**Week 3 Questions Answer Key**

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| **Water Testing and Measurement** |
| 1. How many parameters will our water test strips test? \_\_\_16\_\_\_\_\_\_\_\_\_  2. Name three of the parameters that we will test for.  Three of the following: lead, copper, iron, fluoride, bromine, mercury, total hardness, nitrite, nitrate, total  chlorine, aluminum, pH, sulfate, total alkalinity, free chlorine, cyanuric acid  3. A result that is underlined in red indicates that the sample is \_\_\_beyond\_\_\_\_\_\_\_\_\_\_ the \_\_EPA\_\_\_\_ \_\_\_\_\_\_\_limits\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.  4. The Red Sea Algae Control Test Kit tests for \_\_\_\_nitrate\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_phosphate\_\_\_\_\_\_\_\_\_\_\_\_\_\_.  5. For the first test of the Red Sea test kit (PO4), do the following:  a. Begin with \_\_\_\_17\_\_\_\_\_\_\_ mL of sample water.  b. Add \_\_\_10\_\_\_\_\_\_\_\_ drops of reagent A.  c. Swirl \_\_10\_\_\_\_\_\_\_\_ seconds.  d. Add \_\_\_\_\_2\_\_\_\_\_\_ drops of reagent B.  e. Swirl \_\_\_\_\_10\_\_\_\_\_ seconds.  f. Wait \_\_\_\_\_6\_\_\_\_\_ minutes.  For the second test of the Red Sea test kit (NO3), do the following:  A. Begin with \_\_\_\_\_16\_\_\_\_\_\_ mL of sample water.  B. Add \_\_\_\_5\_\_\_\_\_\_\_ drops of reagent A.  C. Swirl \_\_\_\_15\_\_\_\_\_\_ seconds.  D. Add \_\_\_\_\_1\_\_\_\_\_\_ level scoop of reagent B.  E. Swirl \_\_\_\_60\_\_\_\_\_\_ seconds with the lid on.  F. Add \_\_\_\_\_\_1\_\_\_\_\_ level scoop of reagent C (with a different spoon).  G. Swirl \_\_\_\_\_15\_\_\_\_\_ seconds with the lid on.  H. Wait \_\_\_\_\_\_\_9\_\_\_ minutes.  6. High-range test ... only if necessary.  Begin with \_\_\_\_\_1\_\_\_\_\_\_ mL of sample water with \_\_\_\_\_15\_\_\_\_\_\_\_ mL of RO water. Then  follow Steps B through H from #5 above.  7. Spectroscopy: The study of \_\_\_\_\_\_\_\_electromagnetic\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ radiation emitted or absorbed by a \_\_\_\_\_\_\_chemical\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ species.  8. Spectrophotometry is a type of spectroscopy that measures how much \_\_\_light\_\_\_\_\_\_\_\_\_\_ is \_\_absorbed\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ by a chemical substance by measuring the \_\_\_\_\_intensity\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the light beam that is not absorbed.  9. What we see from color is \_\_\_\_\_\_transmitted\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ light, the difference between incident light and absorbed light.  10. Parts of a spectrophotometer:  a. Light source  b. Collimator (\_\_\_lens\_\_\_\_\_\_\_\_)  c. Monochromator (\_\_prism\_\_\_\_\_\_\_\_\_\_ or grating)  d. \_\_\_\_\_\_wavelength\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ selector (slit)  e. Sample solution (in cuvette)  f. Detector (\_\_photocell\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_)  g. Digital display or meter  The relationship between absorbance and transmittance is logarithmic. |