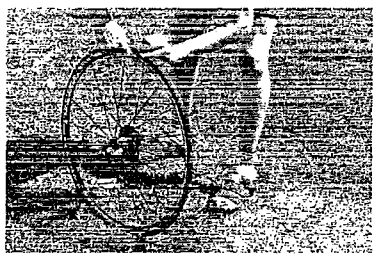



1. a) What is the difference between an observation and an inference?

- An observation is the act of attentive watching, using your 5 senses.
- An inference is what you guess is happening or did happen or will happen.

b) Fill in the table below dealing with observations vs. inferences.

Image	Observations	Inferences
	<ul style="list-style-type: none"> • someone is changing a tire • there is a shadow • the person is wearing shorts 	<ul style="list-style-type: none"> • it's a sunny day • the person got a flat tire • the person is changing tire on side of road.
	<ul style="list-style-type: none"> • it is windy • one light post • trees blowing in wind • water present 	<ul style="list-style-type: none"> • there is a storm or hurricane approaching • maybe some trees will snap.

2. a) What is the difference between qualitative and quantitative properties of matter?

Qualitative → observe with your senses (taste, smell, touch, hear, smell)

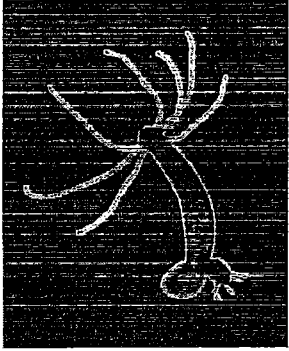

Quantitative → associated w/ numbers/units, rulers, scales, balances, thermometers

b) Decide if the following are *qualitative* or *quantitative* properties and then give the specific property.

Example: Maggie's shirt is light green - qualitative - colour (property)

- The peanuts were salty qualitative (taste)
- The temperature of the day went down 5 degrees quantitative (temperature)
- My dog is 65 cm long quantitative (length)
- I hear the microwave popcorn pop qualitative (sound)
- The cutlery is shiny qualitative (lustre)
- The package I want to mail for Easter is 70 ml quantitative (volume)
- The down jacket is soft qualitative (texture)

c) Choose as many qualitative and quantitative properties to describe each image.

Image	Qualitative	Quantitative
	<ul style="list-style-type: none"> • transparent species • it has tentacles and a body • it's small/microscopic 	<ul style="list-style-type: none"> • there are 7 tentacles • small hydra attached to large
	<ul style="list-style-type: none"> • salty meal • lots of food • colourful (ex. green asparagus) 	<ul style="list-style-type: none"> • 5 asparagus • 5 potatoes • 4 tomatoes • 1 chicken breast

3. a) What is the difference between a physical and chemical change?

A physical change is when there is a change in appearance, but no new substance is created.

A chemical change is when a substance is changed into new substances.

b) Give three examples of a physical change.

1. changes of state (melting or gas \rightarrow liquid)
2. Dissolving substances (sugar or salt in water)
3. Tearing, ripping, cutting, crumpling, etc...

c) What are 5 indicators that a chemical change has occurred?

1. something new is produced
2. hard to reverse
3. a new colour may appear
4. heat, light, and/or sound may be given off.
5. bubbles of gas may be given off
6. solid materials (a precipitate) may form in a liquid.

d) Give three examples of a chemical change.

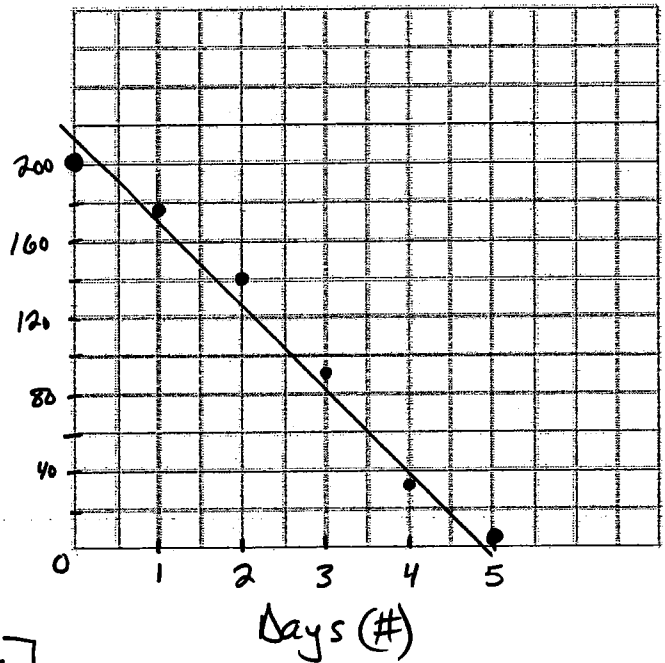
- Baking soda + vinegar \rightarrow bubbles of gas
- Fireworks \rightarrow light given off
- Sour milk \rightarrow precipitate forms
- Cooking \rightarrow hard to reverse, new substance produced
- Match light \rightarrow light & heat given off

4. Draw a scientific **LINE** graph from this data. Please put a title, label the axis, and caption. Keep in mind units and scale.

