

Software Manual for ColorBasics

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Overview of ColorBasics

ColorBasics is a free program that introduces the ideas behind the composition of color in digital images and is designed for educational use on either PCs or Macs. The latest version of the software may be downloaded [here](#). The software provides a variety of interactive tools to investigate colors composed in various color spaces.

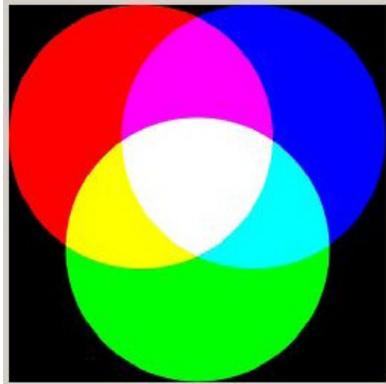
Overview of Tab Panels

Eight tab panels provide access to a variety of color investigation tools in this program: Intro (Introduction), Compare Colors, Make Colors, Play with Colors, Test Yourself, Color Spaces, Check Display's Color, and About. The Introduction panel provides a brief explanation of how colors are composed. Compare Colors allows you to compare the result of mixing two different colors as both pigments and as light. The input values for three different color spaces can be adjusted in Make Colors to see how colors are composed in each space. Play with Colors contains a color guessing game, playable with either another player or with a computer randomly selecting a color. Test Yourself allows users to check their accuracy at determining colors by eye. The three most commonly used color spaces are explained in detail in Color Spaces. Check Display's Color provides a visual test of the computer/projector display, and About provides information for about the collaborating seven institutions involved in the Measuring Vegetation Health (aka Digital Earth Watch) project.

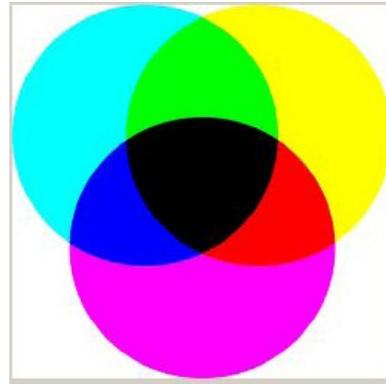
Details of Tab Panels

Intro Tab Panel

The Intro tab panel points out the difference between composing colors as pigment and as light, and indicates which tab panels to explore in order to learn more about colors. A button links directly to the Color Spaces tab for more information about the various spaces used to represent color.



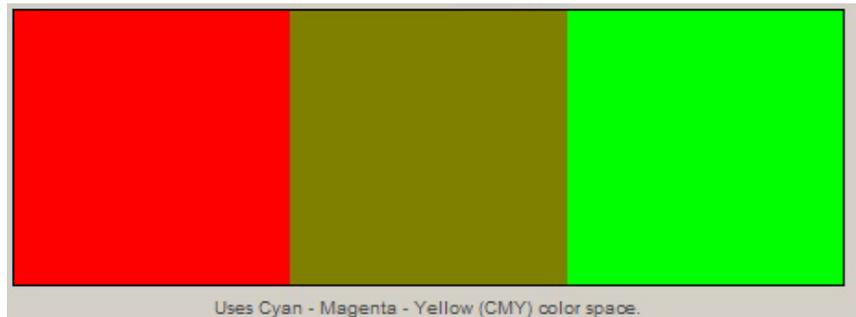
RGB (red-green-blue color space)



CMY (cyan-magenta-yellow color space)

Compare Colors Tab Panel

Combinations of two basic, pre-determined colors can be made in the Compare Colors tab panel to see how the result differs between pigment (such as with paint) and light (such as with TV and computer screens). Red, yellow, green, cyan, blue, and magenta may be selected two at a time, with the pigment and light results displayed next to each other simultaneously.



