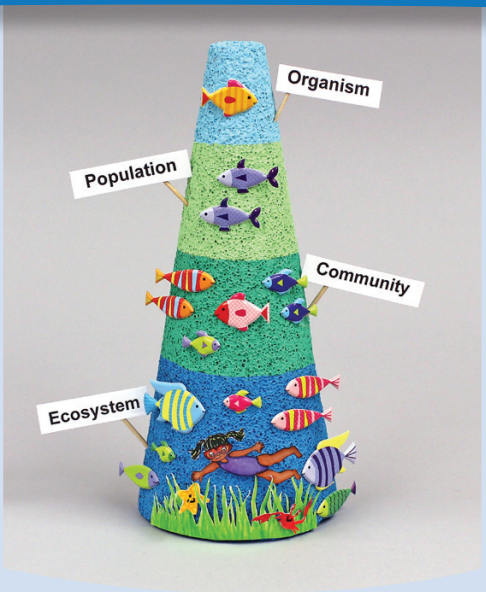
# Eco-Cone

## MATERIALS

### FOR STUDENT:
(one per student unless otherwise noted)

- FloraCraft® Make It: Fun® Foam Cone, 3 7/8" x 8 7/8" (one per two students)
- Small plastic puffy fish stickers, one sheet
- Cardstock, approx. 6" square, white (See FOR TEACHER)
- Paintbrush, medium size
- Plastic cup of water
- Scissors
- Pencil
- Washable fine line markers
- Thick white tacky glue
- Rubber bands, ideally, three sizes
- Toothpicks, four
- Paper plates, large, two
- Paper towels, four
- Ziploc bag
- Paint apron per student




### FOR TEACHER:

- Acrylic paint: Pistachio Mint (green), Sea Aqua, Whispering Turquoise, and Turquoise Blue
- Cardstock 12" x 12", white (can get four per sheet)
- Serrated knife
- Paper Cutter
- Scissors
- Pencil
- Ruler
- Old newspapers or plastic tablecloth (optional)
- Plastic-lined garbage can
- Paper towels
- Bucket of water
- Small empty squeeze bottle
- Wet wipes
- Drying area
- Glue gun (for teacher only)
- Computer and printer
- Copy paper

## SOCIAL STUDIES
GRADE LEVEL
**FOURTH – FIFTH**

### COMPLETION TIME
- 40 minute session (2 hours minimum drying time)
- 30 minute session

### OBJECTIVES
Students will:
- Understand the interdependence we have with nature and other animals
- Be introduced to the topic of global warming and the worldwide efforts being initiated to minimize it
- Be encouraged to think of ways they can contribute to the effort

### STANDARDS
- Human Interdependence – the student uses spatial perspective to make reasoned decisions by applying the concepts of location, region and movement and demonstrating knowledge of how geographic features and human cultures impact environments
- Understands human interaction with the environment
- Understands the geographic context of global issues.

### LESSON INTRODUCTION
- Go through information on eco systems and discuss what interdependence means. Explain that they can make a replica of an ecosystem that can remind them of the large ecosystem that we have with animals and our natural resources. Mention the issue of global warming and what the world's countries have agreed to do in the next ten to twenty years. Invite students to consider how they can help. But first, they can start by making a basic ecosystem to understand interdependence.

## TEACHER PREPARATION

*Note: Read through all the instructions first and check out the TIPS! Plan for two class sessions with drying time in between them. Have a glue gun plugged in and ready to use (ideally set on low temperature) but out of student reach. This can give you immediate adhesion when you're in a hurry to help students. Be sure that the glue has cooled before returning the projects to students (takes a minute or so.) It is also recommended that you construct one first, before preparing the materials for any others, since knowing the process, first hand, might affect how you prepare.*

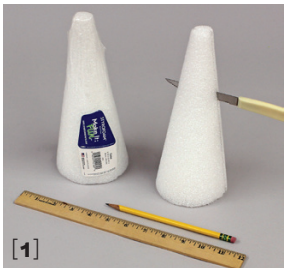
**[1]** Open the cone package. Use a ruler and pencil to draw a straight line from the top of the cone down to the bottom. (Note: There is usually a faint indentation from manufacturing. Draw inside that indention.) Along that line, make a horizontal mark (about 1/2" long) 2" down from the top, then 2" further down and last, 2" further down. (This leaves 3" down to the bottom.)

Use a serrated knife to cut the cone in half (which provides one half for each of two students). Be sure that all three pencil marks show on both halves. Repeat for the rest of the class.

**[2]** Use a computer and printer to print the labels: Organism, Population, Community and Ecosystem. Use a paper cutter to cut apart the labels into 1/2" wide strips. Put the four labels and four toothpicks into a plastic bag, for each student.

**[3]** Also, cut 12" x 12" cardstock into fourths. Prepare and set aside for each student: Cardstock, one sticker sheet, pencil, scissors, markers and tacky glue.