number of days	number of mini eggs left in the bag
0	200
1	176
2	141
3	91
4	34
5	2

Title: How long does a bag of mini eggs last?

mini eggs
(# of mini eggs)



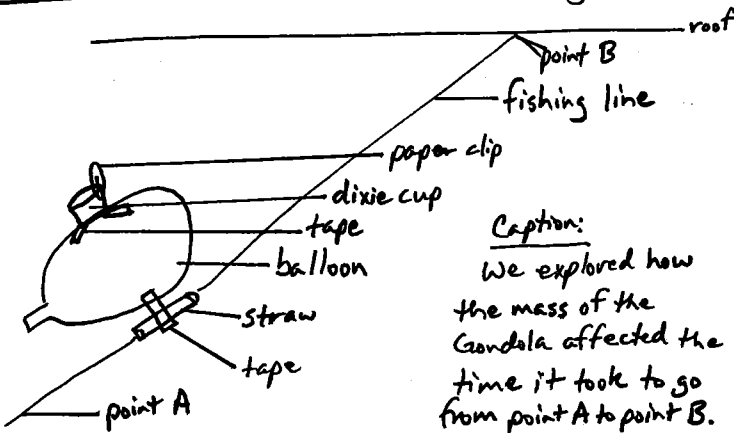
Caption:

It appears that the bag of mini eggs only lasts 5 days.

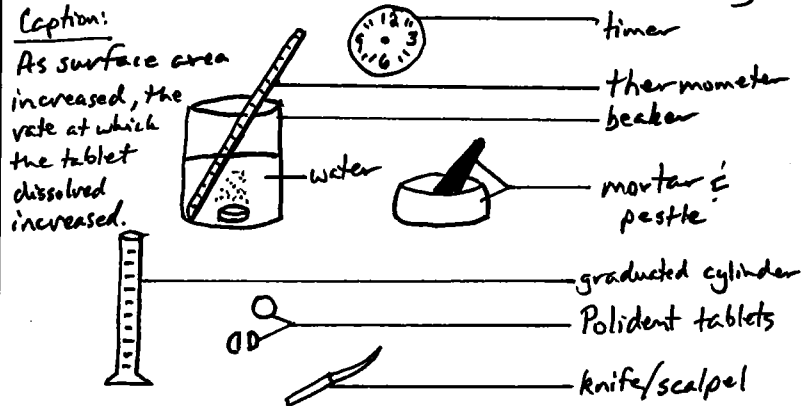
[↑ in # of days, ↓ in # of mini eggs in bag]

5. Choose one of the stations from our Science Skills/Process lab (~~conductor rod, baking soda - balloon - vinegar, elastic and weights, microscope - hydra~~) and make a good scientific diagram. *Gondola or Reaction Rates lab* Include a title, drawing, labels, and caption.

Title: A model of the Gondola investigation.



Title: How will the surface area affect the rate of dissolving?



6. Fill in the following table about the atom.

Subatomic Particle	Charge	Symbol	Location in Atom
Proton	+	p^+	nucleus
Neutron	0	n^0	nucleus
Electron	-	e^-	surrounding nucleus

7. a) What are two important pieces of information the atomic number gives you?
 1. The element you have (or 3. The # of electrons)
 2. The # of protons
- b) How can you find the atomic mass? $\#p^+ + \#n^0 = \text{atomic mass}$
- c) A neutral atom has no charge. What does this mean? $\#p^+ = \#e^-$
8. An element has an atomic mass of 24.30 and an atomic number of 12. Use your periodic table.
- a) What element am I? Magnesium
- b) What is the number of protons? 12
- c) What is the number of electrons? 12
- d) What is the number of neutrons? 12
9. Fill in the following table for the following atoms. You may use your periodic table **AFTER** you have filled in the information for the atomic number, atomic mass, protons, neutrons, and electrons.

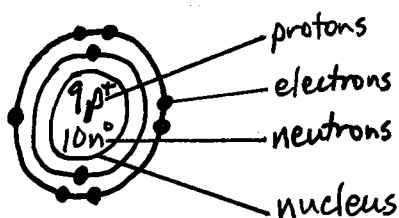
Element	Atomic Number	Atomic Mass	Protons	Neutrons	Electrons
Oxygen	8	16	8	8	8
Potassium	19	39	19	20	19
Iron	26	56	26	30	26
Bromine	35	80	35	45	35

10. a) What is the purpose of the Bohr model?
 To represent where e^- are located around the nucleus
 ↳ model; energy shells
- b) How do we fill the shells/orbits of a Bohr model?
 1st shell → 2 e^-
 2nd shell → 8 e^-
 3rd shell → 8 e^-
 4th shell → 18 e^-
 Shell/energy shells/energy levels/orbits.
- c) Describe how you would fill shells of an atom with 13 electrons. Draw a diagram to help in your explanation.
 1st shell → 2 e^-
 2nd shell → 8 e^-
 3rd shell → 3 e^-
 total 13 e^-



11. Pick an element from the periodic table (#1-20 only) and draw a Bohr model of an atom. Remember to give it a title, labels, and caption.

Title: A model of Fluorine



Caption:

This is a Bohr model of the Fluorine atom.