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Period: ____ Date: _____

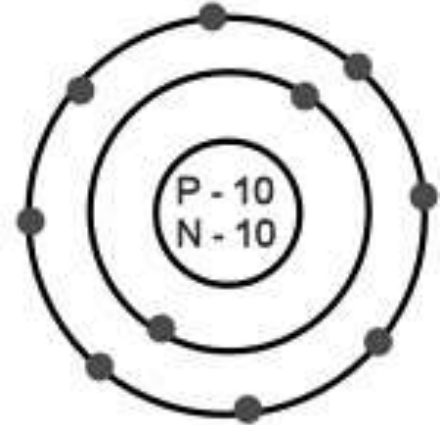
Test Review – Chapter 2 - Biochemistry

1. What are the 3 subatomic particles? Which ones are found in the nucleus? Which ones are outside of the nucleus?

Protons have a _____ charge (+).

Neutrons have a _____ charge (0).

Electrons have a _____ charge (-).



2. What is a **valence** electron? **Why** are they **important**?

3. In the picture, how many **VALENCE** electrons do you see? _____

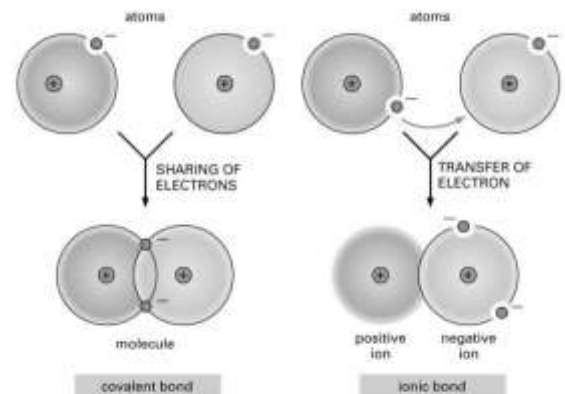
4. What an element's **atomic number**?

5. What is the **atomic number** of the atom shown? _____

6. What is an element's **mass number**?

7. What is the **mass number** of the atom shown?

8. What is a **covalent bond**? **Draw a picture** of a **covalent bond**.



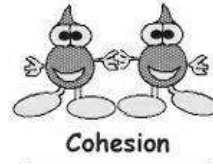
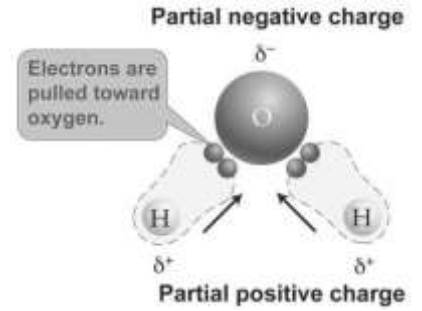
9. What is an **ionic bond**? **Draw a picture** of an **ionic bond**.

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1. What kind of **STRONG** bond holds together the Hs and Os **in** a water molecule? (NOT a hydrogen bond)

