

614-0657 (50-120) Mini Color Mixer

Note: you will need 3 AA batteries or a low voltage power supply to operate this unit.



Introduction: White light, while seemingly simple, is actually a very complex phenomenon. It is relatively uncommon in nature; our own sun is yellow, for example. Sunlight appears white to our eyes due to a fascinating twist: although the sun itself is yellow, it is able to produce a full spectrum. This means that instead of radiating just yellow light, as one might expect, it instead is able to produce all the colors of visible light, plus infrared and ultraviolet wavelengths. What we call visible light is only a narrow portion of the electromagnetic spectrum. In general, humans are able to see wavelengths between 400 and 700 nanometers. Some people have a slightly larger range, but this should be treated as the exception, rather than the rule.

Technically, all forms of electromagnetic radiation are light. Thus, a radio wave or gamma radiation is really just a type of light our eyes can't see. It is unknown whether these invisible forms of light have colors; obviously, there is no easy way to check! However, most of your students will say that light is the visible portion of the spectrum, and for most intents and purposes they would be correct.

Color science is notoriously difficult to teach. Many students are skeptical when told that white light is actually made up of all the colors. How can something as pure as the color white be a blend of so many disparate colors, such as red, green, and blue?

As an educator, you can use prisms to break up white light into a spectrum. You can use ray boxes to mix different colors and show your students the results. However, these steps may not convince some of your students. For that, you need a color mixer.

Your color mixer will enable you to produce red, green, and blue light in precise ratios to one another. This in turn will allow you to produce a vast range of colors, all with the twist of a knob.

Operation: The mini color mixer is designed to be portable and easy to use. To power it, you will need 3 AA batteries or a low voltage power supply. The batteries install in a compartment on the bottom of

the unit. If you are using a power supply, connect it to the jacks on the back of the device. There is a small switch on the rear of the unit. If you are using batteries, select 4.5V. If you are using a power supply, select 6V.

The screen on the mini color mixer is made out of a special translucent plastic that spreads light. Behind this screen are mounted three LEDs: one red, one green, and one blue. These are the primary colors of light. With them, you will be able to produce other colors, including white.

Turn the unit on using the switch on the front of the unit, below the screen on the right hand side. Next to this switch are three colored knobs, with each color corresponding to a particular LED. Twist these knobs clockwise to brighten the LED. The LEDs are fully dimmable, which allows you to control how much light is mixed. Try mixing red with green, green with blue, blue with red, and all three together. Note the results. In general, for the best mixing, run each LED at slightly less than its maximum brightness.

Warranty and Parts:

We replace all defective or missing parts free of charge. Additional replacement parts may be ordered toll-free. We accept MasterCard, Visa, checks and School P.O.s. All products warranted to be free from defect for 90 days. Does not apply to accident, misuse or normal wear and tear. Intended for children 13 years of age and up. This item is not a toy. It may contain small parts that can be choking hazards. Adult supervision is required.