

Sculpt a Sea Urchin

Upcycled containers are used as molds in this easy and visually striking sea urchin sculpture

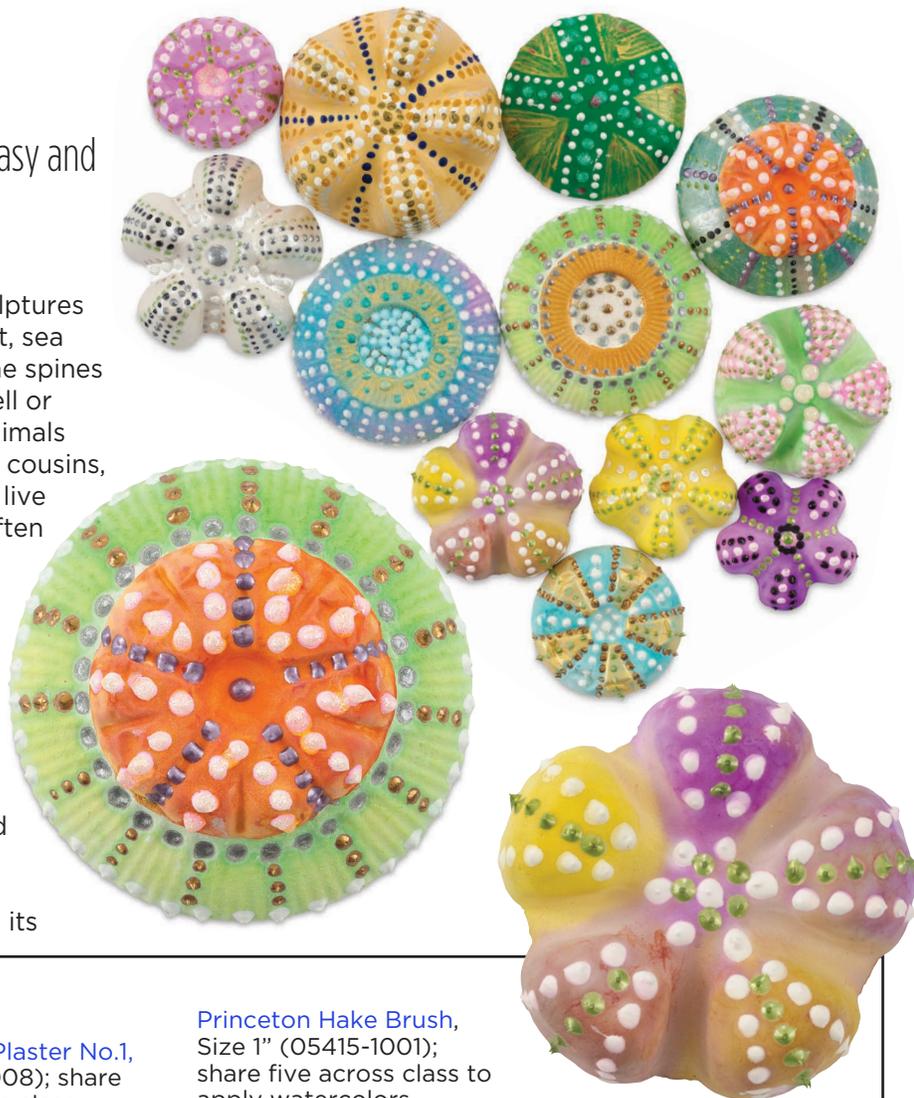
(art + science)

The shells of sea urchins are beautiful natural sculptures with incredible detail and symmetry. In times past, sea urchins were also called sea hedgehogs due to the spines of the animal that protrude through the outer shell or “test” of the creature. Sea urchins are globular animals that belong to the class Echinoidea, just like their cousins, the sand dollar. Around 950 species of echinoids live in the world’s oceans. The shell of the animal is often colored olive green, brown, purple, blue, and red, and usually measures 1-4” in diameter.

Like other echinoderms, when sea urchins are babies, they illustrate bilateral symmetry, which means they have two identical halves. As they grow, however, they develop five-fold symmetry. The outer shells are mostly spherical, with five equally sized divisions that radiate out from the center. Some sea urchins, including sand dollars, can be more oval in shape, and usually, the upper portion of the shell is domed while the underside is flat. The “test” of the urchin protects its internal organs. It’s very rigid and made of fused plates of calcium carbonate covered by thin dermis and epidermis — just like our skin! Each of the five areas consists of rows of plates that are covered in round “tubercles.” These round areas are where the spine of the animal is attached while it’s alive.

