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

Teacher Stamp

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

Name: _____ Pd: _____ Sci Number: _____

Safety in the Lab

Safety in the Lab

Using the cover drawing, work with a friend and:

Part 1: Part 1: · identify as many unsafe activities as you can.

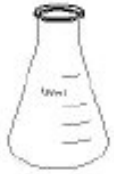
Part 2: : Identify any correct lab procedures that are being used.

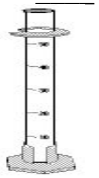
Part 3: Identify 3 items that are used for student safety

Part 4: What should students do if there is an accident?

SCIENCE LAB SAFETY REVIEW QUESTIONS Name the Equipment:

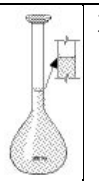
31._____ 32._____ 33._____ 34._____ 35._____

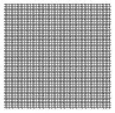



a. Florence flask b. graduated cylinder c. beaker
d. test tube holder e. Erlenmeyer flask

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 scientifi 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. These are 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 Goggle

Writing Lab Safety Rules

In the space below, write 5 rules that you feel are the most important in a lab.

1. _____
2. _____
3. _____
4. _____
5. _____

SCIENCE LAB SAFETY REVIEW QUESTIONS

Answer True (choice A) or False (choice B) for each of the questions 13-20

__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.

__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!

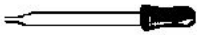
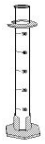
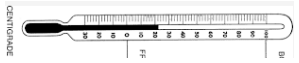
__28. In case of chemical spill, tell your friends, notify MrsG then clean it up.

__29. Everyone works, but only MrsG 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!

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 you 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.

Scientific Equipment to know- continued on next page

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 (similar to a micropipette) 
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 
Triple Beam Balance - used for weighing substances 	**Safety goggles** - protects the eyes from damaging substances 	**Spatula** - chemical spoons used to transfer solids from their original container to a scale for weighing
Stopper - used to cap flasks containing liquids 	**Test Tube Rack** - holds test tubes during observation 	**Test Tubes** - holds liquids for observation or testing 
Test Tube Brush - used to clean test tubes 	**Thermometer** - used to measure temperature 	**Test Tube Holder** – holds test tubes while heating 

SCIENCE LAB SAFETY REVIEW 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

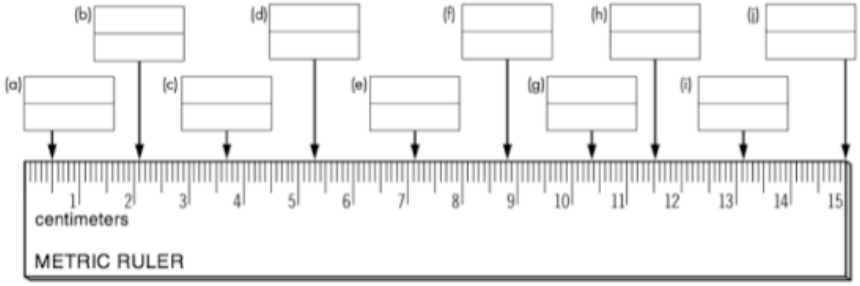
10) If acid gets on your skin or clothes, wash it AT ONCE with
a) oil b) soap c) sulfuric acid d) water

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

Now it's YOUR TURN!! Metric Measurement

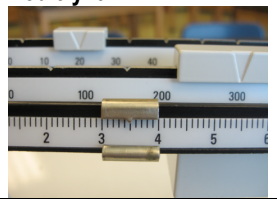
Now it's your turn to practice measuring with a metric ruler. In each box below, write the length from the zero edge to each arrow in both centimeters and millimeters. Check your answers below.



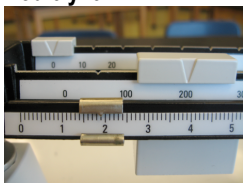
Mass Review:

Mass is the amount of _____ in an object. It's measured on a _____ (also called a triple beam balance). Mass is measured in grams or kilograms. A science book is about 1.3 kilograms

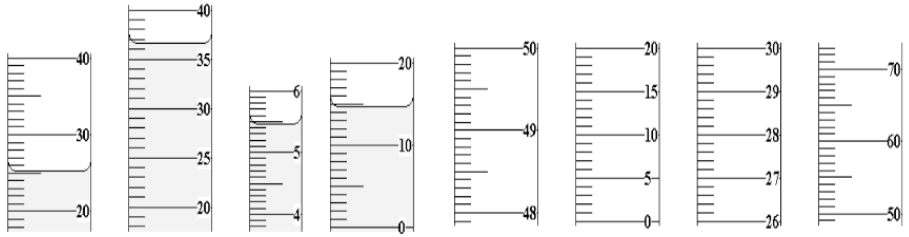
Reading the balance- You try it!



