



## Craft Activity: Color-Mixing Tic-Tac-Toe

By Sticky Fingers Cooking®

**Prep Time** 5 / **Cook Time** / **Serves** -

### Fun-Da-Mentals Kitchen Skills

**drop:** to let a small amount of solid or liquid food drop into another food or onto a pan to cook, like dropping a spoonful of batter onto a baking sheet or skillet or letting a bit of extract or food coloring drop into a mixture.

**craft:** to plan and create objects from found or available items or ready-made patterns for purposes that are decorative, functional, or both.

**have fun:** to enjoy or amuse oneself, have a good time, or get pleasure from doing something—like cooking!

**draw:** to produce circles, lines, shapes, diagrams, and images, using a pencil or pen on paper, chalk on a slate or blackboard, or dry-erase marker on a whiteboard.

### Equipment

- Parchment paper (or wax paper)
- Permanent marker
- 11 small clear cups (clear Dixie cups or shallow glass bowls would work great)
- Dropper (you could also use a straw)

### Ingredients

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- Water
- Blue, yellow, and red food coloring

### Food Allergen Substitutions

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### Instructions

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##### intro

Play this classic game while learning about color theory in a hands-on way!

##### cut + draw

Cut a piece of parchment or wax paper large enough to draw a basic Tic-Tac-Toe board (3x3 grid of 9 squares) using a marker or pen that won't smudge. The squares need to be large enough to fit a small cup or bowl.

##### fill + drop

Fill 9 of the small cups with some water and add a drop or two of yellow food coloring in each for your base color. Place each of the cups in their own square.

##### play + drop + new color

The object is to get three of the same colors in a row, alternating turns. To play, place a drop or two of blue food coloring in a base cup to make a green color, and place a drop or two of red food coloring in a base cup to make an orange color.

##### have fun!

Have fun playing and watching the cups change color!

##### fun facts

Did you know that "Color Theory" is a set of rules and guidelines for the visual arts that dictates how colors mix and interact with one another? You might recognize the Color Wheel, which is a huge part of understanding Color Theory. Show a picture of the Color Wheel to younger kids to talk about the different colors you could potentially play with based upon which food coloring dyes you have on hand!

### Featured Ingredient: Food Coloring!

Hi! I'm Food Coloring!

"I'm 'dye-ing' to meet you! You may have added my color to cakes and frostings and used me to dye hard-boiled eggs for Easter egg hunts."

Natural food colors may have been used as early as 1500 BCE in Ancient Egyptian cities. It is thought they

may have added natural extracts to add flavor and color and improve the look of their foods and drinks. After the Middle Ages, spices and natural colorants began to be traded and used more often. Saffron is an example of a spice that also adds color to food. The deep red color of the threads (stigmas and styles) of the saffron flower adds a yellow or orange-yellow color to food. One of the first food laws, created in Germany in 1531, concerned saffron counterfeits who could suffer severe punishment if discovered. Other foods, flowers, and insects used for the natural colors they give food, either with or without additional processing, include annatto (reddish-orange, from the achiote seed), beet juice (pink, red, or magenta), butterfly pea flower (blue, from dried petals), caramel (from caramelized sugar), carmine (red, from the cochineal insect), elderberry juice (pink, red, or purple), paprika (yellow-orange or red-orange), and turmeric (golden yellow).

Artificial food colors became available during the Industrial Revolution, when more people were living in cities and needed access to food at a low cost. Unfortunately, there were few or no regulations to monitor these additives in the food supply at the time, and several instances of illness and death occurred until food laws were established. They are considered much safer today, although food safety studies are still done, and new laws continue to be enacted.

The most recent effort to eliminate some artificial food dyes from use in the United States began in April 2025 when the Food and Drug Administration (FDA) initiated the phase-out of petroleum-based food dyes. These can be found in cereals, candy, drinks, snacks, and school lunches. The FDA is also promoting the transition to natural food colors. Many companies have already announced they are switching to natural food colors, even though the colors they produce are not as vibrant as the artificial ones.

Both artificial and natural food coloring are available to buy in stores, and are generally found in the baking aisle. They come in liquid and gel forms. The gel type is thicker and more concentrated.