

Activity: Design Goal: Cognitive/Intellectual Populations: All

TH Activity Plan – Color Wheel Challenge with Plants

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Photo by L. Fleming



ACTIVITY DESCRIPTION: Participants will test their abilities to match colors in nature, and recognize different shades of the same color.

THERAPEUTIC GOALS:

Cognitive/Intellectual: Test intellectual & physical skills differentiating color & shades of color; discuss tolerance of others

Physical: Practice visual skills differentiating between shades of color

Psychological/Emotional: Consider what it is like to have a physical disability like color vision deficiency; discuss how to best support or assist people with this or other disabilities

Sensory: Use visual sense to distinguish between shades of color;

Social: Compare results with others in the group; discuss shades of color & factors that impact color (light, temperature, plant maturity)

Materials

Plants: flowers, foliage, leaves

Paper plates, color pieces, paint chips or color wheel reprints

Gloves, wipes, magnifying glasses

STEP-BY-STEP PROCESS:

1. **Pre-Session Preparation:** Prepare paper plates with color wheel or colors from the color wheel for matching purposes.
2. Facilitator begins session by introducing the color wheel, with some plants on the table as examples of nature-based colors. Using plant examples demonstrate shades of colors. Various shades of green leaves are probably the easiest to gather and demonstrate the nuances of shades of color in plants.
3. Each participant receives a paper plate with the color wheel, colored strips or paint chips in assorted colors.
4. The facilitator identifies challenge: “Test your ability to find a plant (part – petal, leaf, stem) for each of the colors on the plate. Return in allotted time, staying in designated garden space. Remember not to pick the last blossom from a plant please”.
5. For the next phase of the game, a more challenging test. Participants are asked to choose one of the colors and find 3 plant specimens that have shades of this color (red, green, pink or purple). This portion of the activity can be optional depending on population, duration of session & number of plant specimens in the garden. Or it can be a group challenge with everyone working on the same goal finding several shades of a color.
6. Conclude the session by gathering to discuss colors preferences, & the most common color in nature. This can lead into a broader discussion about people with color vision deficiency, tolerance (of this medical condition or other disabilities), how to offer assistance & support to people with this or other disabilities (like asking person if they would like assistance & how they would like to be assisted).

APPLICATIONS FOR POPULATIONS: Color in the garden is eye catching and appeals to most people and populations. Therapeutic goals related to cognitive function, physical skills and eye-brain function can be addressed by using a game of differentiating colors and shades of color.

Color vision deficiency takes various forms, the most common differentiating between red and green, less frequently between blue and yellow, these often challenging depending on light and lightness of the colors. People with total color defiance, diagnosed as achromatopsia, can only see black, white and shades of gray. Color deficiency is most often inherited, though injury and disease including glaucoma, macular degeneration, diabetes, chronic alcoholism, leukemia and Parkinson's disease can be a cause. Some medications and exposure to chemicals are also linked to color vision deficiency. Using this HT activity can alert practitioners to challenges with color differentiation, with referral for comprehensive eye exams the recommended course of action. For people with visual impairment or color vision deficiency, (also called color blindness) an adaptation can be made by substituting shapes of leaves or flowers vs color, or using sense of touch to distinguish shape.

In THAD activity [Matching Game: Photos to Live Plants](#) cognitive skills “of matching, comparing and contrasting, and memory recall are important for most populations, some of whom may have complex challenges in these areas, or others, where strengthening these [skills] can be helpful with activities of daily living” (Fleming & Bethel, 2024). Matching objects, colors, pictures etc. requires the ability to recognize abstract, similarities and differences. The Assessment of Basic Language and Learning Skills (ABLLS) is used to measure pre-academic and academic skills in learners with developmental delays or disabilities. People living with an autism spectrum disorder may have challenges in this area [not necessarily with color differentiation] (Russell, 2024).

SAFETY CONSIDERATIONS: Facilitators are responsible for knowing poisonous and toxic plants and plant parts. Be specific about boundaries for the plant color search, avoiding any hazards like steep slopes, washed out terrain or spots out of sight of facilitator. Gloves should be available.

NOTES OR OTHER CONSIDERATIONS: This TH activity was adapted from Trellis Scotland's webinar by Joan Wilson on sensory gardens and visual interest. She suggests using magnifying glasses for closer inspection of plants for color or other identifying characteristics.

Plants that are available in many colors: **roses** (*Rosa* hybrids), **dahlias** (*Dahlia x pinnata* – may irritate skin), **peppers** (*Capsicum annuum*) **lilac** (*Syringa vulgaris*), **camellias** (*Camellia japonica*), **ixora** (*Ixora coccinea*), **verbena** (*Verbena x hybrida*), **snapdragon** (*Antirrhinum majus*).

Plants with many shades of the same color: **roses**, **pentas** (*Pentas lanceolata*), **begonia** (*Begonia* spp.), **orchids**, and **wax begonias** (*Begonia x semperflorens-cultorum*).

Plants that are multi-colored: **Mutabilis rose** (*Rosa mutabilis*), **periwinkle** (*Catharanthus roseus*), **calathea** (*Calathea* spp.), **salvia** (*Salvia* spp.), **pansy** (*Viola x wittrockiana*), **geranium** (*Pelargonium x hortorum*), **coleus** (*Coleus x huybridus*), **Bird-of Paradise** (*Strelitzia reginae*).

REFERENCES/ RESOURCES:

- American Optometric Association. (2024). [Color vision deficiency](#).
- Endicott, K. (2022). [Are snapdragons poisonous?](#) (No). *Plant Addicts.com*
- Russell, G. (2024). [Building up to complex matching skills](#). *The Autism Helper.com*
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- University of California. (2016). Poisonous plants. <https://anrcatalog.ucanr.edu/pdf/8560.pdf>
- Visible Body. (n.d.). Senses. [Visiblebody.com/learn](https://www.visiblebody.com/learn)
- Wilson, J. (2024). [The sensory garden: Sight – visual interest in the garden](#). [YouTube].

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TH Activity Plan form developed by Lesley Fleming, Susan Morgan and Kathy Brechner (2012), revised in 2024.