Reading the balance- You try it!

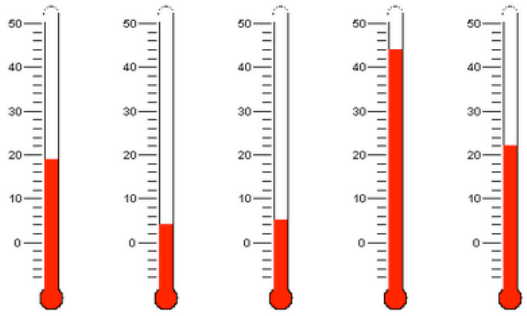


17. For A-D, determine the volume of liquid in each graduated cylinders. For E-H, draw in a meniscus for the indicated volume. Be precise!

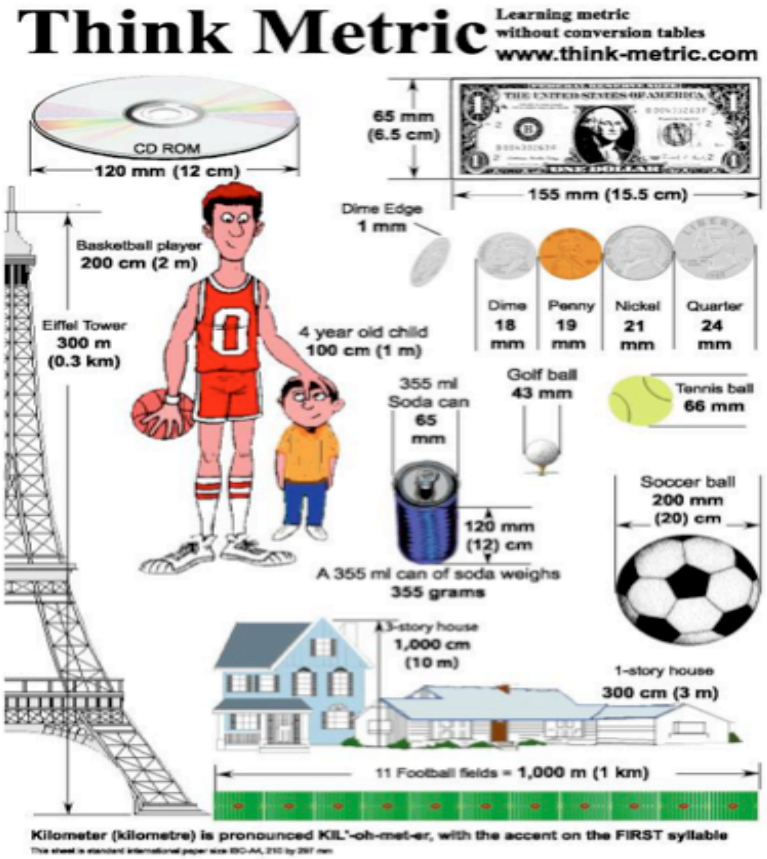


A. _____ B. _____ C. _____ D. _____ E. 49.21 mL F. 18.2 mL G. 27.65 mL H. 63.8 mL

Find the temperature for each thermometer.



_____ _____ _____ _____ _____



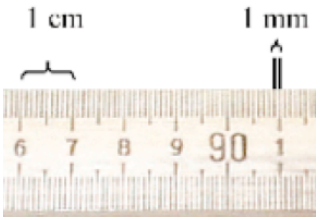
BrainPop Video: Metric vs Customary : Write 2 sentences about what you learned:

_____

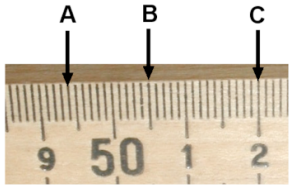
_____

_____

Metric System: Length



You Try It! Arrows A, B, & C are all pointing to a particular place on a meter stick.



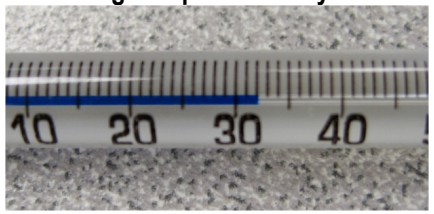
Name the value & *include units*.