2. What is a **hydrogen** bond? **Draw** a picture of two or more water molecules hydrogen bonding.

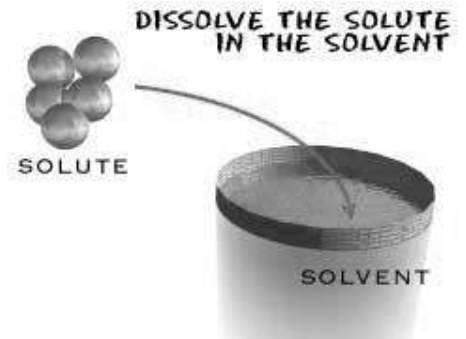


3. What is **cohesion**? What **causes** cohesion in water?



4. What is **adhesion**?

5. Define the two parts of a solution.



6. What is the difference between a **solution** and **suspension**?

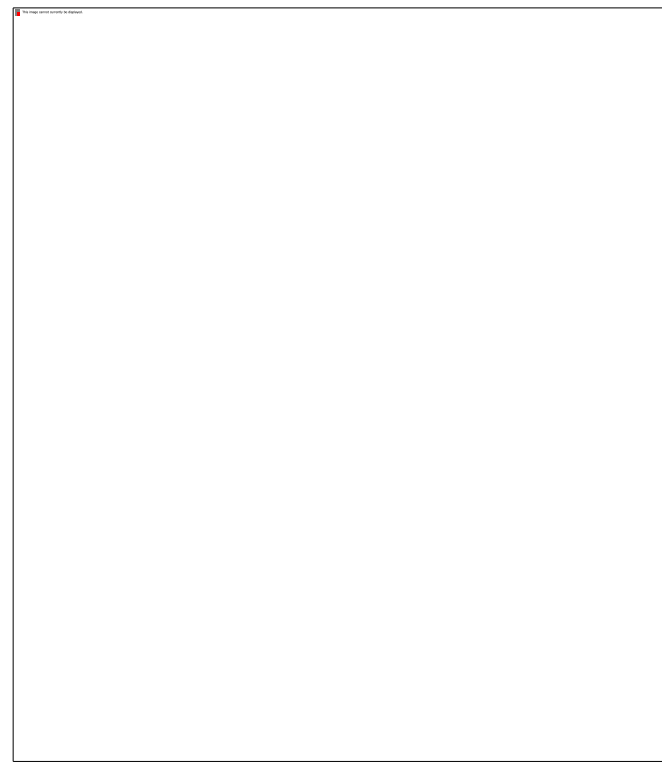
7. What does **pH** measure?

8. On the picture, **label** which area is increasingly **ACIDIC** and which area is **BASIC**.

9. On the picture, **label** the **H⁺** ions and the **OH⁻** ions in the beakers.

10. On the picture, **label** the area which is **neutral**.

11. **Acidic** solutions have lots of _____ **ions**.



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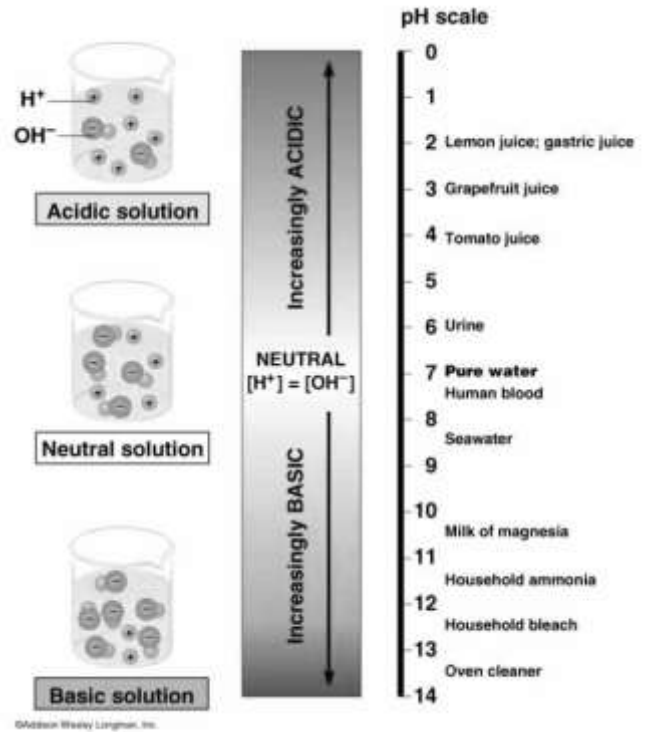
12. **Basic** solutions have lots of _____ ions.

13. I have a liquid that measures a **pH** of **3**. Is it an **acid** or a **base**? _____

14. I have a liquid that measures a **pH** of **9**. Is it an **acid** or a **base**? _____

15. **Water** is **neutral** with a **pH** of _____.

