

# COFFEE FILTER CORAL

## Make your own hyperbolic coral shape

### What you'll need:

- 7 basket-style coffee filters
- 1 pipe cleaner
- 1 cup of water
- Food colouring (Note: Gel food colouring produces more vibrant colours)
- Markers, pencil crayons or paint
- A plastic drop sheet or tray
- A deep container large enough to hold the coffee filters

### Activity setup:

#### Make coloured coffee filters

1. In a large, deep container, add 5 to 10 drops of food colouring to 1 cup of water and mix well.
2. Add your coffee filters to the coloured water.
3. Remove the filters once they take on a rich, deep colour. This will depend on the colour and amount of food colouring you used.
4. Set the dyed filters on a plastic surface, such as a drop sheet or tray, and allow them to dry overnight.

Note: Want to make your coral right away? Try decorating your filters with markers, pencil crayons or paint instead.

#### Make the coral

1. With a pipe cleaner, poke a hole upwards through the bottom of a coffee filter. Thread the filter onto the pipe cleaner.

2. Repeat this step with all seven filters as if you are stacking bowls.
3. As you layer the filters, scrunch the edges and crumple some more tightly than others to give your coral more dimension.
4. Once you have threaded all of your filters, carefully fold the top of the pipe cleaner onto itself to secure the stack.
5. Push the stack of filters from the bottom of the pipe cleaner to the top.
6. Pinch the bottom of the filter stack together so that the ruffled ends of the filters fan out.
7. Bend the bottom of the pipe cleaner or wrap it in a circle below the disks to secure the stack. Your coffee filter coral is complete!

### How does it work?

The ruffled, brightly coloured structure you just created is very similar in appearance to some types of **coral**. Coral comes in many different forms, such as branches, fans, bubbles, grapes and more, and can be found throughout the world. The ruffled edges of your coffee filter coral—and the real coral that inspired it—are examples of a complex form of geometry (called **hyperbolic geometry**) that form naturally during coral growth.

A single piece of coral is actually made up of many individual **polyps**. These tiny, soft creatures take calcium from seawater and change it into calcium carbonate, which creates a protective skeleton for new polyps to grow on. In this way, the coral polyps build onto each other, eventually creating a **coral reef** structure—and an entire ecosystem where other creatures can live!

### Try this!

Get creative with your coffee filter coral by playing with colours and size. Add more than seven coffee filters to one pipe cleaner for a denser piece of coral, or see what happens when you try using another similar material, like tissue paper. Combine several different colours for one piece of coral, or make an entire “garden” of coral crafts. There’s no limit to the coral you can create!

