



Chemical Mixer

STEM Sims

Lesson 2: Pretty Colors

Most people know that mixing red and green light produces yellow light. And red and blue light mixed together creates magenta. Mixing elements to produce a compound is similar to mixing light in that the compound made from elements can have very different appearance than the elements from which it came. Can you use your artistic eye to create the correct mix of elements in a compound?

Doing the Science

1. Start the Chemical Mixer Simulation by clicking on the “Sim” tab.
2. Note the Target Compound label in the lower left-hand corner of the screen. Carefully study the color of the target compound located in the box above the target compound name. Note and record in Table 1 the name of the compound.
3. To build the target compound, click and drag an element into the empty box below Fader #1. Click on the red “Mix” button to see the element’s color. Carefully observe the mix and decide whether this element is in the target compound or not. If used, record in Table 1.
4. To remove an element from the Mix box, either click and drag the element symbol back to the Periodic Table area or you can simply drag a different element symbol to that fader box to replace the element.
5. Repeat step 3 using the open Fader #2 and #3 boxes (if needed) until you have all of the correct elements in the compound.
6. You can click the “Check Answer” icon at any time to see how your build is progressing.
7. You can also refer to the color box above the target compound to see the target color.
8. Once you have all of the correct elements in your mix, you now must select the correct proportion of each element. To add a second atom of a given element, slide the Fader slider up one notch. This position indicates that there are two atoms of that element present in the compound. Sliding the fader up to the next notch adds an additional atom to the compound.
9. When you are satisfied with your build, click the “Check Answer” icon and write the chemical formula of the compound in Table 1 next to the compound’s name.

Table 1.

Target Compound Name = _____ Chemical Formula = _____	
Element Used	Number of Atoms of this Element Used

Do You Understand?

1. Sulfuric acid (H_2SO_4) is a compound. How many atoms of oxygen are in each sulfuric acid molecule?
2. How would you categorize ammonia (NH_3), as an element or a compound?