Red and green mixed as pigments



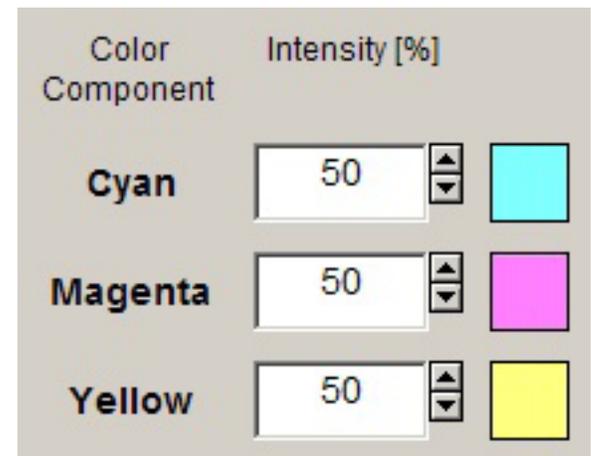
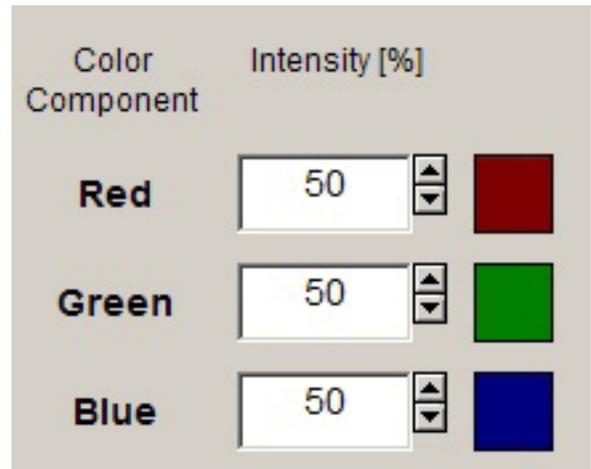
Red and green mixed as light

Make Colors Tab Panel

The Make Colors tab panel allows a user to select one of three different color spaces in which to create a color. Once this is selected, the intensities of the color components may be freely adjusted, with the result being displayed in real-time. These colors can be saved in a column along the side to allow for easier comparison of different colors in the same color space. The saved colors can be cleared if there is no more room or if a new set of saved colors is desired.



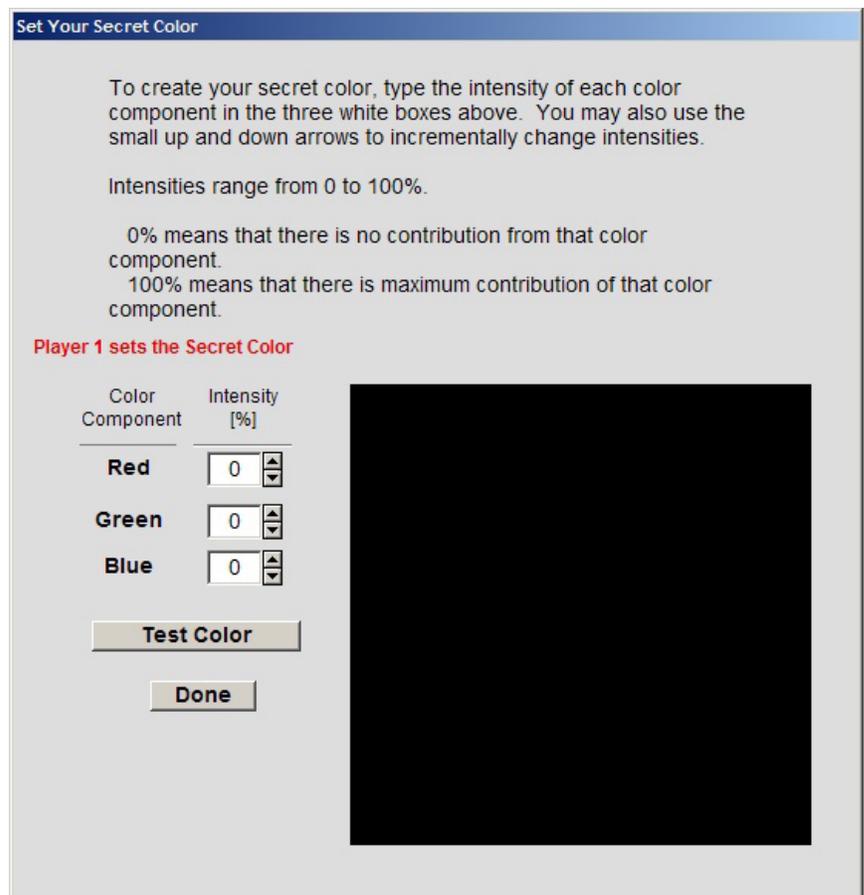
Color intensities are recorded along with the saved color



