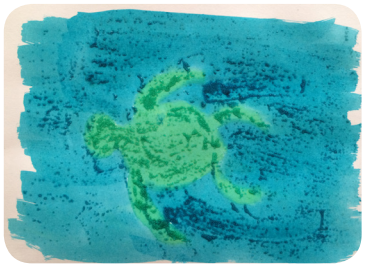
Overview

Family Activity

- **Sea Snacks:** Create healthy under-the-sea themed snacks to share during a picnic, barbecue, or any time that suits your family. See the Snack Guide to get you started with some ideas. (*Art and Health*)

Pre-kindergarden – Early Elementary Activities

- **Sea Salt Art:** Make salt paint (2 tsp. salt, 1 tsp liquid starch, food coloring) to paint a picture of a sea creature or an ocean scene. The salt gives a sandy look to the painting. (*Art*)



- **Ocean in a Bottle:** Make an ocean in a bottle by filling an empty water bottle half full of cooking oil or baby oil. Add a few drops of blue food coloring and fill the rest to the neck with water. Add sparkles, glitter, sequins, or miniature plastic sea creatures. Hot glue the lid to the bottle. Gently tip the bottle side to side to create ocean waves. (*Art*)

- **Under the Sea Simulation:** Play soft, ocean-like music. Get a large sheet, towel, or blanket, or play parachute and create ocean waves. Place small balls or other soft items such as stuffed animals on it to simulate what it is like in the ocean for a sea creature. Keep the music going and try dancing under the sea by taping crepe paper streamers around an opened umbrella to represent the tentacles of a jellyfish. Have your child hold the handle and go under the umbrella. Encourage her to dance and twirl to the ocean sounds as if she were floating along the ocean waves. (*Art and Music*)

Elementary Activities

- **Jellyfish in a Bottle:** Make your own jellyfish in a bottle using recycled materials and items from the kitchen. (*Art*) *See Activity Guide | Page 2-3*

- **Salt Water Experiments:** Explore water density by seeing which objects sink or float in salt water and fresh water. (*Science*) *See Activity Guide | Page 4-5*

- **Egg Carton Coral Reef:** Construct a model of a coral colony. Learn about the structure of coral polyps and how coral colonies survive by visiting- *http://coralreef.noaa.gov/education/educators/resourcecd/activities/resources/egg_carton_sa.pdf*
Read more about coral reefs by visiting *http://kids.nceas.ucsb.edu/biomes/coralreef.html* (*Art and Science*)

Upper Elementary Activities

- **Endangered Sea Animals:** Visit *http://oceantoday.noaa.gov/marine-life.html* To learn more about endangered marine life. Learn why sea animals matter, what is threatening them, and what efforts are being made to save them. Then make a triorama to demonstrate what you have learned.
(*Art and Science*) *See Activity Guide | Page 6-7*

- **Make Waves:** Learn how waves are created through a simulation using water, a fan, and marbles.
(*Science*) *See Activity Guide | Page 8-9*

- **Sand Casting:** Make a plaster casting with sand and other unique items to display.
(*Art and Science*) *See Activity Guide | Page 9-10*

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Synopsis

Make your own jellyfish in a bottle using recycled materials and items from the kitchen.

Materials

- Empty clear plastic bottle with lid (label removed)
- 1 white plastic grocery bag
- Thread or small rubber band
- Water
- Scissors
- Food coloring
- Hot glue

Directions

1. Cut the handles and bottom off the plastic grocery bag.

2. Cut the sides of the bag so you have the two halves–the back and the front sides. Discard the side with the logo.

3. Lift and pinch the center of the bag and make a small bubble.

4. Tie off the bubble loosely with the thread or rubber band so a small opening remains. Turn it over and be certain you can see a small opening. This is the "head" of the jellyfish.

5. Cut the part of the bag hanging down into strands to make the tentacles. Cut the strands so that there are various lengths and widths.

6. Fill the bottle close to the neck full with water.

7. Add a few drops of blue food coloring.

8. Turn the jellyfish over. Blow into the small opening and fill with air. Then fill the opening about half way with water.

9. Twist the head closed and stuff the jellyfish into the bottle.

10. Hot glue the lid on to the bottle.

11. Turn the bottle upside down and then right side up to watch the jellyfish swim.

Synopsis

- Explore water density by seeing which objects sink or float in salt water and fresh water.

