Welcome to Crazy Chemists! Chemistry Courses Packet for Class Session 1-2A Instructed By Eric Darsow

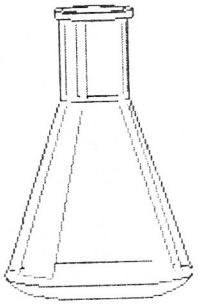
Enjoy!

Estimate 1999

Crazy Chemists 3-Day Camp Information Sheet

Welcome to Crazy Chemists 3-day camp! In this chemistry camp, we will explore 3 different aspects of science and chemistry! Following this itinerary, we will cover these things ...

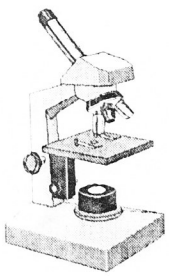
Day 1 Start with covering the basics. Learning about mixtures and solutions, common rules in the lab, names and proper uses of real lab equipment. Models, drawings, demonstrations and visual aids help enforce and reinforce the basics. Later on in the hour-long session the students do hands on experiments such as color changes and reactions giving off heat and light!



Day 2 After the first day the students will feel more comfortable with the equipment and the directions. Therefore the experiments will be more challenging and require more thinking. This day will mainly revolve around the theme gasses and pressure. We will experiment with carbon dioxide and pure oxygen and how the two gasses act like almost opposites. We will look at and experiment with dry ice, make tons of bubbles and foam, and much more!

Day 3 The last day is always a kicker! We use the techniques that we learned the two days before and learn to identify 6 powders. Each student will do a series of tests on each substance: adding vinegar to test for a base, using acid-base-neutral test paper to test for acidity and optional pH paper for the students that are up to the challenge, and adding iodine to test for a starch, etc. After the students get a feel of the different tests, they get a mystery powder which is a mixture of 3 of the powders the students tested separately. Then they test the mystery powder with the same tests to identify them.

This class a refined combination of the classes I have taught before. I can almost guarantee that if your young chemist keeps an open mind toward learning, he or she will have a fun and educational time! Please call me, Eric Darsow, at 281-2302 if you have any questions or to request more information. Attached to this sheet is a sign up form. If you would like to sign up your young chemist please fill out the bottom form and return it to me. Dates and times are listed on the sign up sheet. Thanks!!



Sincerely Eric

Eric Darsow

Crazy Chemists

A interactive Chemistry course for Kids

This section is for session 1-a

Welcome to chemistry for kids! This packet will guide you through the class. If you ever have any questions raise your hand and you will be attended to. Enjoy the class.

Rules in the lab.

1. Raise your hand.
2. Be careful with all the supplies.
3. Be considerate of other people.
4. Do not eat anything in the lab.
5. Learn a lot and have fun!!!

Lab tips

1. Don't contaminate substances.
2. Keep a clean work area.
3. Follow directions carefully.
4. Don't joymix.
5. Clean or dispose of labware.
6. Make sure that you know and understand everything that you work with.
7. Label and date everything neatly.

Vocabulary words

1: Mixture — Two or more substances mixed together. Some may be in clumps. You CAN separate mixtures physically. The substances are NOT bound Chemically.

2: Solution — When two or more substances are mixed together. The substances are bound CHEMICALLY. They need to be separated chemically. You cannot see the difference between one substance from another in a solution.

3: dissolved — When a substances become a solution a substance has to become dissolved. When one substance is bound chemically to another, it is dissolved.

4: Solvent — The substance that another substance is dissolved in is the Solvent.

5: Solute — The substance that has been dissolved is the Solute.

6: Substance — Any solid, liquid or a gas is a substance.

7: Reaction — The result of something that has happened.

8: Procedure — The steps that you take to do something is the procedure. EXAMPLE:

1. Mix the coolaid into the water
2. Drink the coolaid That was a procedure.

Supply List

1: Erlenmeyer flask 1 — A glass bottle with a skinny neck. Cone shaped body .Flat bottom.

