SCIENCE EXPO
2021 PASSPORT
All About Tahoe!

Answer these questions as you follow along with the activities during Virtual Science Expo! Hypothesis questions are marked with (☐ ☐) for you to mark your best guess before and the correct answer after the activity.

On the Boat

1. Make a hypothesis (guess): What will happen when we add oil to water?
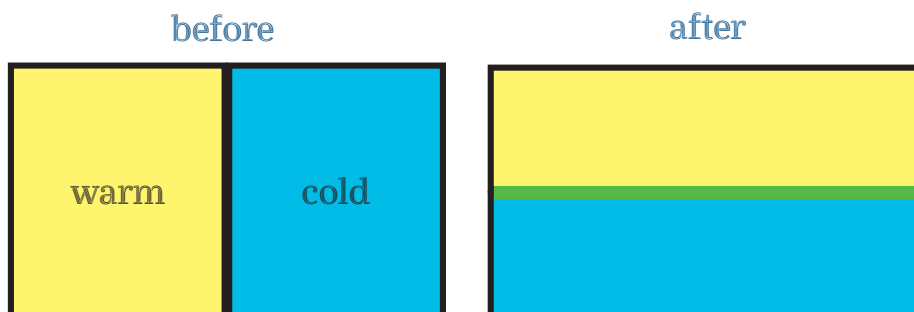
   ☐ The oil and water will mix.

   ☑ The oil will float on top of the water.

   ☐ The water will float on top of the oil.

2. Why? Oil is <u>less</u> / <u>more</u> dense than water. (Circle one)

3. Make a hypothesis: What will happen when we remove the barrier when the yellow, warm water is on top of the blue cold water?

   ☐ The yellow, warm water and blue, cold water will mix and turn the water green.

   ☑ The yellow, warm water will float on top of the blue, cold water.

   ☐ The blue, cold water will float on top of the yellow, warm water.

Draw your observations after we remove the barrier:

before

after

warm | cold

On the Boat

4. What causes Lake Tahoe to form distinct layers (stratify) during warmer weather?

    a. Surface waters warming

    b. Temperature differences

    c. Density

    (d.) All of the above

5. Make a hypothesis: What will happen to the arrow when placed behind a glass of water?

    ☐ Nothing will change. The arrow will face the same direction.

    ☑ The arrow will change directions.

    ☐ The arrow will disappear.

6. What is the scientific term for bending light?

    (a.) Refraction

    b. Reflection

    c. Absorption

7. Make a hypothesis: What will happen to the image of Tahoe Tessie?

    ☐ Nothing will change.

    ☑ Colors will disappear.

    ☐ Image of Tahoe Tessie will disappear

8. Which type of sediment will take the longest to settle? Why?
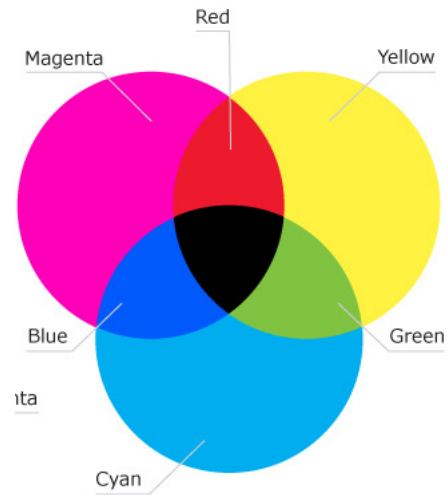
    ☐ Gravel

    ☐ Sand   Is is the smallest and least dense particle, so it is most likely to stay suspended in the water.

    ☐ Silt

    ☑ Clay

In the 3D Theater

10. Make a hypothesis: When we mix the three colors of pigment, what color will result?

☐ White

☑ Black or Brown

11. Color in the colors of pigment:

12. Make a hypothesis: When we mix the three colors of light, what color will result?
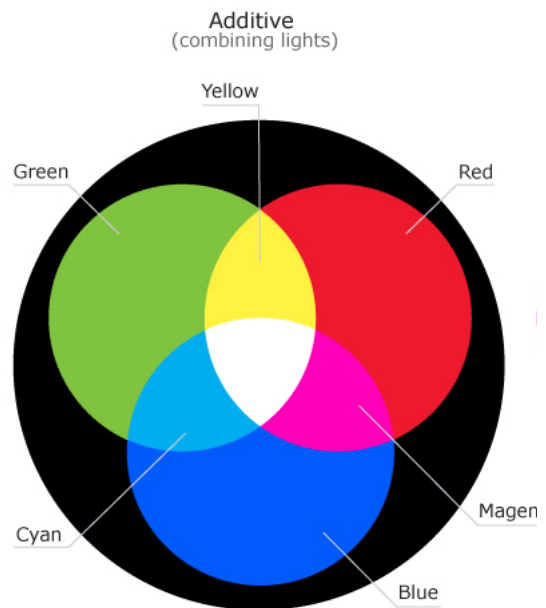
☑ White

