

Color Vision and Learning

What Teachers, School Nurses, and Parents Should Know About Students Who are Colorblind

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Today, being colorblind (not having normal color vision) has a profound effect on a child's ability to participate in our educational system. Children not only have to learn their colors at an early age, but color-enhanced instructional materials are now commonplace throughout the classroom. It is important that the educational system and parents understand the special needs of color deficient children, and what can be done to help them in their quest to learn.

For some color deficient individuals, the names red, orange, yellow, and green are simply different names for the same color. The same is true for violet, lavender, purple, and blue. Among the colors pairs most often confused are pink/gray, orange/red, white/green, green/brown, blue green/gray, green/yellow, brown/maroon, and beige/green. Pastels and muted tones are difficult to distinguish. The color vision defect may be so bad that the affected person cannot distinguish brown from black shoes, a red traffic light from an amber one, or green grass from brown soil by color alone.

Examples of how the condition can cause problems at school

1. John is working in his reading workbook. The directions to one item say to draw a line to the red ball. The other ball is brown. Both colors look alike to John, so he guesses. The teacher reminds him not to be careless.
2. A teacher is writing vocabulary words on a green chalk board with yellow chalk in mid-afternoon. There is a glare on the board from unshaded windows. Peter is sitting so that the glare diminishes the figure-ground contrast. The teacher wonders why he is copying from a neighbor's paper.
3. Tommy ordinarily seems to enjoy reading aloud. Today, however, he doesn't volunteer and balks when the teacher calls on him to read. The poem in the reader is printed in blue on a purple background.

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4. Susan, a bright and articulate youngster, was asked to go to the front of the class and read from the blue green book on the teachers' desk. She went to the front of the class and just stood there looking at the pile of different colored books. Not knowing which one to pickup, she started to cry.
5. T.J. was very outgoing in pre-school & kindergarten. He loved to wave his arms and volunteer to answer questions the teacher asked. The only time he did not volunteer answers was when it came to learning or identifying his colors. A lot of the colors looked the same to him. They just had different names.
6. The kindergarten teacher notices the kids during art class teasing Jimmy. The other kids think it is funny that Jimmy's stick people have green faces.
7. The kids at school told the teacher Jeff was cheating during kick ball. They said he was breaking the rules by kicking the ball when it was out of bounds. They accusingly stated the boundary lines on the green grass were clearly marked with orange chalk. Jeff, rather than admitting he could not see the boundary line, simply quit playing with the other kids during recess.

How can teachers help if a child has a color vision deficiency?

Here is a short list of strategies that are easily employed and can go a long way in enhancing the educational experience of children who are color vision deficient:

- a. Label a picture with words or symbols when the response requires color recognition.
- b. Label coloring utensils (crayons, colored pencils, and pens) with the name of the color.
- c. Use white chalk, not colored chalk, on the board to maximize contrast. Avoid yellow, orange, or light tan chalk on green chalkboards.
- d. Photocopy parts of textbooks or any instructional materials printed with colored ink. Black print on red or green paper is not safe. It may appear as black on black to some color deficient students.
- e. Assign a classmate to help color deficient students when assignments require color recognition. For example, color coding different countries on a world map.
- f. Teach color deficient students the color of common objects. Knowing what color things are can help them in their daily tasks. Example: when asked to color a picture, they will know to use the crayon "labeled" green for the grass, blue for the sky, and light tan for Lincoln's face.
- g. Try teaching children "all" the colors. Remember, most color deficient children can identify pure primary colors. It is normally just different shades or tints that give them problems. If they can not learn certain colors, let them know you understand some colors look the same to them and it is "OK".
- h. Make sure a child's color vision has been tested before they have to learn their colors or color-enhanced instructional materials are used.