CHAPTER 2 GUIDED NOTES: THE NATURE OF MOLECULES AND THE PROPERTIES OF WATER

Raven 9th edition

1. Briefly review the structure of atoms.

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2. Helium has an atomic number of 2 and atomic mass of 4. Explain.

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3. Define isotope and give some examples.

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4. How are isotopes used in biology?

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5. What are ions? Distinguish between cations and anions.

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7. Distinguish between oxidation and reduction reactions. Explain the significance of oxidation and reduction reactions in organisms.

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8. What is the significance of valence numbers?

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9. What are the most common elements in the human?

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10. Why do atoms form covalent vs. ionic bonds?

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11. How do non-polar covalent bonds differ from polar covalent bonds?

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12. What is a hydrogen bond? How does it form and how is it different from a covalent bond?

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13. Sketch a few molecules of water, indicate their polarity, and where H bonds form.

14. Why is H bonding so important to water's properties?

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15. Distinguish between hydrophobic and hydrophilic molecules

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16. List the "special" properties of water and give an example of why the property may be important to living things.

    a._____
    b._____
    c._____
    d._____

17. Explain the pH scale.

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18. What is a buffer? How do they work? Why are they necessary in biological systems? Give an example.