☐ Black or Brown

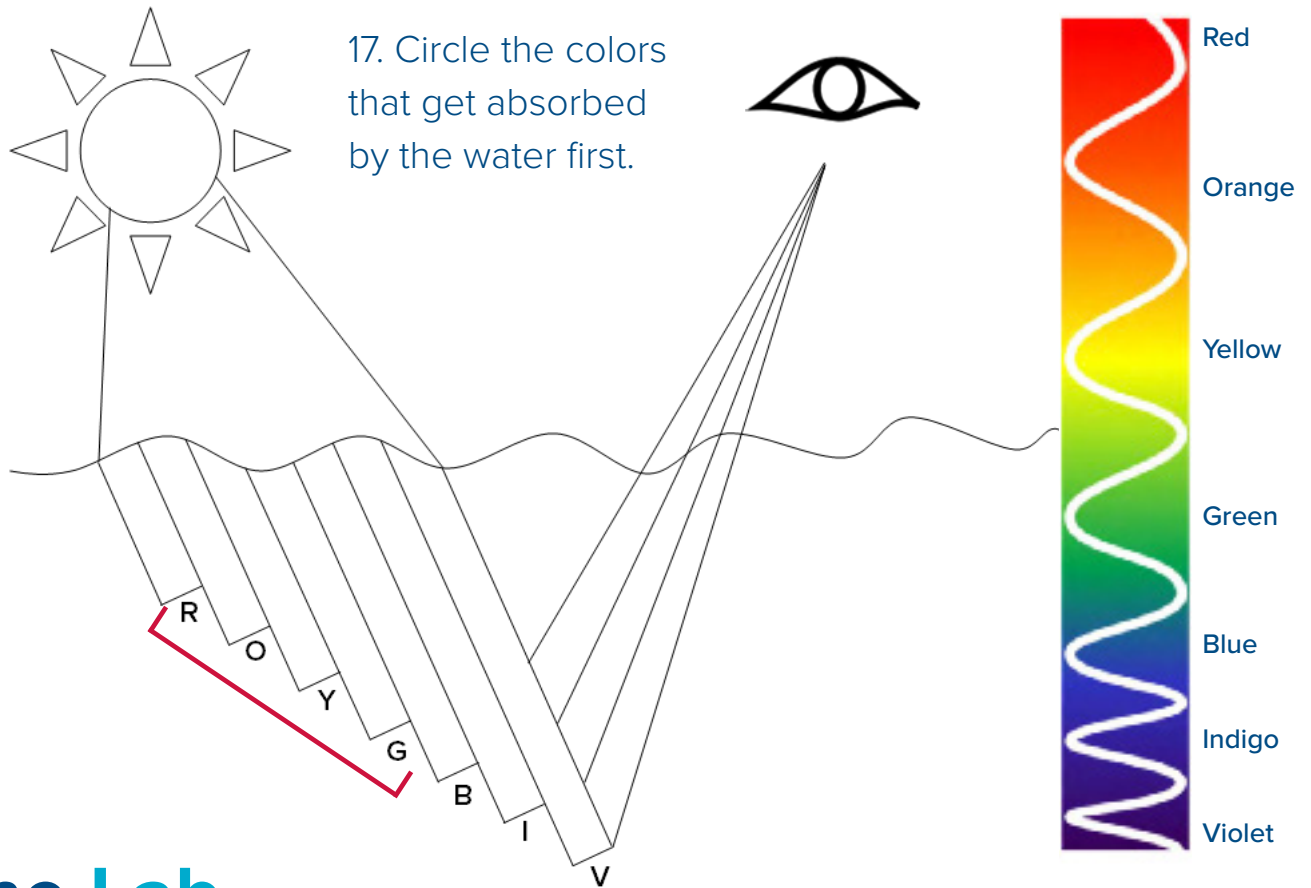13. Color in the colors of light:

14. Why is Lake Tahoe blue?

    a. Few sediments

    b. Little algae

    c. Low nutrients like phosphorus and nitro

    d. Properties of light

    e. All of the above

15. Sunlight is made up of all of the colors of the rainbow.

16. In deep, clear water, the colors blue, indigo, and violet are reflected back to our eyes.

In the **3D Theater**

17. Circle the colors that get absorbed by the water first.

Red

Orange

Yellow

Green

Blue

Indigo

Violet

R
O
Y
G
B
I
V

In the **Lab**

18. Are Lahontan cutthroat trout <u>native</u> or <u>non-native</u>? Circle one.

19. Are Mysis shrimp <u>native</u> or <u>non-native</u>? Circle one.

20. Mysis shrimp hide in the <u>depths</u> or <u>shallows</u> of Lake Tahoe where fish can't find them. Circle one.

21. Are Daphnia <u>native</u> or <u>non-native</u>? Circle one.

22. <u>True</u> or <u>False</u>: Daphnia can eat algae and fine sediment and help the lake become more clear.

23. <u>True</u> or <u>False</u>: Lake Tahoe's food web has <u>not</u> been altered by non-native species introductions.