

Module 4 ~ Viva la Difference! (MS/HS)  
**Guiding Questions**



An introduction to the biological productivity of Florida lakes and their unique characteristics.

Name: \_\_\_\_\_ Class Period: \_\_\_\_\_ Date: \_\_\_\_\_

- 1) Name at least two characteristics that most people use to describe lakes:
  - a. \_\_\_\_\_ and \_\_\_\_\_
- 2) Lake scientists (limnologists) have devised a way to \_\_\_\_\_ lakes. It's known as the \_\_\_\_\_ classification system."
- 3) The term "**trophic**" originated from the Greek language and it means \_\_\_\_\_.
- 4) Fill in the appropriate word(s) to finish each sentence:
  - a. The prefix "**oligo**" means \_\_\_\_\_
  - b. The prefix "**meso**" means \_\_\_\_\_
  - c. The prefix "**eu**" means \_\_\_\_\_
  - d. The prefix "**hyper**" means \_\_\_\_\_
- 5) Scientists gather data or measurements on four basic characteristics or "parameters" and then use the information to decide the correct trophic category for a lake. The four parameters are:  
\_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_,  
and \_\_\_\_\_.
- 6) **Chlorophyll** are tiny green pigments found in most algae. Oligotrophic lakes tend to have \_\_\_\_\_ concentrations of chlorophyll.
- 7) **Phosphorus** and **nitrogen** are \_\_\_\_\_ that are required for the survival of all plants and algae. It's also a prime ingredient found in fertilizers that we use on our lawns and gardens.
- 8) **Hypereutrophic** lakes tend to have \_\_\_\_\_ amounts of nutrients.
- 9) Water clarity can be measured with a device known as a **Secchi** \_\_\_\_\_.



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- 10) If we know the **trophic state** of a lake, we can get a good idea of its **biological** \_\_\_\_\_.
- 11) Circle the best word in this sentence: A eutrophic lake will have LESS / MORE fish.
- 12) Large \_\_\_\_\_ (known as macrophytes) are also an important part of a lake's trophic state.
- 13) Aquatic plants can be classified into three main groups: \_\_\_\_\_, submersed, floating and \_\_\_\_\_.
- 14) Florida lakes generally support an abundance of plants because: \_\_\_\_\_  
\_\_\_\_\_
- 15) \_\_\_\_\_ plants can fool us into classifying a lake in the wrong category. They can grow so abundantly that they make the water appear to be very \_\_\_\_\_.
- 16) Aside from invasive plants, a lake's trophic state can be influenced by \_\_\_\_\_ and/or \_\_\_\_\_ factors.
- 17) A \_\_\_\_\_ would be an example of a **natural** influence.
- 18) Stormwater runoff is a \_\_\_\_\_ influence.
- 19) \_\_\_\_\_ is another word for "taking care of" a lake.



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**Guiding Questions – Answer Key**

An introduction to the biological productivity of Florida lakes and their unique characteristics.



Name: \_\_\_\_\_ Class Period: \_\_\_\_\_ Date: \_\_\_\_\_

- 1) Name at least two characteristics that most people use to describe lakes:
  - a. **Color** and **water clarity (Answers could vary: polluted, ugly, pretty, etc.)**
- 2) Lake scientists (limnologists) have devised a way to **classify or describe** lakes. It's known as the "**trophic state** classification system."
- 3) The term "*trophic*" originated from the Greek language and it means "**nourishment or nutrition**."
- 4) Fill in the appropriate word(s) to finish each sentence:
  - a. The prefix "**oligo**" means **scant or lacking ...not very much**.
  - b. The prefix "**meso**" means "**moderate**" or "**medium**."
  - c. The prefix "**eu**" means "**good or sufficient**".
  - d. The prefix "**hyper**" means "**over abundant**" or "**extreme**."
- 5) Scientists gather data or measurements on four basic characteristics or "parameters" and then use the information to decide the correct trophic category for a lake. The four parameters are: **total chlorophyll, total phosphorus, total nitrogen, and Secchi depth (water clarity)**.
- 6) Chlorophyll are tiny green pigments found in most algae. Oligotrophic lakes tend to have **small** concentrations of chlorophyll.
- 7) Phosphorus and nitrogen are **nutrients** required for the survival of all plants and algae. It's also a prime ingredient found in fertilizers that we use on our lawns and gardens.
- 8) Hypereutrophic lakes tend to have **large or excessive** amounts of nutrients.
- 9) Water clarity can be measured with a device known as a Secchi **disk**.



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**Guiding Questions – Answer Key**

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- 10) If we know the trophic state of a lake, we can get a good idea of its biological **productivity**.
- 11) Circle the best word in this sentence: A eutrophic lake will have LESS / MORE fish.
- 12) Large **plants** (known as macrophytes) are also an important part of a lake's trophic state.
- 13) Aquatic plants can be classified into three main groups: **emersed**, submersed, floating and **floating-leaved**.
- 14) Florida lakes generally support an abundance of plants because: **most of our lakes are shallow (less than 12 feet deep); our weather is often warm year round (few, if any, freeze in the winter); many parts of Florida have soils that are rich in phosphorus – a nutrient that enhances plant growth.**
- 15) **Invasive** plants can fool us into classifying a lake in the wrong category. They can grow so abundantly that they make the water appear to be very **clear**.
- 16) Aside from invasive plants, a lake's trophic state can be influenced by **natural** and/or **human** factors.
- 17) A **hurricane** would be an example of a *natural* influence.
- 18) Stormwater runoff is a **human** influence.
- 19) **Managing** is another word for "taking care of" a lake.