Materials

- 2 containers (cups or bowls)
- Salt
- Spoon
- Small bar of soap
- 1 egg
- Several small objects such as plastic toys, ball, baby carrot, marble, eraser, etc., that will fit in the containers
- Recording Sheet (provided)
- Pencil
- Water

Directions

1. Fill both containers with warm water (approximately 3/4 full).
2. Add several tablespoons of salt to one cup and stir with spoon until the salt is almost completely dissolved.
3. Explain that the saltwater represents the ocean and the water without the salt represents freshwater that would come from a river, lake, or mountain spring.
4. Have your camper select one of the items to test and write or draw a picture of the item in the Items to Test column of the recording sheet.
5. Ask him to make a prediction whether the object will float or sink in the fresh water as opposed to the salt water.
6. Have him test the item in each cup of water.
7. Record the result on the lab paper by placing an X or check mark in the appropriate column.
8. Repeat the experiment with the other items.
9. Discuss the results.
   - What happened when you switched the items over into the salt water from the fresh water?
   - Why do you think some items sink in the fresh water but float to the top in the salt water?
10. Talk about (or review) the concept of density. Explain that density refers to the amount of matter contained in a given space or volume. When there is more matter in a given space or volume, an object is then considered denser. Because the salt is dissolved in, saltwater has more particles in it compared to freshwater. Since saltwater is denser than freshwater, it is more capable of holding up objects–making them float. In summary, if the density of the water is greater than the density of the object, it will float.
11. Given what he knows about density, now ask the following questions:
    - Are there any changes you could you make to an item so that it might float (or sink) in the fresh water?
    - What do you think would happen if you added more salt to the water?
    - What if the water had less salt? Do you think the items would still float or would they sink instead

Extension

- Learn why ocean water is salty by visiting *http://oceanservice.noaa.gov/facts/whysalty.html*
- Conduct another experiment with salt water and fresh water.

Materials

- Table salt
- Two clear drinking glasses
- Spoon
- Tap water
- Food coloring

Directions

1. Add several of teaspoons of salt to one of your glasses and add several drops of the food coloring to the other glass.
2. Add several tablespoons of salt to one cup and stir with spoon until the salt is almost completely dissolved.
3. Stir the salt water until the salt is completely dissolved.
4. Stir the food coloring in the other glass until it is completely mixed.
5. Slowly pour some of the colored water into the salt water.
6. Observe what happens. It may take several minutes for the final result to occur.
7. Discuss the results.

Recording Sheet

Items to Test	Sink		Float	
	Fresh Water	*Salt Water*	*Fresh Water*	*Salt Water*
1.				
2.				
3.				
4.				
5.				
6.				

Synopsis

Visit *http://oceantoday.noaa.gov/marine-life.html* to learn about endangered marine life. Learn why sea animals matter, what is threatening them, and what efforts are being made to save them. Then make a triorama to demonstrate what you have learned.

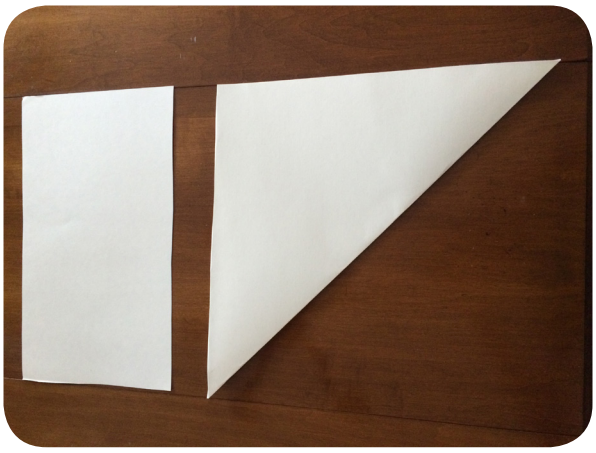
Materials

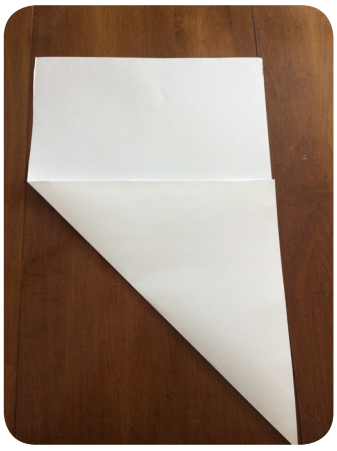
- 1 piece of poster board
- Markers or crayons
- Tape
- Scissors
- Endangered sea animal research (already completed)
- Optional: pictures of sea animal
- Optional: clay, craft sticks, extra construction paper, clothes pins, or extra poster board

Directions

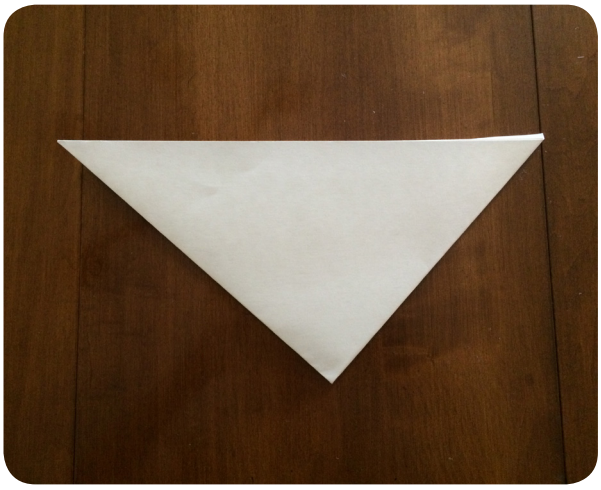
1. Place the piece of poster board in front of you vertically.

2. Fold the bottom right corner of the poster board so that the bottom edge is even with the left edge (forms a triangle). Cut off the excess edge of poster board.

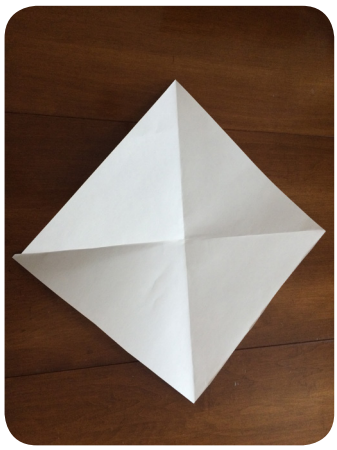




3. Keep the poster board folded in a triangle and fold it in half again to form a smaller triangle.



4. Unfold the paper so that it is a square. Cut along one of the folds to the center of the square and stop.



5. Overlap the two triangular pieces and adhere them together with tape.

6. Stand the paper up so the open side faces toward you.

7. Decorate the triorama with facts and pictures about the endangered sea animal on the inside and outside walls.

8. Optional: Make 2D or 3D models to represent your sea animal and its habitat out of clay, paper, craft sticks, or clothespins to stand inside the triorama.

Synopsis

Learn how waves are created through a simulation using water, a fan, and marbles.

Materials

- 1 large, flat dishpan, about 4 or 5 inches deep
- 1 electric table fan or paper fan
- Water
- Food coloring (optional)
- 5 large marbles or ball bearings

Directions

1. Place the pan on a flat surface and fill it with approximately 2-3 inches of water.

2. Optional: mix in a few drops of food coloring.

3. Place an electric fan or hold a paper fan facing the pan on the narrow side.

4. Ask your child to predict what will happen when the fan blows across the water's surface.

5. After he has made his prediction, turn the fan on low speed.

6. Discuss the results.
   - Were there waves?
   - Did the water "bunch up" at the far end of the pan?
   - Did the water spill out of the pan?
   - What do you think will happen if you speed up the fan?
   - Will the waves get bigger?
   - Will they move faster?

7. Gradually increase the speed of the fan and have him observe again. *(Note: Water might slosh out of the pan with the fan at high speed because the energy in the waves cannot readily transfer into the pan's wall.)*

8. Discuss the connection between wind and the waves. Ask him to explain why he thinks that the water did not pool or "bunch up" at the far end of the pan when the fan was on low speed.

9. Next, take the set of 5 marbles and place 4 of them in a line so that each marble touches another on a flat surface.

10. Predict what will happened if the fifth marble is gently rolled toward one marble at the end of the row.

11. Gently roll the fifth marble into a marble at one end of the line of marbles.

12. Repeat this process 3 more times.

13. Explain that the energy in the rolling marble was transferred to the marble it hit and from that marble to the next, until the energy reached the last marble. The energy then made the last marble roll away. Wave energy moves through water in a similar way. The winds cause waves on the surface of the ocean (and on lakes). The wind transfers some of its energy to the water through friction between the air molecules and the water molecules. Waves of water do not move horizontally; they only move up and down. Think about or show a video of a floating buoy bobbing up and down with a wave; it does not move horizontally with the wave.

Extension

- *Why do ocean waves seem to get bigger and then roll over when they crash into the shore?*

  In the first experiment the bottom of the ocean was represented by the bottom of the pan, which was flat and even. However, the ocean floor is not flat and even. As water gets closer to shore, the depth of the ocean water decreases. To simulate the change in ocean water depth from the deep ocean to the shallow shore, repeat the pan investigation using the plastic liner from a paint roller pan. Start the fan at low speed and blow from the deep end of the pan to the shallow end. Ask your student to predict what will happen to the waves.

Synopsis

- Make a plaster casting with sand and other unique items to display.

Materials

- Sand (sandbox, decorative, or beach)
- Plaster of Paris
- Water (fresh or from the ocean, if at the beach)
- Small decorative objects (shells, beads, marbles, pebbles, gems, small plastic toys)
- Paint brush (medium)
- Optional: Plastic bin (if completing indoors, fill approximately ¾ full with sand)
- Optional: Acrylic paint and small paintbrush

Directions

1. Create a small shallow shape in the sand. It can be free form or a specific shape, such as a circle or rectangle. Alternately, have your child press his hand, foot, fist, pet's paw (if appropriate), or a sandbox mold (open-side up) into the sand.

2. Arrange small decorative items in the sand inside the shape you created. Gently press them into the sand.

3. Mix the plaster according to its directions in a separate container (if you are at the beach you can mix it in a plastic bag that seals).

4. Pour the plaster gently over the sand mold.
5. Allow it to dry completely (approximately one hour). The deeper and wider the mold, the longer it will take to cure.
6. Remove the plaster from the sand.
7. Brush the majority of the loose sand away.
8. Display your artwork.

9. Optional: Paint over the sand with acrylic paint for a unique effect.

Extension

- Learn the answer to question, What Keeps the Ocean from Draining Through the Sand?, in addition to other facts about the ocean, by visiting *http://wonderopolis.org/wonder/what-keeps-the-ocean-from-draining-through-the-sand/*
  "Wonderopolis is brought to life by the National Center for Families Learning."