hold or lift specimens 	Florence Flask used to store liquids 	Graduated Cylinder - used to measure the volume of liquids 
Micropipette - small plastic pipette that holds liquids for labs 	Mortar & Pestle - used to grind solids into powders 	O-Ring - used with ring stands to support heated vessels 
Pipette - used for exact measurements of liquids 	Safety goggles - protects the eyes from damaging substances 	Spatula - chemical spoons used to transfer solids from their original container to a scale for weighing 

Scientific Equipment to know

Stopper - used to cap flasks containing liquids 	Triple Beam Balance - used for weighing substances 	Test Tubes - holds liquid for observation or testing 
Test Tube Brush - used to clean test tubes 	Test Tube Rack - holds test tubes during observation or testing 	Test Tube Holder - holds test tubes while heating 
Thermometer - used to measure temperature 	Volumetric Flask - used to mix precise volumes of liquids 	Wire Gauze - adds additional support for containers held on tripod: O-rings 

Additional Notes:
