

ACCESS 2.0 Graphics

Guidance Type

Besides black and white, most color blind individuals can only see two colors, blue and caramel (golden brown). Red, yellow, orange, and green take on shades of caramel; purple takes on shades of blue when viewed by a person with colorblindness.

Ensure that any information conveyed with color is conveyed equally well when color is not available. E.g. use an asterix to denote a color difference in text

Yellow is recommended as a common color for graphics to be used by persons with poor color discrimination.

Use browser safe palette of 216 colors -defined as "#RRGGBB" (Red, Green, Blue) paired values (00, 33, 66, 99, CC, and FF)

Global Elements

Light or medium hues on light or medium background will be difficult for everyone to see.

Except for red and green, the best color combinations are those that are in opposite positions on the color wheel. Red and green should not be used as a combination for text and background because all people, whether they know it or not, find that combination difficult to visually process.

Avoid using hue differences as the sole means of conveying information.

Hue differences combined with luminance and/or texture differences are fine.

Text on a white shape must be transparent.

If an image, contains text, and the shape behind that text is intended to be white, such as on a sheet of paper, then the shape will be transparent.

Too many colors used thoughtlessly can confuse and negate the message of a graphic. Settle on four or fewer colors and stick with them. Black and white are counted as colors when designing graphics, even though they are not usually considered colors when talking about vision.

If possible, complex images should be simplified to provide an interpretable high-contrast image or line drawing.

Provide ample white space surrounding a 'call to action' CTA - this helps a reader to quickly focus on this important area

Students should have the option for changing font size and contrast

Reverse contrast should be provided for low vision students

Black text on white background has the highest readability for most students

Sans-serif fonts have higher on-screen readability

All fonts used should allow examinees to adjust size and/or be amenable to the use of cascading style sheets (CSS).

All fonts should allow examinees to adjust size and fonts. If choice is not an option, size should be relative and not fixed.

Text and Numbers

Text on a white background must be transparent: avoid backgrounds that obscure text
Colors next to one another on the color wheel, where one is text and the other is background, will be difficult for everyone to see.
Text in images is inaccessible to screen readers unless it is made part of the alt-text and long descriptions with d-links.
Text in images should be reproduced separately from the image if it is in a fixed font, if it is not oriented left-justified and horizontal, and for students who have difficulty with visual search.

Light letters on a dark background or dark letters on a light background are most legible, but remember the actual colors of those combinations are important.

Graphs, Charts, and Diagrams

Contrast is an important influence on the legibility of graphics, especially for persons with color discrimination problems.

Substantial contrast, i.e., the use of dark values with light values, between the color of the foreground and the background should be employed.
Dark images on white or pastel background generally has the highest readability for most students.
Any color on gray is difficult to discriminate. Gray should not be used either as text or background.

Dark saturations of a hue, used for both background and text, will be difficult to discriminate. The same is true for medium saturations and light saturations.

Best combinations are those in which one hue is very saturated, and one is not. Colors that can easily be distinguished from one another by people who have color discrimination deficiencies. All but .002% of the population can see these colors:

Black	White	Navy	Blue	Lt. Blue	Marigold	Yellow	Brown	Dk. Brown
000000	FFFFFF	333399	3333FF	66CCFF	FF9900	FFFF33	993300	996633

Color Combinations for Graphs, Charts, and Diagrams

Appropriate for persons with color perception difficulties To be Avoided

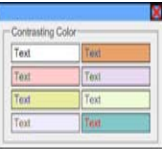
- Use black and white.
- Use dark blue and white.
- Use black and bright yellow.
- Use dark blue and bright yellow.
- Use dark brown and white.
- Use pale blue and black.
- Use yellow and purple.
- Avoid gray with any color, even another value of gray.
- Avoid red with any color except white or blue.
- Avoid green with any color except white.
- Avoid brown with any color except white or blue.
- Avoid purple with any color except yellow or white.
- Avoid orange with any color except blue or white.
- Avoid two values of the same color, such as light blue and dark blue.

Certain color combinations other than black and white may be unreadable to persons with low vision or persons with color blindness. A good rule of thumb on use of colors is to use colors that are far apart on the color wheel and avoid using colors that have similar saturation (color depth). Blue and yellow, for example, provide a high degree of contrast when used together. Red and green should be avoided because they are the most troublesome colors for persons with color blindness.

- Avoid a neutral color with any other neutral color.

Scenes

Highlight critical features in images; provide instructions to direct attention to relevant areas or features of images.

<p>General principles:</p>	<p>3-Click-Rule According to this rule users stop using the site if they aren't able to find the information or access the site feature within 3 mouse clicks. In other words, the rule emphasizes the importance of clear navigation, logical structure and easy-to-follow site hierarchy. In most situations the number of clicks is irrelevant; what is really important is that visitors always know where they are, where they were and where they can go next. Even 10 clicks are OK if users feel that they have a full understanding of how the system works.</p>	<p>Students should have the option for changing font size and contrast Reverse contrast should be provided for low vision students</p> <p>All fonts used should allow examinees to adjust size and/or be amenable to the use of cascading style sheets (CSS). All fonts should allow examinees to adjust size and fonts. If choice is not an option, size should be relative and not fixed.</p> <p>Black text on white background has the highest readability for most students</p>
<p>Font</p>		<p>Sans-serif fonts have higher on-screen readability All fonts used should allow examinees to adjust size and/or be amenable to the use of cascading style sheets (CSS). All fonts should allow examinees to adjust size and fonts. If choice is not an option, size should be relative and not fixed.</p>
<p>Transparency Rules</p>  <p>Text on a white shape must be transparent. If an image, contains text, and the shape behind that text is intended to be white, such as on a sheet of paper, then the shape will be transparent.</p> <p>Text on a white background must be transparent: avoid backgrounds that obscure text</p> <p>Choice of colors in the color contrast and color overlay (shown above) should be informed by evidence that color selections meet the student's individualized needs.</p>  <p>Isolated objects with no text must be transparent. (common for response options) Exceptions: When the object is described as "white" in the script or text, leave the object white.</p>	<p>Avoid backgrounds that obscure text</p>	
<p>Color Selection</p> <p>Besides black and white, most color blind individuals can only see two colors, blue and caramel (golden brown). Red, yellow, orange, and green take on shades of caramel; purple takes on shades of blue when viewed by a person with colorblindness.</p> <p>Yellow is recommended as a common color for graphics to be used by persons with poor color discrimination.</p> <p>Use browser safe palette of 216 colors -defined as "#RRGGBB" (Red, Green, Blue) paired values (00, 33, 66, 99, CC, and FF)</p> <p>Avoid using hue differences as the sole means of conveying information.</p> <p>Hue differences combined with luminance and/or texture differences are fine.</p>	<p>Ensure that any information conveyed with color is conveyed equally well when color is not available. E.g. use an asterix to denote a color difference in text</p> <p>Either specify all colors (BGCOLOR, TEXT, LINK, VLINK, and ALINK) or none "None" will default to the settings on your visitor's computer Specifying only some colors will let others default; your designated colors may be an ugly combination with these defaults</p> <p>Grayscale and shading should be avoided, particularly when information needed for answering a test item is provided.</p> <p>Certain color combinations other than black and white may be unreadable to persons with low vision or persons with color blindness. A good rule of thumb on use of colors is to use colors that are far apart on the color wheel and avoid using colors that have similar saturation (color depth). Blue and yellow, for example, provide a high degree of contrast when used together. Red and green should be avoided because they are the most troublesome colors for persons with color blindness.</p>	<p>Colors next to one another on the color wheel, where one is text and the other is background, will be difficult for everyone to see.</p> <p>Light or medium hues on light or medium background will be difficult for everyone to see.</p> <p>Except for red and green, the best color combinations are those that are in opposite positions on the color wheel. Red and green should not be used as a combination for text and background because all people, whether they know it or not, find that combination difficult to visually process.</p>

Visual clarity	<p>Too many colors used thoughtlessly can confuse and negate the message of a graphic. Settle on four or fewer colors and stick with them. Black and white are counted as colors when designing graphics, even though they are not usually considered colors when talking about vision.</p>	<p>If possible, complex images should be simplified to provide an interpretable high-contrast image or line drawing.</p> <p>Text description should accompany simplified images to ensure the full meaning is conveyed.</p>	<p>Unnecessary boxes and framing of material should be omitted unless the framing provides a separation of graphic material from text or encloses a group of scattered items.</p>	<p>Provide ample white space surrounding a 'call to action' CTA - this helps a reader to quickly focus on this important area</p> <p>Highlight critical features in images; provide instructions to direct attention to relevant areas or features of images.</p> <p>Text in images is inaccessible to screen readers unless it is made part of the alt-text and long descriptions with d-links.</p> <p>Text in images should be reproduced separately from the image if it is in a fixed font, if it is not oriented left-justified and horizontal, and for students who have difficulty with visual search.</p>
-----------------------	---	---	---	---

Contrast in Images and Text	<p>Contrast is an important influence on the legibility of graphics, especially for persons with color discrimination problems.</p> <p>Substantial contrast, i.e., the use of dark values with light values, between the color of the foreground and the background should be employed.</p> <p>Light letters on a dark background or dark letters on a light background are most legible, but remember the actual colors of those combinations are important.</p>	<p>Use high contrasting background and text color, preferably light background with dark text</p> <p>Ensure that there is enough contrast.</p> <p>The highest possible contrast should be used for text and back- ground, with attention to the use of color.</p>	<p>Dark images on white or pastel background generally has the highest readability for most students.</p> <p>For low-vision students reverse contrast should be made available either through operating system-level features or directly in the test administration software.</p> <p>Any color on gray is difficult to discriminate. Gray should not be used either as text or background.</p> <p>Dark saturations of a hue, used for both background and text, will be difficult to discriminate. The same is true for medium saturations and light saturations.</p> <p>Best combinations are those in which one hue is very saturated, and one is not.</p>
------------------------------------	---	---	---

Contrasting color combinations	<p>Appropriate for persons with color perception difficulties</p> <ul style="list-style-type: none"> • Use black and white. • Use dark blue and white. • Use black and bright yellow. • Use dark blue and bright yellow. • Use dark brown and white. • Use pale blue and black. • Use yellow and purple. 	<p>To be Avoided</p> <ul style="list-style-type: none"> • Avoid gray with any color, even another value of gray. • Avoid red with any color except white or blue. • Avoid green with any color except white. • Avoid brown with any color except white or blue. • Avoid purple with any color except yellow or white. • Avoid orange with any color except blue or white. • Avoid two values of the same color, such as light blue and dark blue. • Avoid a neutral color with any other neutral color.
---------------------------------------	--	--