16. What are **buffers** and why are they important?



Carbon Compounds – Macromolecules

1. Which special element are ALL living things made of?

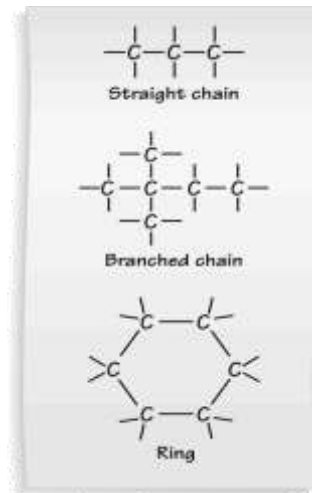
2. What makes this element so special (give 2 reasons)?

3. Which **SIX elements** are found in ALMOST all living things?

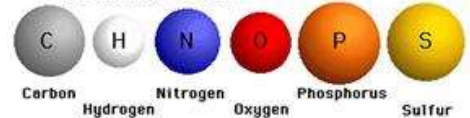
4. What **word** do we use to remember these six elements?

5. What is a **monomer**?

6. What is a **polymer**?



CHNOPS: The Six Most Abundant Elements of Life

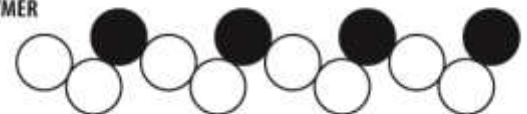


Structure of Monomers and Polymers

MONOMER



POLYMER



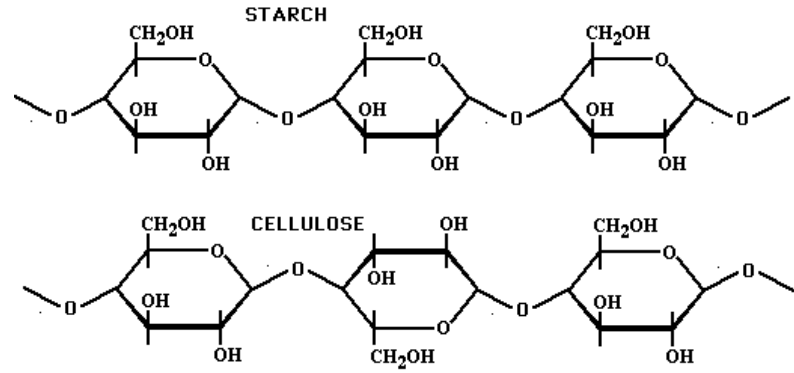
A polymer is a long-chain molecule made up of a repeated pattern of monomers.

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7. What **process** makes polymers?

8. What are **carbohydrates** used for in our bodies?

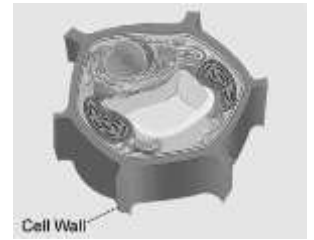


9. What are the **monomers** for carbohydrates? _____

10. Most sugars end in the **three letters** _____. (hint: fructose, glucose, sucrose...)

11. What is one of the most important *monosaccharides* in our body (begins with a "g")?

12. Draw a diagram of a **glucose** molecule (single sugar) – *basic shape, not all the elements.*

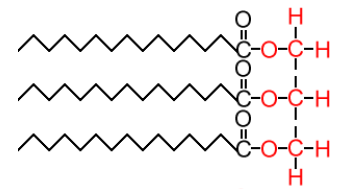


13. Many **monosaccharides** put together make a _____.

14. Name **FOUR** foods where you will find carbohydrates.



15. What **elements** are **lipids** made from?



Triglyceride

16. Is there a specific monomer for **fats**? _____

17. Name **two** jobs/functions of **lipids**

Fats Our body stores up fat to use as energy and protect us from the cold.