Point A: _____ cm
_____ mm
Point B: _____ cm
_____ mm
Point C: _____ cm
_____ mm

Measuring Temperature

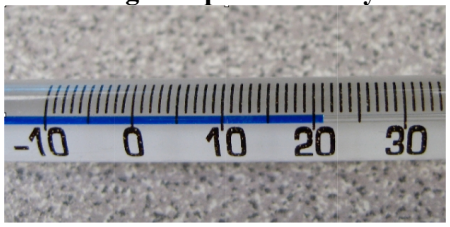
In science, temperature is measured using the _____ temperature scale. The temperature scale is based on the freezing and boiling points of water. The freezing point of water is given the value of _____. The boiling point of water is labeled at _____. Human body temp is about 37° C. In the International System (SI), temperature is measured in _____ The kelvin scale is based on absolute zero, the coldest possible temperature. This temp. corresponds to -273° C 0°C =_____ 100°C = _____

Measuring Temperature! Try it!



Answer: _____

Measuring Temperature! Try it!



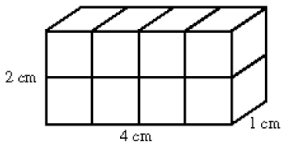
Answer: _____

Volume

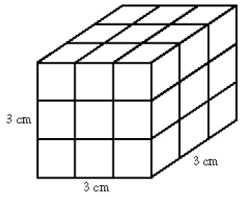
Have you ever heard someone say "this shampoo gives my hair a lot of volume!!!" What does that mean? Volume means to _____.
Or, volume is the amount of space occupied by an object. So if someone's hair has a lot of volume that means it is full. It takes up a lot of space.

Volume of Solid Rectangular Objects: For solid rectangular objects, the volume is the length x width x height. _____. A cubic meter (m^3) is a unit of volume. A cubic meter is a very large unit - it contains 1,000,000 cubic centimeters.

You try it! 4.
What is the volume of this solid?
V= L x W x H



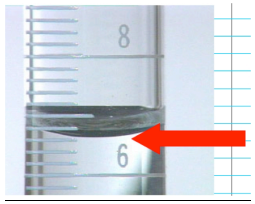
You try it! 5.
What is the volume of this solid?
V= L x W x H



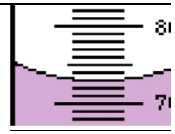
Measuring Volume of Liquid Objects

For liquid objects, we use _____ to measure the volume. In cooking, we may also use measuring cups, teaspoons or tablespoons. The level of a liquid in a graduated cylinder shows the volume of the liquid. A _____ (L) is a unit that is usually used to express volume. A soft drink bottle is a 2-liter bottle. For smaller volume measurements, we also use: milliliter (ml), cubic centimeter (cm^3).
1 liter contains 1000 milliliters or 1000 cubic centimeters.

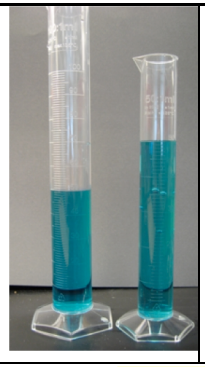
Accuracy is Everything
To read the volume of the liquid, note the level at the _____ of the curve. We call this the _____.



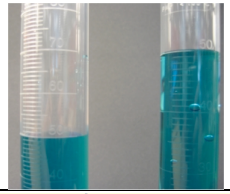
You try it!
What are the volume in ml



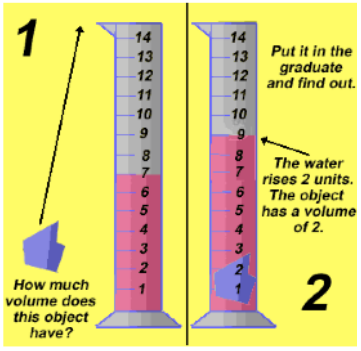
Volume of Liquids
Do these graduated cylinder have the same volume of liquid in them? YES! How can that be??? One is a 100-mL cylinder & the other is a 50-mL cylinder. Which one is better to use to measure this liquid? The smaller one!!! Why? Better Accuracy! The smaller the cylinder, the smaller the increments on the cylinder, which means a more accurate result.



Volume of Liquids- But look at this!
Both of these cylinders have exactly 50 ml of water



Measuring Volume of Solid Irregular Objects
So, how would I measure the volume of an irregular object such as a piece of clay?
I can't measure the sides and I can't use a measuring cup. But I CAN still use a graduated cylinder. Simply submerge the object in the graduated cylinder and record the difference in water level. We call this measuring volume by _____
You will practice it during our lab this week.



Video: Volume of something rectangular : Write 1 sentences about what you learned:
_____
_____

Video: Reading the Meniscus: Write 1 sentences about what you learned:
_____
_____

Video:_Volume Displacement : Write 1 sentences about what you learned:
_____
_____

BrainPop Video:_Measurement Review : Write 2 sentences about what you learned:
_____
_____
_____
_____