Honors Chemistry Scavenger Hunt; SCSh 1-8

DO NOT WRITE ON PAPER

Purpose: To become familiar with lab safety protocol and the equipment commonly used in chemistry and to also understand the expectations and methodology employed in this classroom.

Flinn Scientific Student Safety Contract (QR code)

Flinn QR

1. Summarize rule number 6 and speculate why your teacher has a "zero tolerance policy" for noncompliance.
2. Read rule number 36 and work with a partner to create a mnemonic saying to help you remember the fact that you should "always add acid to water first" when making dilutions.
3. Which rule talks about falling sharp objects and what does it say?
4. Define volatile. What will you use when working with volatile chemicals?
5. What should you **not** do when first entering my classroom?
6. Paraphrase rule number 23 and suggest a consequence for potential violators.
7. Why do you think you should **never** return unused chemicals to their original containers? How is chemical waste properly disposed?
8. How should you carry glass tubing and why?
9. Why do you feel rule number 50 is important? Please justify your response.
10. Describe the proper method for heating liquid in a test tube.
11. Explain what is meant in rule number 42.

Lab Equipment Stations

#4 QR

1. Using one of the computers navigate to: http://www.labskills.co.uk/resources.php. Click on the chemistry tab and then click "setting up experiment view simulation" Carefully work through the simulation. Explain the series of steps that you worked through to successfully complete the simulation.
2. Examine the apparatuses and equipment located at station 1 or station 4. Use the information sheet that accompanies this station to identify and describe the use for each numbered item (#1-12). Be very careful with glassware. Please return all equipment and the information for the next group to use.
3. Find one of the two stations with a Bunsen burner. Read the information sheet thoroughly. Light the burner with a flint striker. DO NOT repeated strike and waste the flint. Describe what happens when you close the air vent versus when it is wide open. What happens when you turn the gas valve clockwise? Counterclockwise? Be sure to describe the appearance of the flame. Describe the difference between a luminous flame and a non-luminous flame. See the schematic diagram at this station.
4. Find a station with three graduated cylinders. To learn about the meniscus find the sheet titled "Reading Liquid Levels to Measure Volume". Examine the meniscus found in each of the graduated cylinders. What chemical property of water leads to this phenomenon? Record the volume for each of the cylinders at your station. Lastly, find a computer and Google "reading the meniscus quiz" (or QR) and as a group, take the meniscus quiz. Record your grade when you are finished.
5. Complete #4 before attempting this station. Locate one of the two glass wheel-type pipetting stations. Read the instruction sheet that accompanies this station first and note there are two ways to expunge the liquid. What are the three sizes of pipets and in which increments are they used to measure? Each student will need to pipet the following two volumes of blue water (6.5 ml and 0.7 ml). Which pipets sizes did you choose to use and why?
6. Find a digital scale station. Follow the instructions on the "Care and Use of Balances" informational sheet, but note that these scales do not have covers. This year you will use weighing paper (Redi-weigh), so read the procedures for making a weighing cup. Use a weighing spatula (opposite end of spoon) to measure out 1.5 grams of sodium hydrogen carbonate ($NaHCO_3$). Next measure out 12 mL of acetic acid ($HC_2H_3O_2$) and make sure you watch the meniscus when you measure the volume. Carefully add the sodium hydrogen carbonate to the acetic acid. Describe your observations. Was this a physical or a chemical change and why?
7. Go to station 7 and carefully examine the four models. List the four categories of elements. What does each group of elements have in common? Look at the periodic table to locate the relative position for each group.

Becoming Familiar with your State Standards (QR code)

1. Which SCSh standard deals with accuracy and precision? With a partner devise a mnemonic expression that will help you to remember the difference between these two terms.
2. What is the ultimate goal of science and in which SCSh standard did you find the answer?
3. Which standard deals with dimensional analysis? What is dimensional analysis?
4. Why are the SCSh standards referred to as co-requisites?
5. How many chemistry content standards (SC) are there?
6. Which SC sub-standard(s) discusses the concept of a mole?
7. Which SC standard reminds you of enzymes?
8. What do the standards say you should understand about acids and bases?
9. Which SC standard likely deals with the topic of thermochemistry?
10. How many types of chemical equations will you need to know how to balance?
11. Which SC standard deals with molarity and molality?

Standards

Becoming Familiar with the Classroom Website (log-in to a computer or scan the QR code)

1. Where can you find out what we did in class today or any other day for that matter? How will you use this information throughout the course?
2. What are a few things we will be working on in HChem next week?
3. Find the "Honors Chemistry Class Page" link on the left. Click on the "Introductory Chemistry Podcasts" link and describe what information is in the calculator guide.
4. Click on the "Honors Chemistry Research Projects" folder and find the Research Poster Exemplar. Describe this new format for the presentation requirement of your research projects.
5. What is/are the Honors Chemistry announcement(s) currently posted on the website?
6. Examine the box titled Honors Chemistry Files/Links. There is a great deal of information here that you will use throughout the year. Click on all six folders and describe what is inside each folder. Name at least one actual file or link name within each of the six folders.
8. Click on "Teacher Biography and Interests". What is the title of one of my scientific publications? View the video of me in the deepest cave in the United States. How did we use science and mathematics to determine the depth of Fantastic Pit?

Website

Becoming Familiar with Your Classroom: You already know our classroom!