Blue

2: Test tube 2	A slender tube used for experimentation.
3: Test tube holder 1	Used for holding test tubes.
4: Syringe 1	A cylinder shaped piece of equipment used for moving liquid and measuring liquid.
Yellow	
5: Beaker 1 Orange	A cylinder shaped cup used for mixing things.
6: Mixing cups 5 Pink	A cup used for mixing.
7. Dropper 1	Used for moving and measuring small amounts of liquid. Has a bulb at one end to suck and release liquid.
8: Measuring spoons. 1 set	Blue measuring spoons with a 1\4 tsp. a 1-2 tsp. and a tsp. and a tablespoon.

Now we are going to start to talk about mixtures. Mixtures consist of two or more substances. The substances are NOT chemically bound. That means that there could be clumps of one or another substances. Take M&Ms and Raisins for a example. If you take a small box and raisins and a treat size of M&Ms and put them together in a bowl and stir, you have a mixture. You have a mixture because the M&Ms are not bound with the raisins they are just touching each other. But now imagine that you have some special glue that will only stick to one M&M and only one raisin. So you pour the glue into the bowl. You now look in and see globs of one raisin and one M&M. Only one of each is stuck together. Now you can't just reach in and get a raisin or a M&M you have to get one raisin and one M&M. First you had a mixture and now you have a solution and now you get to eat them.

We now have talked about making Mixtures and solutions, now we need to learn how to separate them. Things that make a mixture different from a solution is that a mixture can be separated physically. A solution on the other hand has to be separated chemically. One very common way to separate a solution is to evaporate it. Some ways to separate a mixtures are...

Magnets

Adding water to the mixture if one sinks and one floats

Filter

Shaking

Those are all good ways to separate mixtures. Try some!!

Next are chemical reactions. A chemical reaction is when two or more substances are mixed to make a new substance. We are first going to make some solutions first.

Directions for solution #1

1. Measure 50cc`s of water into a mixing cup
2. Measure in 1\8 teaspoon of ferric ammonium sulfate Green (that is a half of the 1\4 teaspoon measure spoon)
3. Stir until the solid has dissolved completely
4. Set aside on paper spot marked #1

Directions for solution #2

1. Measure 30cc`s of water into a mixing cup
2. Measure 1\16 of a teaspoon of sodium ferrocyanide Red (That is dividing the 1/4 teaspoon into four parts, that is what you should measure, one of the quarters)
3. Stir until the solid has completely dissolved

4. Set aside on paper spot marked #2

Next we are going to make chemical reactions by mixing two solutions with each other. A chemical reaction is different that just a mixture. In a chemical reaction a new chemical is made.

Setup #1

1. Locate a mixing cup
2. On the bottom drop 5-6 drops of iodine
3. Locate another mixing cup
4. Measure 30cc`s of water into the mixing cup
5. Mix in a teaspoon of corn starch
6. Stir until mixed together

Setup #2

1. Measure 20cc`s of water into a mixing cup
2. Drop a dropper full of chemical blue into the water
3. Stir
4. Get a paintbrush and paint a simple medium picture or letters on the piece of paper
5. Hold it under a bottle of ammonia and watch your letters appear

Procedure #1

1. Locate the wood test tube holder
2. Raise your hand
3. When the test tube is in the holder set it on the paper spot marked #3

Procedure #2

1. Locate your beaker orange and locate another mixing pink cup
2. Place them in front of you side by side
3. Pick up cup on #1 spot on the paper and divide the solution between the two cups
4. Pick up cup #2 in one hand and the test tube in the other hand
5. Pour the contents of the test tube into one cup and the other cup into the cup that has not been designated a solution

Questions on chemical reactions

What happened?_____

_____

_____

Was that a chemical reaction? circle one Yes No

How did you find that interesting on a scale from 1-10 1 2 3 4 5 6 7 8 9 10

Fill in the blanks

We poured together two _____ into each cup. We made a_____.