Play with Colors Tab Panel

Two users may play a game together in the Play with Colors tab panel. One user selects a color, and the other must attempt to come as close to it as possible. The level of difficulty indicates the acceptable margin of error, as it is very difficult to determine exactly the values of any one particular color. The game is also playable against the computer, in which case the computer selects a random color for the user to guess.

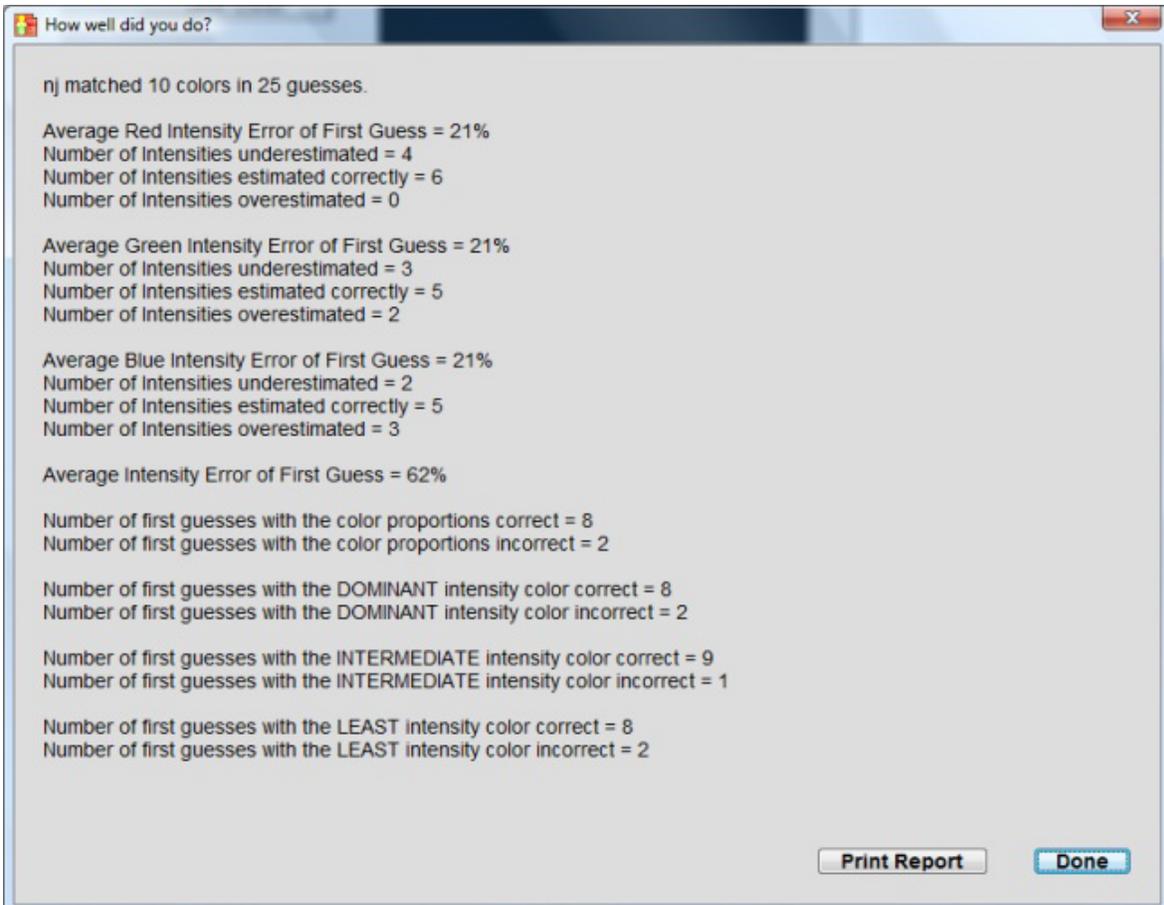
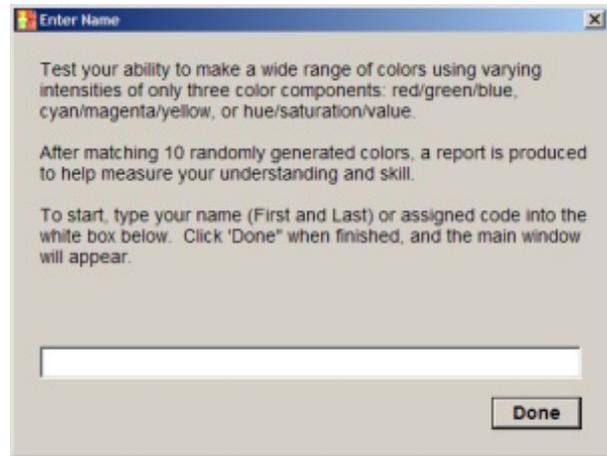
Color selection dialog in two-player mode



