Elements, Compounds, and Mixtures

NAME:_____ Date:_____Class:_____

Click the following link and watch the video: https://www.youtube.com/watch?v=IFKnq9QM6_A

PART A: Read the information on this site http://www.chem4kids.com/files/matter_intro.html and click "next page on matter" at the bottom of the pages until you find your answers.

1. How is matter defined?

2. What is required to move from one state or phase of matter to the next?

3. What are the points at which matter undergoes a phase change called?

4. What happens to the atoms during phase changes?

5. How are atoms arranged in a solid, liquid and gas?

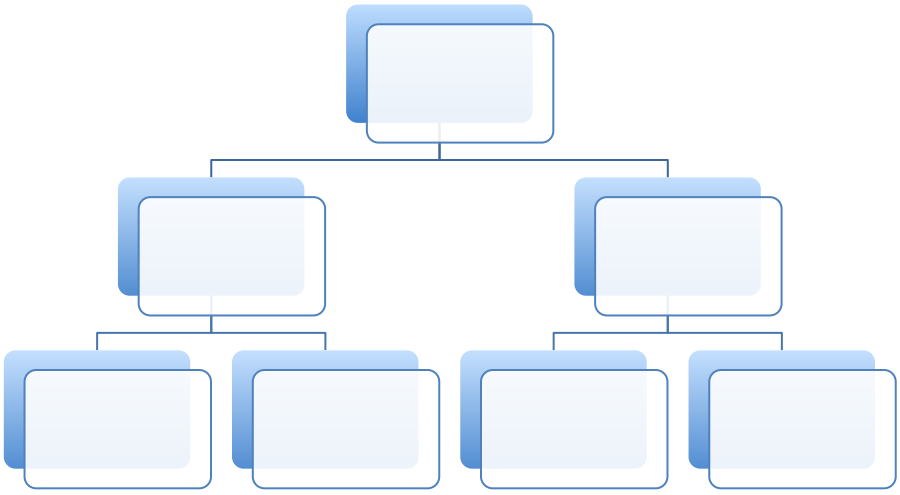
Click "atoms" at the top of the page.

6. What are atoms compared to and why?

7. List and describe the 3 parts of an atom? Include charge and location.

8. What is an orbital?

PART B: Matter can be classified in a few categories. Use this link: http://www.dummies.com/how-to/content/how-to-distinguish-pure-substances-and-mixtures.html and complete the chart that is given and define the words in the chart below.



Pure Substance-

- Element-
- Compound-

Mixture-

- Homogenous-
- Heterogenous-

PART C: Element Overview
Now go to this link: http://chemistry.about.com/od/chemistryfaqs/f/element.htm

9. What is the definition of an element given on this page?

Now go to this link: http://education.jlab.org/qa/element.html and answer the questions below:

10. What is the definition of an element given on this Page?

Now Click on the link for "What is the difference between atoms and elements? Or find the link: http://education.jlab.org/qa/atoms_and_elements.html Answer the questions below.

11. Define element

12. Define atom

13. Define molecule

14. Define compound

PART D: So now we know that Matter can be either a pure substance or a mixture…Let's look at **pure substances** first. They can be either elements or compounds. Read the information on this site http://www.chem4kids.com/files/matter_intro.html and click "elements" at the top of the page.

15. Based on the info on this page, define "element".

Click "atoms" at the top of the page, then click "compounds" on the right.

16. What is a molecule?

17. What is compound?

18. How are molecules and compounds different?

OK- now use the following link to fill in the chart that helps us figure out the differences between elements and compounds. http://www.diffen.com/difference/Compound_vs_Element

	Compound	Element
Meaning		
Distinguishing Features		
Ability to Breakdown (separate)		
Types		
Representation		
Examples		

Molecules and Compounds
Find the link: http://education.jlab.org/qa/compound.html and answer the questions below.

19. What is formed when two or more atoms join together chemically? _____
20. What is formed when two or more different kinds of atoms or elements join together chemically?_____
21. A _____ is always a molecule, but a _____ is not always a compound.
22. Provide the chemical symbol for three molecules that are not compounds: _____, _____, and _____.
23. Name 3 common compounds, using both their chemical symbol and their name: _____, _____, and _____
24. One molecule of water contains _____ hydrogen atoms and _____ oxygen atom.
25. One molecule of carbon dioxide contains _____ carbon atom and _____ oxygen atoms.