A Indicator is the next thing that we will study. A indicator is a chemical that will give a sign when it is in a chemical with a specific characteristic. Such as a base will turn pink if added to a chemical that we will work with today. The chemical that we will work with is called Phenolphthalein solution.(fe-nol-thay-ling)It is a base indicator. It is like if you were put into a room full of spiders you would probably squirm. but

if you were in you room at home you probably would not do anything. A indicator is the same way. When it is added to certain chemical or characteristic it will do something, we will see that today while experimenting with a Base indicator. What does our base indicator do when we put it in a strong base? We use bases all the time in the world. You might not even know it but you use bases probably in cooking and cleaning in your own home.

Procedure #3

Here is a list of substances that are or are not bases. Test them by adding 1-2 drops of the chemical that tests for a base and mark if it is or is not a base.

You need to locate the plastic lid is your kit with numbers 1-9. Place it in front of you as if you were reading a book....

1 2 3

4 5 6

7 8 9

When you begin testing there will be 9 cups all around. The chart below tells you what each number is. Place a 1\4 teaspoon of each substance on its appropriate square. Then drop 1-2 drops of the base indicator on each substance. If it turns _____ then it is a base, if it does not then it is not a base. go ahead and complete the chart below neatly.

Name	Base	Not a base
1: Baking soda		
2: Corn starch		
3: Drain unclogger		
4: Washing soda		
5: Water		
6: Sugar		
7: Salt		
8: Liquid #1		
9: Liquid #2		

We can also counteract the effect of coloring by adding a acid to the pink solution. A certain amount of acid will to something to the pink. Follow the directions.

Procedure #4

1. Measure 50cc`s of water into a mixing cup.
2. Measure 1\4 of a teaspoon of chemical #4 from testing for bases
3. Stir until dissolved
4. Add 1-3 drops of the base indicator
5. When the contents of the cup is mildly pink pour just enough of the acid until something happens
6. Add enough of the base indicator until it is pink again
7. Do you see you can go back and fourth? Circle Yes No

8. Then add a little more of the acid until it is clear again

This concludes Session 1-a I hope that you had a good time!!!!

Session 2-a

Vocab words

1. Precipitate	When a solution is holding so much other stuff that it can't hold anymore. When it has some stuff that settles at the bottom of the cup that stuff is precipitate.
2. Dilute	When a substance has water added to it is at some extent dilute. The activity will show that..
3: Steam	Tiny droplets of water suspended in the air.

This session is for 2-a. This class is on gasses and pressure and chemical reactions continued. We have a fun class ahead of us. Lets jump in. You see in front of the class bubbles coming from a dish. You have probably heard of Dry Ice before. But do you know what is happening? We are going to make lots of bubbles today. Most of the time when bubbles are made today it will be because a Acid and a Base are mixed together. When a base is mixed with a acid it creates the foam. The foam is a result of the mixture. But another thing is formed, a salt. Now I bet a lot of you already think of salt is a thing that you put on food to add flavor. Well you're right but a salt is neither a acid or a base. But first, before we get into bubbling we need to do dry ice before it evaporates. The reason we do not touch dry ice with our hand is because it is -112 degrees below F. It is so cold that it burns. The gas that you see is carbon dioxide. Carbon dioxide weighs about one and a half more that air. That is why it does do float up to the ceiling. Experiment with the dry ice. Write down A few things about it.

1._____

_____

2._____

_____

Was that interesting? 1 2 3 4 5 6 7 8 9

Later on in this class we are going to use acid. Now pure acid is VERY DANGEROUS it can dissolve your skin and bones. So the acid that we will be working with is dilute. That means that water was added to it. You all have a two white cups in your kit and on the side it says SAFE that says that that cup is safe to drink out of. Your instructor will come around and fill them with drinking water.

Procedure #5

1. Add little bit of punch to one cup.
2. Stir it until dissolved
3. Now add quite a bit of punch to the other cup
4. Stir until dissolved

5. The cup with a little punch is dilute, it has a lot!! of water in it vs. the punch. The other cup has al lot of punch vs. the water.
6. Drink them!!!

