

Physical Science Review

1. What is an atom?

2. List each subatomic particle and give the charge for each, tell where it is found

<u>Subatomic Particle</u>	<u>Charge</u>	<u>Location</u>

Periodic table

3. What is a group?

4. As you go down a group the number of energy levels _____ and the number of valence electrons _____

5. What is a period?

6. As you go across a period, the number of energy levels _____ and the number of valence electrons _____

7. What is special about elements in a family?

8. How is the periodic table arranged?

9. Where metals on the periodic table?

10. Where are non metals are found?

11. Where are metalloids found?

12. What group are the:

a.) alkali metals in? _____

b.) alkaline earth metals? _____

c.) halogens in? _____

d.) noble gases in? _____

13. Draw any element square from the periodic table label the atomic number and atomic mass.

- a. The atomic mass tells us _____
- b. The atomic number tells us _____
- c. To find the number of protons _____

14. Identify the following for the element you chose:

- a. Number of Protons _____
- b. Number of Electrons _____
- c. Number of Neutrons _____

15. Draw the Bohr diagram below for the following atoms

- a. Beryllium
- b. Silicon
- c. Oxygen

16. Draw a Lewis structure for

- a. Sodium
- b. Chlorine
- c. Carbon

17. How many valence electrons does tin (Sn) have? How many energy levels (shells)? Explain how you found your answers.

Extended Structures

18. Complete the following table defining each category of matter, include a picture or example of each

<u>Element</u>	<u>Molecule</u>	<u>Compound</u>	<u>Mixture</u>

19. Acetic Acid $C_2H_4O_2$

Try to draw it...hint its CH_3-COOH

# of Total Atoms	# of Elements	# of C	# H	# O

**What are those "tiny" numbers (6, 12, and 6) called?

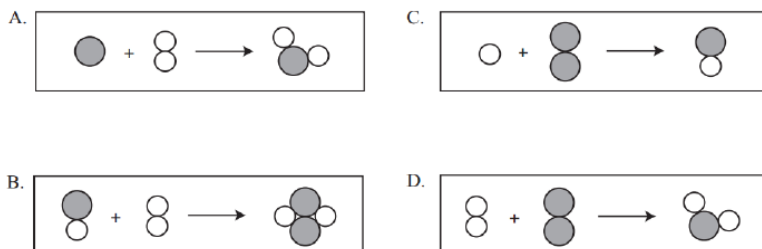
20. In chemistry, the elements are
- Pure chemical substances containing only one type of atom
 - Pure chemical substances containing two or more different types of atoms
 - Substances which can be burnt in the presence of air
 - Substances which do not react with other substances

Chemical Reactions

21. Draw a picture illustrating a physical change and one of chemical change

<u>Physical Change</u>	<u>Chemical Change</u>

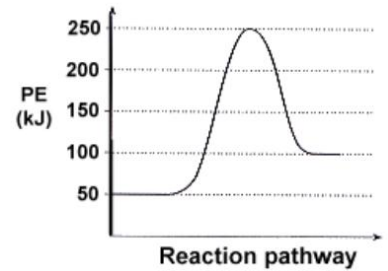
22. In making pizza, which process involves a chemical change?
- Mixing the spices for the sauce
 - Slicing the pepperoni for the toppings
 - Spreading cheese on the pizza
 - Baking the dough to form the crust
23. The law of conservation of mass can be demonstrated by a chemical reaction. Which of the following models of a chemical reaction **best** represents the law of conservation of mass?



24. Decide whether each of these reactions is exothermic or endothermic:
- When two chemicals mix their temperature rises: _____
 - A solid burns brightly and releases heat, light and sound: _____
 - When two chemicals are mixed their temperature drops: _____
 - Two chemicals will only react if you heat them continually: _____
 - Plants take in light energy for photosynthesis: _____

25. Answer the following questions based on the potential energy diagram show below

- Does the graph represent an endothermic or exothermic reaction?
- Label the position of the reactants and the products
- Determine the heat of the reaction (ΔH)

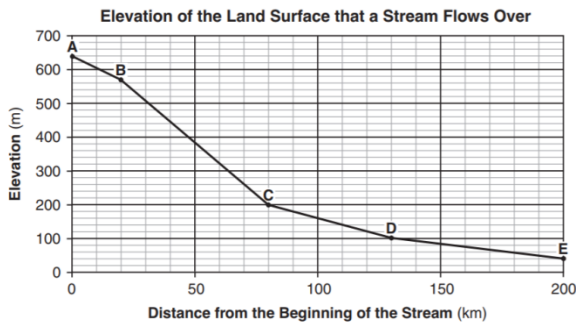


26. Complete the table with the items to the right

Natural Resource	Synthetic Product

- Chicken Eggs
- Coal
- PVC (Plastic)
- Aluminum
- Brass (alloy)
- Sunlight
- Ice Cream
- Vaccine

27. The graph represents the changes in elevation in meters (m) of a stream. Letters A through F represent locations in the stream at different distances in kilometers (km) from point A where the stream begins.



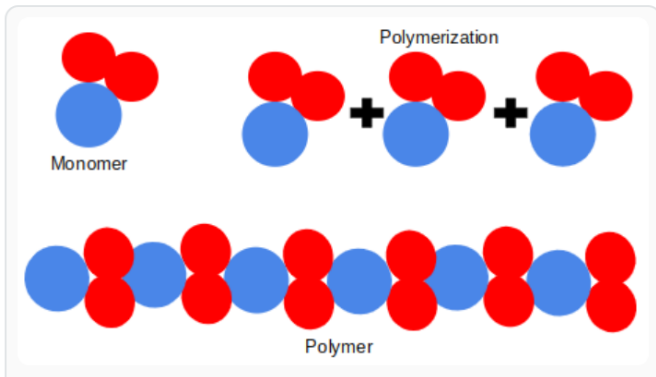
Identify the letter where the stream would have the greatest potential energy. *****Note there are five choices for this question**

- A
- B
- C
- D
- E

28. The figure shows a toaster that toasts bread. Which energy conversion takes place when a toaster is switched on?

- Chemical to sound
- Chemical to thermal
- Electrical to sound
- Electrical to thermal

29. Select five underlined statements in the reading that support the following diagram



Monomers

Monomers are molecules. Monomers can be quite large or small (only one or two atoms) They can be a variety of shapes, depending on what the monomer is made of. Monomers can be thought of as the pieces of a puzzle of the building blocks to all structures.

Polymerization

Polymerization is the process by which monomers join together (usually by covalent bonds). During this process, monomers might be broken into slightly smaller pieces to have the right characteristics to bond to the next monomer. Polymerization might join the same monomers together, different monomers together, or a polymerization might join a combination of the same and different monomers together. Scientists have identified things that aid in polymerization and used them to join certain monomers together to synthesize man-made products (like Nylon and plastic).

Polymers

Polymers are the products of polymerization. Polymers could be long chains (carbohydrates), chains that are twisted and bound up to form certain shapes (DNA, proteins), or polymers could be bigger web-like structures. Always, polymers are made from smaller pieces called monomers.

30. Complete the following table organizing the following polymers as natural or synthetic

- DNA
- Plastic
- Nylon
- Wool
- Spider Silk
- Teflon
- Carbohydrates
- Polyester
- Cellulose
- PVC

<u>Natural</u>	<u>Synthetic</u>