PART E: MIXTURES vs COMPOUNDS

Watch the video and follow the directions:
http://www.bbc.co.uk/bitesize/ks3/science/chemical_material_behaviour/compounds_mixtures/activity/

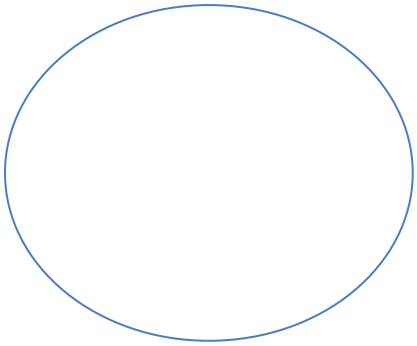
http://chemed.chem.purdue.edu/genchem/topicreview/bp/ch2/mixframe.html
(Hint: Scroll down the page)

26. What are some differences between mixtures and compounds?

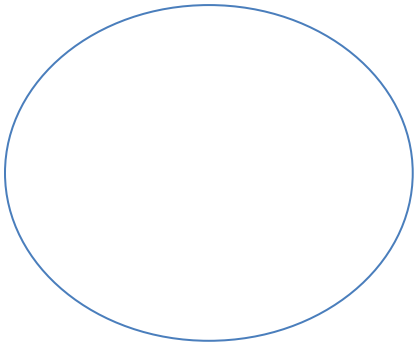
27. How can cereal relate to mixtures and compounds?

Now onto Mixtures. Let's draw some pictures to help us. Use this website and fill in the pictures below.
http://www.chem.purdue.edu/gchelp/atoms/elements.html

Elements have only ONE type of atom. Lets draw what the elements in the pictures look like and use COLORED PENCILS! Notice each element picture only has ONE color.

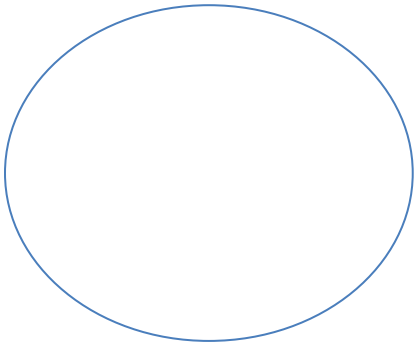


Argon



Nitrogen

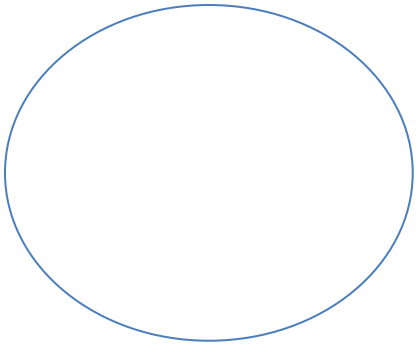
Now the compound. Notice it has 2 colors that are stuck to each other.



Water (H_2O)

Now lets draw what the mixture looks like when we put all 3 of these things together. Remember a mixture is 2 or more different elements or compounds PHYSICALLY mixed together (not stuck to each other).

Mixture of Argon, Nitrogen and Water



A mixture can be separated by physical means (no chemical reaction is necessary to separate a mixture). http://portal.norwalkps.org/sites/teachers/knapp/Documents/C3.pdf

Define each of these separation techniques:

28. Flotation/Panning-

29. Mechanical Separation

30. Ascending Chromatography-

31. Filtration-

32. Distillation-

Now, http://www.mheducation.ca/school/applets/bcscience7/mixtures/bcscience7_mixtures.swf

Mixture	Technique

PRACTICE: ELEMENT, COMPOUND OR MIXTURE?
Take the quiz at http://www.funtrivia.com/playquiz/quiz148865110c980.html and record your answers in the blanks provided.

1. _____ 6. _____
2. _____ 7. _____
3. _____ 8. _____
4. _____ 9. _____
5. _____ 10. _____

Go to http://mint.ua.edu/games/chemical-mixup/ and play the game.

Mixture, Solution, and Compound review (rags to riches): http://www.quia.com/rr/33049.html