Use plaster to create the base of the urchin shell, then use various paint applications, as well as markers, to customize a sea urchin sculpture that’s enticing in its detail. Group many sea urchin sculptures for an eye-catching display!

GRADES 3-12 Note: Instructions and materials are based upon a class size of 24 students. Adjust as needed.



Materials (required)

[Blick Pottery Plaster No.1](#), 8 lb (33536-1008); share one bag across class

[Blick Liquid Watercolors](#), 118 ml (00369-); share at least three colors across class

[Blickrylic Student Acrylics](#), Pint (00711-); share at least five colors across class. [Blickrylic Student Acrylics](#), Blockout White, Pint (00711-1086); suggested for dots

[Blick Scholastic Camel Hair Round](#), Size 4 (05867-1004); one per student

[Snippy Sharp Tip Scissors](#) (57040-2005); share across class

[Princeton Hake Brush](#), Size 1” (05415-1001); share five across class to apply watercolors

Optional Materials

[Utrecht Plastic Buckets with Lids](#), 128 oz (03332-1009)

[Jazz Gloss Tempera](#) (00014-)

[Blick Studio Markers](#) (22148-)

[Mayco Decorating Accessories](#), Detailer Caps, Set of 6 (30706-1069)

[Plastic Squeeze Bottles](#), 4 oz (04916-1003)

[Paint Pipettes](#), package of 25 (06972-1025)

[Detail Writers](#), package of 6 (32929-1009)

[Jacquard Lumiere 3D Metallic Paint and Adhesive](#) (00752-)

[Sargent Glitter Glaze](#) (00704-)

[Amaco Stonex White Clay](#) (33247-)



Preparation

1. Have each student provide a recycled plastic container to serve as the mold for the sea urchin sculpture. Plastic water or soda bottles and other take-out containers work well. Especially useful are containers that are already divided into 5ths, such as the bottom of plastic drink bottles.
2. Cut the bottoms off the containers about 3" up from the base.
3. For students younger than grade 2, pour plaster into recycled containers and let it dry overnight before painting.



Step 1: Pour plaster into the base of a plastic container such as a water or soda bottle. Allow to dry.

Process

1. Assemble all of the recycled containers to be made into sea urchin sculptures. Cut the containers using scissors so they are approximately 2-3" deep. Using paper towels, wipe a small amount of dishwashing liquid over the inside of the mold to help the plaster release.
2. Pour lukewarm water into a flexible container and add plaster to the water without stirring until the plaster forms a small hill on the surface of the water. Stir thoroughly, working out any lumps. Pour plaster into each container to make a sculpture about 2" deep. Let it dry overnight and remove it from the mold.
3. Paint the base color of the sculpture using liquid watercolors. The plaster will dry the paint quickly, so dots can be added almost immediately.
4. To add dots that make up the tubercles of the urchin shell, use the pointed end of a brush, dip it into acrylic paint, and then apply the dot. Start in the center and create five divisions as a guideline. Of course, every sea urchin doesn't need to be symmetrical. Creative discretion can be used to create an individualized and "rare" sea urchin.

Tip: There are many ways to create dots:

- Pour paint into Detail Writer bottles and squeeze dots onto the surface

- Use Jacquard 3D metallic paint and adhesive to make dots that stand up
- Markers make easy dots in a variety of ways depending on their tips
- Use fingertips to make dots
- Use the handle end of a paint brush to make dots
- Use a paint pipette to draw up and apply paint.



Step 2: Use liquid watercolors to apply a base color to the sculpture.



Step 3: Divide the sculpture into fifths either visually or use the cast divisions. Embellish with dots of paint.

Options

- For youngest students, use tempera and fingertips to create a decorated sea urchin shell. Pre-cast the plaster forms for the youngest students' use.
- Use the plaster base as a hump mold for air-hardening clay, or press clay into the plastic mold. Allow to dry and embellish as above.



National Core Arts Standards - Visual Arts

Creating (Investigate, Plan, Make)

Anchor Standard 2: Organize and develop artistic ideas and work.

Connecting (Synthesize)

Anchor Standard 10: Synthesize and relate knowledge and personal experiences to make art.