Test Yourself Tab Panel

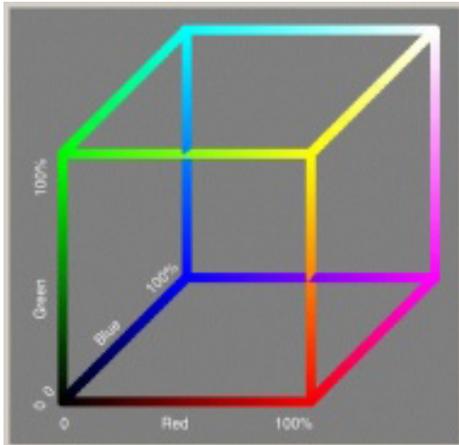
The Test Yourself panel contains a series of randomly generated colors. After making a guess, the program indicates whether any color intensities must be adjusted up or down. When ten colors have been correctly determined, a report is displayed to evaluate performance.

*Enter your name
to test yourself*

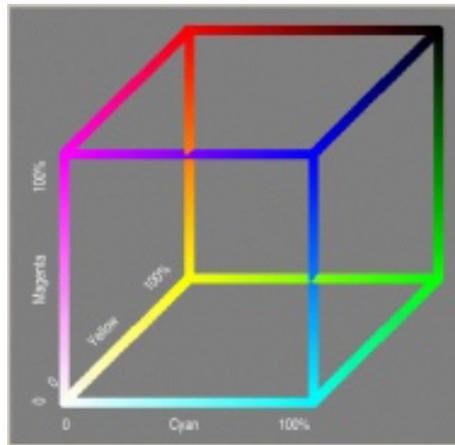


Color Spaces Tab Panel

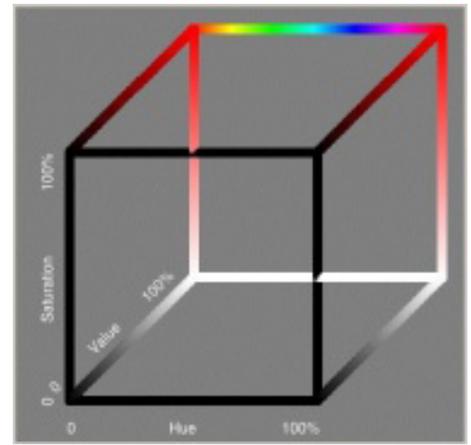
The RGB, CMY, and HSV color spaces can be viewed here, represented graphically as cubes. Each color space graph is accompanied by a detailed description of its real-world applications and how the colors are combined.