So now we know dilute and strong

Now we are going to make bubbles!!!

Procedure #6

1. Fill a mixing cup up about 3\4 full
2. Measure 2 teaspoons of baking soda into the water
3. Stir until the baking soda in dissolved
4. Measure another teaspoon of baking soda into the cup
5. Do that process until there is precipitate at the bottom
6. Set the cup aside

Procedure #7

1. Fill a mixing cup half full
2. Raise your hand and you will get vinegar in one cup
3. Set aside

Now you should have two cups with one a base dissolved and one acid mixed in. If you do not raise your hand.

Procedure #8

1. Locate a medium plastic tray
2. Pour the contents of each cup into the cup IN THE TRAY!!!!!!
3. Watch!

On a scale 1-9 how extreme was the foam? 1 2 3 4 5 6 7 8 9

Procedure #9

1. Fill a mixing cup 3\4 full
2. Measure in 2 teaspoons of sodium carbonate
3. Stir until dissolved
4. Set aside

Procedure #10

1. Locate a mixing cup
2. Pour in 1\2 full of dilute acid
3. Set aside
4. You should have two cups with stuff in it. The cup that is half full is dangerous. DO NOT SMELL IT OR TASTE IT!!!
5. Pour them together!!!
6. On a scale from 1-9 how intense was that? 1 2 3 4 5 6 7 8 9

Procedure #11

1. Repeat procedure #9 but measure a teaspoon of soap to the acid in line #2
2. Pour them together

3. What was different from this reaction than the other two?_____

_____

_____

Hypothesis To make a educated is a hypothesis

Here are some forms to hypothesize what is going to happen.

Experiment #1

Hypothisis_____

_____

_____

Concluison_____

_____

_____

Experiment #2

Hypothisis_____

_____

_____

Concluison_____

_____

_____

Experiment #3

Hypothisis_____

_____

_____

Concluision_____

_____

_____

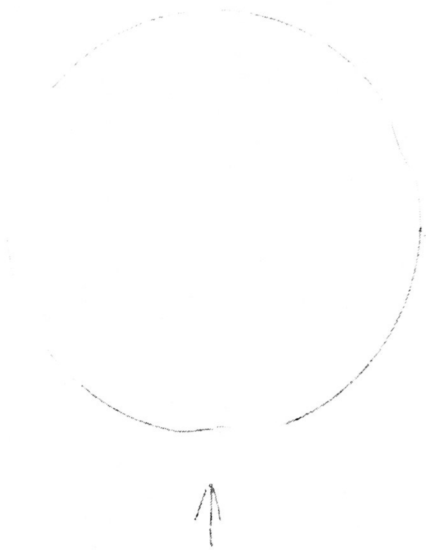
This concludes The first Crazy chemists sessions

On a scale from 1-10 how did you like the two sessions? 1 2 3 4 5

6 7 8 9 10

THANKS FOR COMING!!!

#1

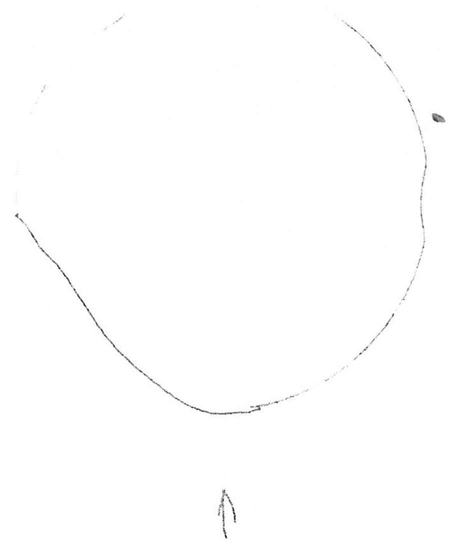


Ferric Ammonium sulfate
solution

50cc of water

1/8 tspoon of Ferric Ammonium
sulfate

#2



Sodium ferrocyanide
Solution

30cc of water

1/16 tspoon of sodium ferrocanide