a WOW Lab BLUEPRINT

Rainbow in a Bottle

Lesson Logistics

Learning Outcomes

K-Grade 3	Grades 4-6
Exploring the world with our senses	Properties and changes of materials
Materials and our senses	
Properties of objects and materials	
Relative position and motion	

Class Organization

Divide the students into six groups. Each group will make one colour of the rainbow.

Ensure that each student has a copy of *Student Handout Two*.

Notes

Lay out the required materials on a table at the front of the classroom, as well as a copy of *Student Handout One*, which contains instructions for the six groups. Have each group approach the table individually to mix their solution, while the other students work on *Student Handout Two*. Once the solutions have been prepared, the entire class can approach the table to observe the rainbow being poured. Ask one representative from each group to help pour their colour into the container.

It is recommended to practice removing the straw from a glass of water before attempting it with the rainbow layers.

It is recommended to colour-code the measuring spoons since students will find it easier to identify the spoons based on colour rather than size. For this activity, the 1 tbsp measuring spoon has been marked with red tape and the 1/2 tbsp measuring spoon with blue tape.

If the class has a painting day, it may be advisable to perform this activity at the same time. Students can further explore colour by combining paints and painting a rainbow. Additionally, the classroom will already be prepared for a messy activity.

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Further Exploration

Density

The *Rainbow in a Bottle* activity teaches students that sugar and water solutions have different densities depending on the amount of sugar dissolved in the water. Relative density can be further explored by making density columns using immiscible liquids such as honey, oil and water. The two density columns can then be compared by stirring them and observing which layers mix (sugar and water) and which layers remain separate (oil and water).

The relative density of objects (instead of solutions) can also be tested by pouring rubbing alcohol, water and oil into a glass. Have students drop items such as paper clips, grapes and corks into the glass and observe the layer in which they settle.