**[4]** Set at each student's place: One plate with cone-half, pencil and three rubber bands; Other plate with paintbrush and paper towel. Also have a cup of water ready. Set the paint nearby.


[1]


[2]


[3]


[4]

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# INSTRUCTIONS

**[1]** Have students put on their aprons and roll up their sleeves, explaining that this paint will not wash out of clothes.

Demonstrate and have the students put the large rubber band onto the top of the cone-half and carefully bring it down to 3" from the bottom, where the lowest pencil mark is. Make the rubber band as straight as possible. Do the same thing with the middle-sized rubber band, aligning it on the middle pencil mark. Last, attach the small rubber band, aligned with the top pencil mark.

Have students use the rubber bands as guides for tracing in pencil the three lines, on the rounded side of the cone-half. Be sure that they are dark enough to see, and then carefully remove the rubber bands, one at a time.

**[2]** While students are drawing their pencil guidelines, you can be squeezing paint onto their other plates. (Keep the colors far apart so they don't mix them.) Have students paint the front (not the back) of their cone half, working top to bottom: Light blue, light green, medium green, medium blue. Have them wash out and dry their brushes between colors.

While students paint, squeeze more paint onto their plates and distribute wet wipes as needed.

When they are finished, collect the brushes and put them into the bucket of water (until after class when they can be washed out).

Have the students write their names on their clean plates and move them into the drying area.

## *NEXT SESSION*

**[3]** Before students arrive, set at their places the rest of the materials you organized for them. Then have students collect their painted cones. Review the levels of an ecosystem while referring to the labels in their bags (without removing them). Instruct students to choose one fish (organism) for the top layer, two of the same fish (population) for the second layer, three or more different fish (community) for the third layer, and various fish for the bottom layer. Students may attach a few fish to the sides of the bottom layer, but should not attach any to the middle area yet.

After students have attached fish, ask them to remove them, one at a time and glue them back on in the top three layers to be sure they will stay on the cone-half. (Explain that it's fine if the heads and tails won't wrap around the cone-half. Just being attached in the center of each fish works well and gives some dimension.)

**[4]** Have students use a pencil to draw themselves swimming, and any other sea life they'd like to create to go on the bottom level (ecosystem). They should also draw seaweed to represent the plant life. Then, they may color them, cut them out and glue them, along with the assorted fish, to their ecosystem level.

**[5]** Have students write their name in pencil on the back of one of their labels. They can glue toothpicks to the backs of the labels and insert them into alternating sides of the cone-half in the correct order.


## MODIFICATIONS

### *To simplify project:*

- Have students paint the cone-half, one solid color. Then use rubber bands to separate into layers, leaving rubber bands as part of the finished piece.
- Cover cone-half in paper so that you don't paint. Before attaching, draw (curved) dividing lines on the paper to show layers.

### *To expand project:*

- Have students make different ecosystems using other environments featuring animal stickers and drawings and then join them at the bottom to show that each of those systems are dependent upon one another, too.
- Students can research scientists working in this area and print that information to be attached to the back.

### *For multiple ages:*

- Younger and older students can work side-by-side with each working at the level of their capability.
- Have older students research more about how the interdependence actually works and provide written examples of that.

## ADDITIONAL IDEAS

- This concept could be used for the layers of the Earth.
- Tie this project into historical examples of how people are affected by the ecosystem being balanced or disrupted. (Example: Native Americans and the buffalo.)
- Create a jumbo ecosystem on a large corkboard and have students bring small, stuffed animals and dolls from home to attach to it.

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## TIPS

- Prepare the painting area, covering the tables if needed. Allow for plenty of space for each student. Have a large plastic-lined garbage can ready.
- To minimize some of the brush washing, have students work with partners, with one painting the top color on their cone half, while the other paints the second color down, on theirs. Then when finished, they can trade brushes. If they wash and dry their brushes, they can paint the third and fourth colors and exchange brushes again.
- Explain why it's important to go from light colors to dark colors when painting - their water will get dirty if they start with a dark color and it will make the light color muddy.
- Tell students that after rinsing a brush, they should gently dry it off on a paper towel and rewash it a couple of times. (Caution them not to squeeze and pull the brush bristles.)
- Check the nozzles of the tacky glue bottles to be sure that they are clear. If not, bend open a paper clip. Remove the bottle cap and insert the paper clip wire into the nozzle (from the inside), forcing any dried glue out of the nozzle (not down into the glue bottle). Test it to be sure that it's clear.
- When using and storing tacky glue bottles, make sure that the caps are on and set them on their sides. This keeps glue in the nozzles so that there is minimal squeezing when using.

**REFERENCES**

*Ecology: The Study Of Ecosystems* by Susan H. Gray
*Coral Reefs* by Jason Chin
*Food Chain Frenzy* by Anne Capeci
*Pass The Energy, Please!* by Barbara Shaw McKinney