RGB



CMY

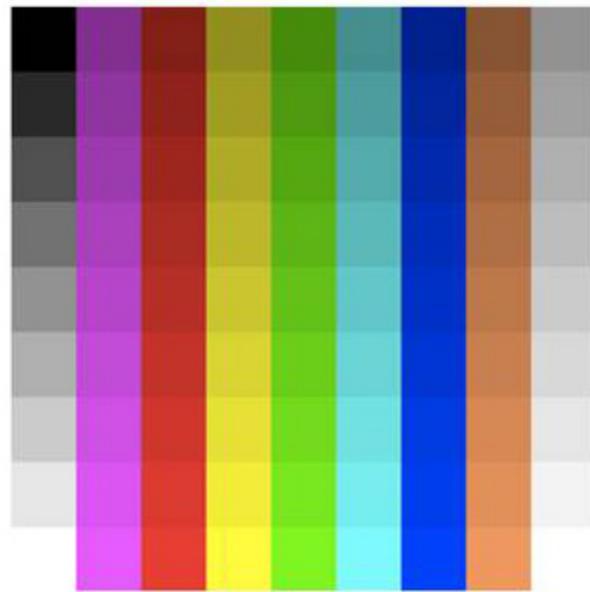


HSV

Check Display's Color Tab Panel

The Check Color tab panel has a visual test to see if the quality of the computer screen/television/projector has adequate range in color reproduction to provide a meaningful exploration of the digital image activities. The panel displays 81 color tiles of shades of gray, red, green, blue, yellow, magenta, cyan, and brown. If all 81 color tiles are visible, the quality of the display is adequate for the seeing subtle color differences in most images.

You should see 81 distinct color tiles in the image below-
9 distinct rows and 9 distinct columns.



If not, the quality of your computer display is not capable of displaying the range of colors required by this software. Since you won't be able to see all of the colors of the activities, the activities may be misleading or confusing. Try to find a computer display that has the needed color reproduction.

About Tab Panel

The About tab panel describes how the software was developed by the seven collaborating institutions funded by NASA. Move the cursor over an icon to see the address for the website for each institution.

The original software components were created by John Pickle and Jacqueline Kirtley, Museum of Science, Boston, MA in support of the Lawrence Hall of Science's Global Systems Science student series in 2002 with NASA funding.

These revisions were created to support the NASA-funded project, Digital Earth Watch, originally named Measuring Vegetation Health - <http://mvh.sr.unh.edu/>. This educational project is a collaboration between seven institutions (logos have rollover urls) to develop learning activities, technologies, and software to measure environmental health by monitoring plants:

- Museum of Science, Boston, MA (lead institution) - www.mos.org
- Global Systems Science, Lawrence Hall of Science, Berkeley, CA (co-lead) - www.lawrencehallofscience.org/gss
- Forest Watch, University of New Hampshire, Durham, NH (co-lead) - www.forestwatch.sr.unh.edu/
- EOS-Webster, University of New Hampshire, Durham, NH - eos-webster.sr.unh.edu/
- Remote Sensing and GIS Laboratory, Indiana State University, Terre Haute, IN - baby.indstate.edu/geo/rs/main.htm
- Blue Hill Observatory, Milton, MA - www.bluehill.org/
- College of Education and Human Development, University of Southern Maine, Portland, ME - www.usm.maine.edu/cehd/

John Pickle programmed these revisions, which reflect invaluable feedback and input from the DEW team and years of working with teachers and informal science educators. Unless otherwise credited, photos by John Pickle.

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Version 12 created March 20, 2009.

Help Menu

Open Help as PDF

If you don't want to or can't open the help file in your browser, you can view the help as a single PDF file. Note that you will need to have a PDF viewer such as [Adobe Reader](#) installed.

Individual Sections

If you know what part of the program you need help with, you can directly access individual sections of the help file by selecting one of the options from the help menu.

Open Help in Browser

View the help files in HTML format in your web browser. The HTML help comes in both a single large file as well as multiple smaller files.

Additionally, menu items exist for accessing specific sections of the help file directly through the browser instead of browsing the table of contents.