Name: _____

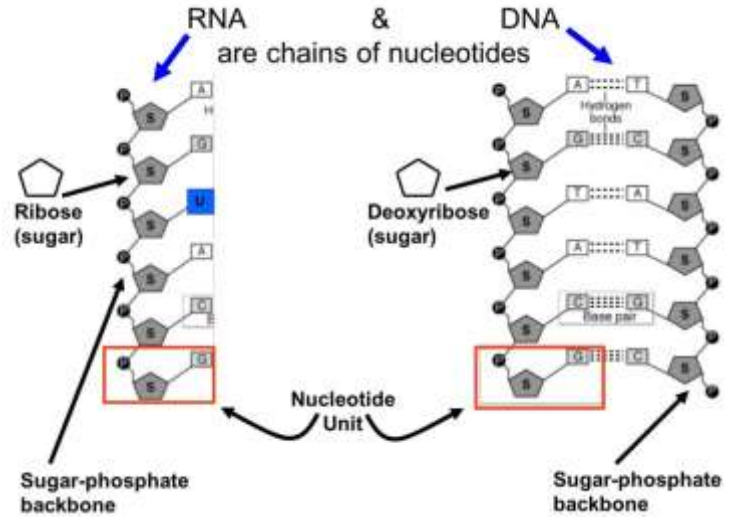
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18. Name **FOUR foods** where you will find lipids (fats)

19. What are the **two** kinds of nucleic acids? _____

20. What are the **monomers** for nucleic acids?

21. What are the three parts of a nucleotide? Draw AND label a **picture** of a nucleotide



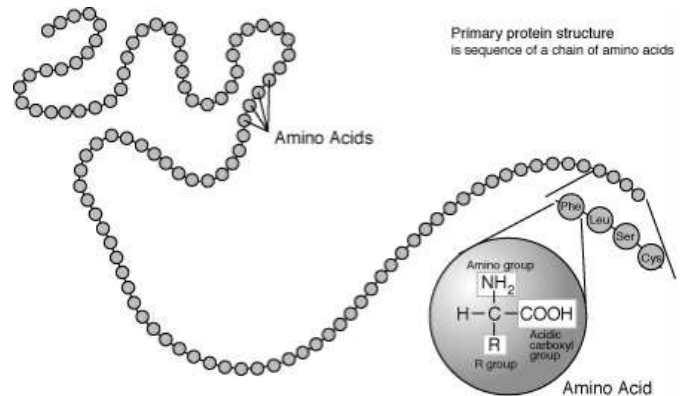
22. What are **two differences** between DNA and RNA?

23. What is the **job/function** of DNA in your body?

24. What are the **monomers** for protein?

25. Name **THREE jobs/function** of proteins

26. Name **FOUR foods** where you will find protein



Proteins



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Chemical Reactions and Enzymes

1. Describe the **two** parts of a **chemical reaction**.

2. What **macromolecule** are enzymes made of?

3. What is a **catalyst**?

4. What do **enzymes** do in your body?

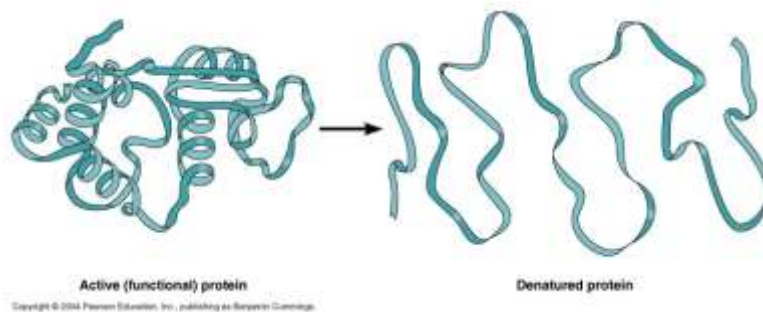
5. What is a chemical reaction's **activation energy**?

6. How do enzymes affect activation energy?

7. If a reaction has very **HIGH** activation energy, is it **easy** or **hard** to start? Explain.

8. Explain **three** situations that will make your enzymes work **SLOWER** (*think back to toothpick lab*).

9. What does it mean to **denature** a protein?



10. Will enzymes **work** when they are **denatured**? Why or why not?

11. **Label** the picture below with these words: **enzyme**, **products**, **substrate**, **active site**, **enzyme-substrate complex**.

