



2018 UT GME_TEACHER_Hydrology_PRE

Mission Earth_Hydrology

1. What is your name?

2. What is the name of your school?

3. What is your grade level in school?

4. If your hydrosphere study site is a still body of water, where should you not locate your sampling site?

- Near an inlet
- Near an outlet
- Along a bridge
- Somewhere along the middle

5. If your site is located along moving water, where should you choose to sample your water?

- Pool
- Water fall
- Riffle
- Rapids

6. What type/s of data are collected about your hydrosphere study site?

- Photos
- Maps
- Written description
- All of the above

7. Which item/s should you include in your key with symbols for the site map?

- Shoreline
- Water flow
- Flags
- All of the above

8. How often should alkalinity be measured?

- Bi-annually
- Annually
- Monthly
- Weekly

9. Which other GLOBE hydrosphere measurement is closely related to the alkalinity measurement?

- pH
- Dissolved oxygen
- Freshwater macroinvertebrates
- Nitrates

10. All alkalinity test kits have the same acceptable ranges so there is no need to read the manufacturer instructions

- True
- False

11. You have taken 3 alkalinity measurements using a LaMotte test kit. These are 47 mg/L, 54 mg/L and 70 mg/L, what average value would you calculate?

- 60
- 42.5
- 50.5
- 57

12. The solubility of oxygen in water increases with increasing water temperature.

- True
- False

13. Salinity has no affect on the solubility of oxygen in water

- True
- False

14. Which units are used to measure dissolved oxygen?

- Parts per million
- Parts per thousand
- Parts per billion
- Parts per hundred

15. You have created a standard using distilled water. It has been shaken for 5 minutes. You take the temperature and it reads 20 deg. C. What is the solubility using the table below?

- 5.7 ppm
- 9.1 ppm
- 6.8 ppm
- 7.5 ppm

Table HY-DO-1: Solubility of Oxygen in Fresh Water Exposed to Air at 1013.25 mB Pressure

Temp (°C)	Solubility (mg/L)	Temp (°C)	Solubility (mg/L)	Temp (°C)	Solubility (mg/L)
0	14.6	16	9.9	32	7.3
1	14.2	17	9.7	33	7.2
2	13.8	18	9.5	34	7.1
3	13.5	19	9.3	35	7.0
4	13.1	20	9.1	36	6.8
5	12.8	21	8.9	37	6.7
6	12.5	22	8.7	38	6.6
7	12.1	23	8.6	39	6.5
8	11.9	24	8.4	40	6.4
9	11.6	25	8.3	41	6.3
10	11.3	26	8.1	42	6.2
11	11.0	27	8.0	43	6.1
12	10.8	28	7.8	44	6.0
13	10.5	29	7.7	45	5.9
14	10.3	30	7.6	46	5.8
15	10.1	31	7.4	47	5.7

16. What does TDS stand for?

- Total Dissolved Solids
- Technique Direction Services
- Telephone and Data Systems
- Time Dissolved Solids

17. What does electrical conductivity measure?

- the ability to transmit an electrical current
- the amount of dissolved solids
- the amount of salts
- all of the above

18. How many measurements should you take of nitrates?

- 1
- 10
- 3
- 5

19. Which of these should you NOT do when testing for nitrates in water samples?

- Dump the waste products down the sink
- Use goggles and gloves when performing the test
- Test the chemicals every 6 months
- Use a stop watch or clock to time the chemical reactions

20. What other GLOBE measurement is closely linked with nitrates?

- Dissolved oxygen
- Soil moisture
- Alkalinity
- Tree canopy

21. Why is nitrogen often called a limiting nutrient?

- The amount of nitrogen in the water limits growth of plants
- The amount of nitrogen in water limits amount of oxygen in water
- The amount of nitrogen in water limits amount of fish
- The amount of nitrogen in water limits amount of carbon dioxide in water

22. What does pH measure in water?

- amount of calcium carbonate in water
- acidity of water
- dissolved oxygen content in water
- all of the above

23. What type of scale is used to measure pH?

- Geometric
- Logarithmic
- Irrational
- Fractional

24. Which pH value is neutral?

- 0
- 3
- 7
- 14

25. How often should I calibrate my pH meter?

- Monthly
- Every 6 months
- Before each use
- Once after buying the instrument

26. How far should the thermometer be placed in the water sample?

- 2 cm
- 5 cm
- 10 cm
- 20 cm

27. Which of these is false?

- It is not important to take the temperature at the same time of day each week
- Take the temperature quickly after collecting the water sample
- Read the thermometer while the bulb of the thermometer is in the water
- Take the temperature at the same place each week

28. Which of these influences water transparency?

- Suspended sediment
- Algae
- Dissolved solids
- All of the above

29. What atmosphere protocol should be taken along with the transparency measurement?

- Precipitation
- Cloud cover
- Air temperature
- Rainfall pH

30. How many transparency measurements should you take?

- 1
- 4
- 6
- 3

31. When reporting your data to the GLOBE Web site, you will submit the average of three transparency observations

- True
- False

32. For high school only

Use the following word bank and place the correct word(s) associated with eutrophic and oligotrophic water environments. You may use a word more than once or not at all.

Eutrophic

Oligotrophic

Word Bank:

glacial and polar ice	low transparency	lake	low nutrients	low organic matter	fertilizer runoff	alga blooms
low biodiversity	high transparency	high light penetration through water	high nutrients	high organic matter	high oxygen content	high abiotic factors

Eutrophic	Oligotrophic

33. For high school only

Justify/explain two of your choices for eutrophic and two of your choices for oligotrophic from Question 29.

Eutrophic

word _____

_____ Explanation:

Eutrophic

word _____

_____ Explanation:

Oligotrophic

word _____

_____ Explanation:

Oligotrophic

word _____

_____ Explanation: