SPREADABLE, EDIBLE, AND INCREDIBLE CORAL REEFS!

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Photo: CEDixon

National Science Content Standards

Life Science Content Standard, Grades K-4:
Characteristics of organisms

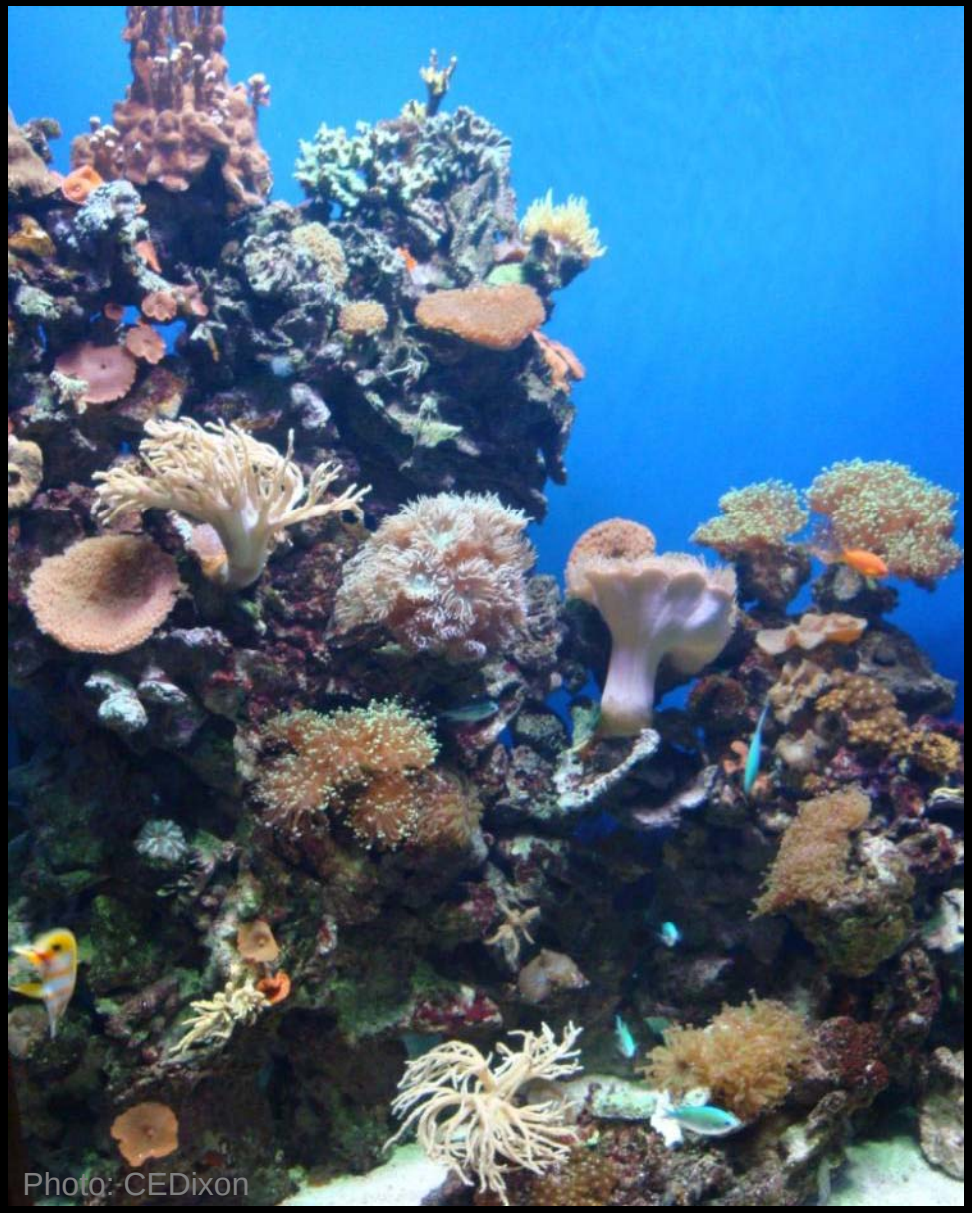
Life Science Content Standard, Grades K-4:
Organisms and environments

Life Science Content Standard, Grades 5-8:
Structure and function in living systems

Life Science Content Standard, Grades 5-8:
Diversity and adaptations of organisms

Life Science Content Standard, Grades 9-12:
Interdependence of organisms
Behavior of Organisms

Photo Credit: NOAA



Ocean Literacy Essential Principle:

The ocean supports a great diversity of life and ecosystems.

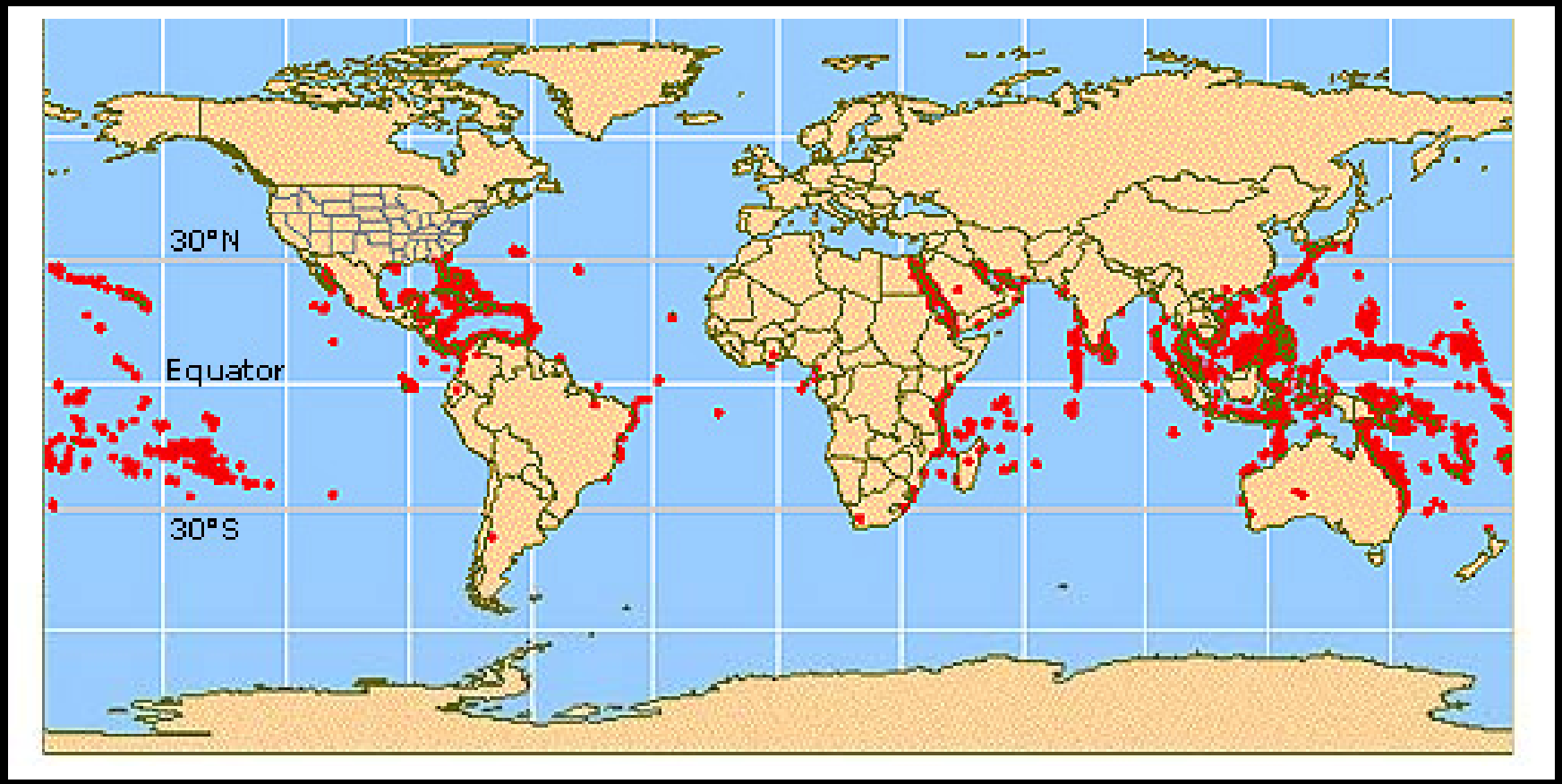
Coral Reefs! Oh My!

- Found in warm, clear and shallow tropical waters on the continental shelf
- Reefs are built up slowly by the successive generations of corals and their limestone skeletons
- Very complex ecosystems that support a great diversity of vertebrate and invertebrate life

Photo Credit: NOAA

http://www.moc.noaa.gov/mt/index.html

World Tropical Coral Reef Distribution



Map: NOAA Coral Reef Conservation Program

Corals

Two types of corals:

- Hard reef building corals whose skeletons are made of limestone. Examples include brain and Elkhorn coral
- Soft corals like sea whips and sea fingers that are not reef builders

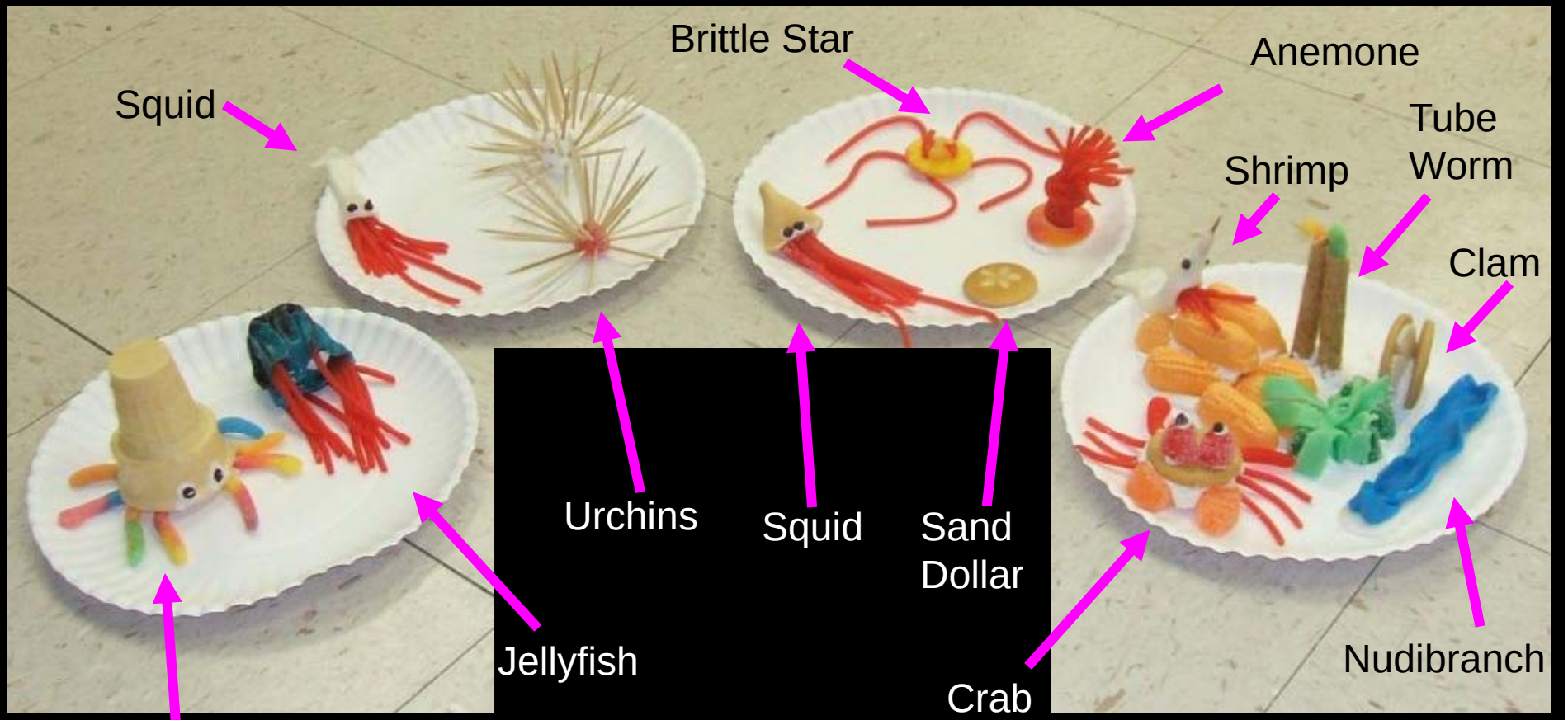
Photo Credit: NOAA, Life at Sea

http://www.moc.noaa.gov/mt/index.html

Phyla and organisms that can be covered by this hands-on lab!

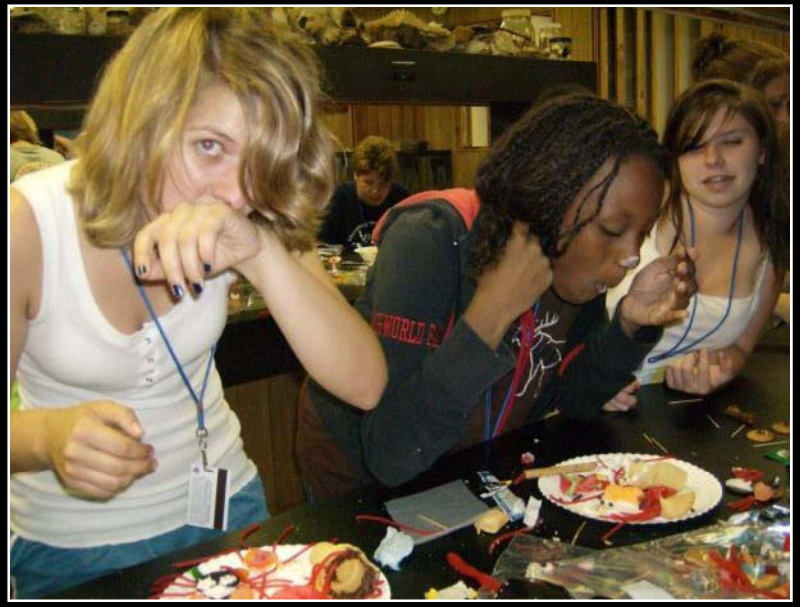
- Phylum Porifera: Sponges
- Phylum Cnidaria: Jellies, Anemones, Corals
- Phylum Annelida
  - Class Polychaeta: Tube Worms
- Phylum Mollusca
  - Class Bivalvia: Clams, Scallops
  - Class Gastropoda: Snails, Nudibranch
  - Class Cephalopoda: Squids, Octopuses
- Phylum Arthropoda
  - Class Crustacea: Crabs, lobsters, shrimp
- Phylum Echinodermata
  - Class Asteroidea: Sea stars
  - Class Ophiuroidea: Brittle stars
  - Class Echinoidea: Sea urchins and sand dollars
  - Class Holothuroidea: Sea Cucumbers
- Phylum Chordata
  - Class Chondrichthyes: Sharks and rays
  - Class Osteichthyes: Bony fishes
  - Class Reptilia: Sea turtles

Sweet Reef Coral Creations!*



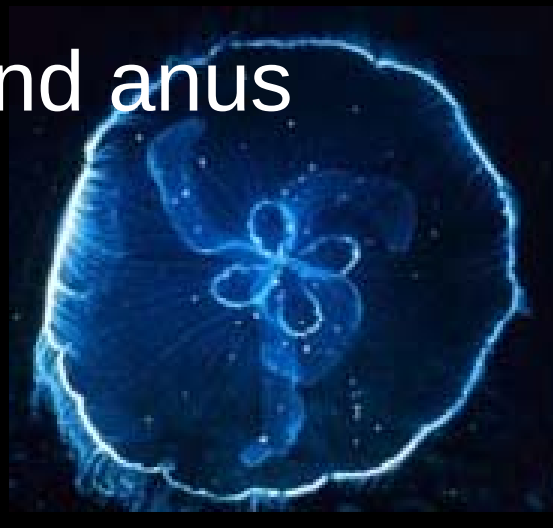
* A favorite among the students!


HOUSING AUTHORITY
Cultural Arts & Recreation
Summer Enrichment

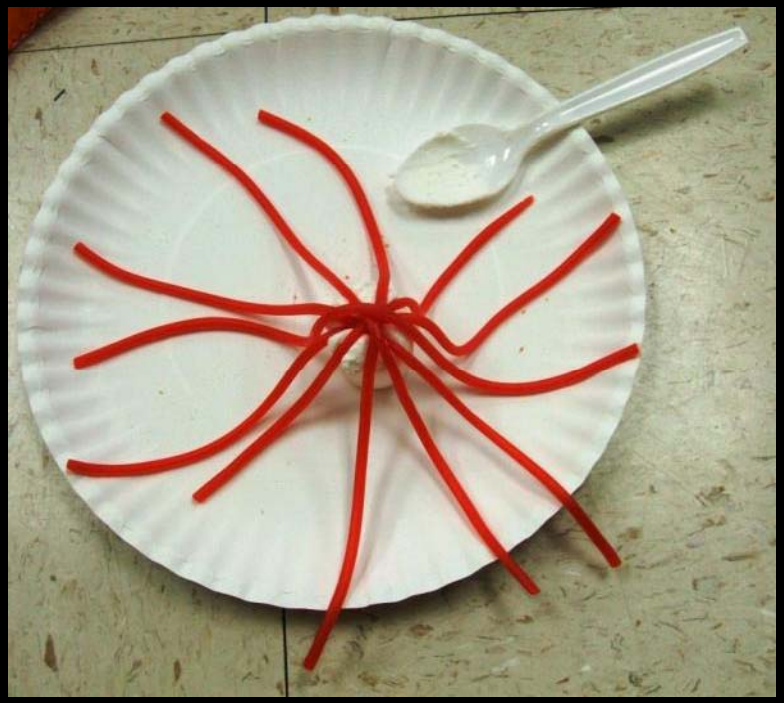


Phylum: Cnidaria
Jellyfish, Anemones, Corals

- Over 10,000 species, mostly marine
- Demonstrate radial symmetry
- Polyp vs. medusa
- Carnivores that use their tentacles to capture prey
- Gastrovascular cavity, mouth and anus are the same opening

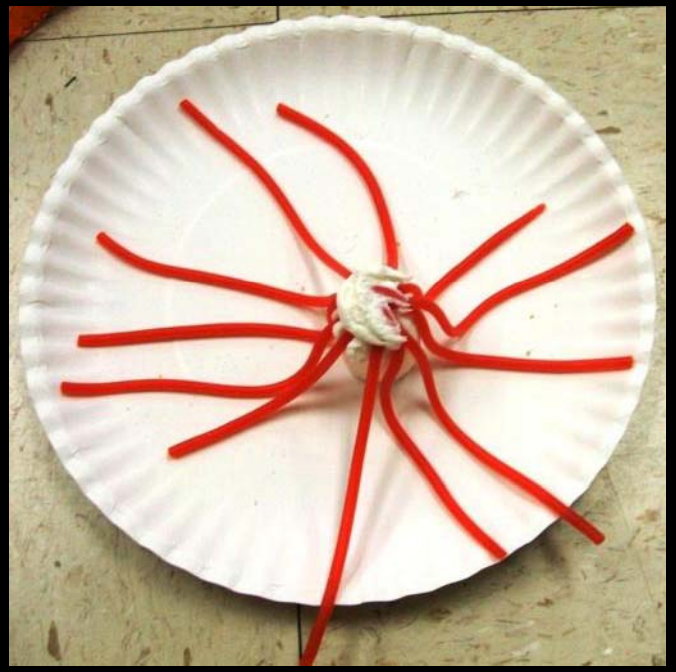


Sweet-Tooth Jellyfish



Step 1: Place 1 Large Marshmallow in center of plate. Peel apart strands of *Twizzers Pull and Peel* and lay over marshmallow in a criss-cross pattern

Step 2: place about a tablespoon of icing directly over the criss-cross on top of the marshmallow

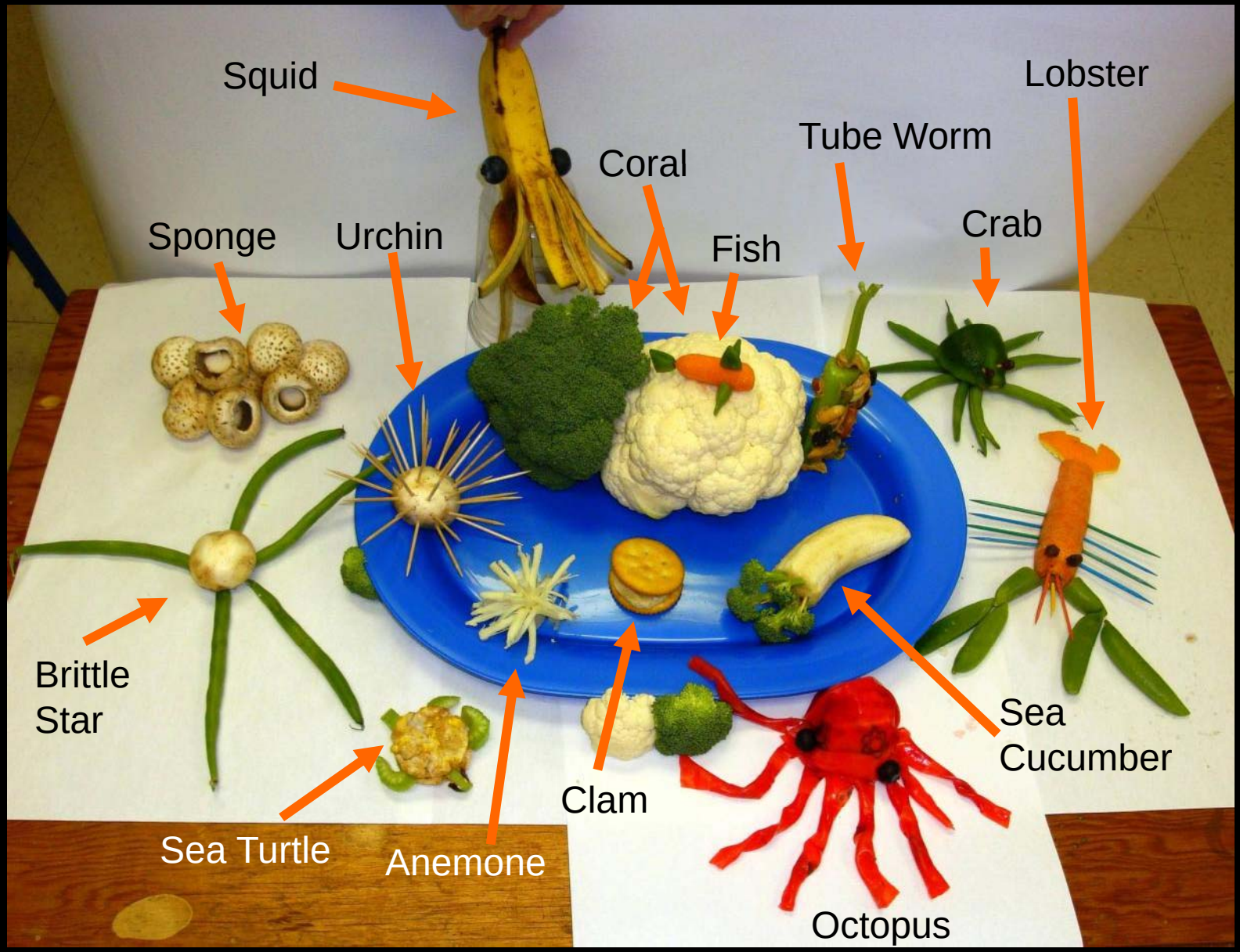


Step 3: Unwrap 1 Fruit Roll-up and lay it directly on top of icing on the marshmallow. Lift the entire creation (Fruit Roll-up, Twizzlers, and marshmallow) off the plate, and wrap edges of Fruit Roll-up underneath the marshmallow

Ta-dah!

An Edible, delectable Jellyfish!

Healthy Snack Coral Reef!

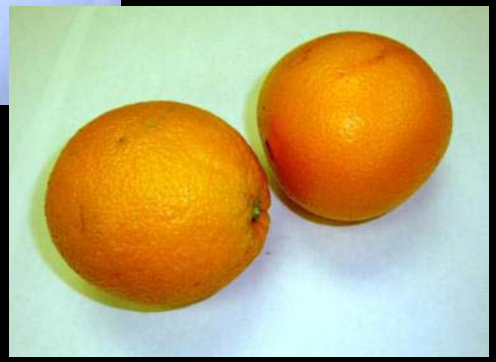


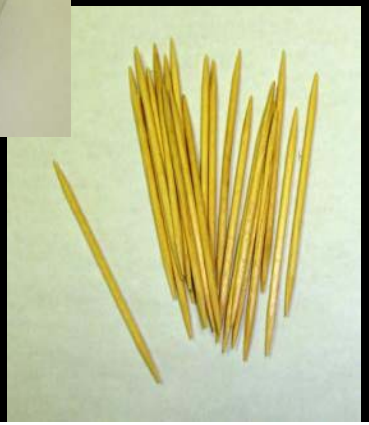
Phylum Mollusca, Class Cephalopoda

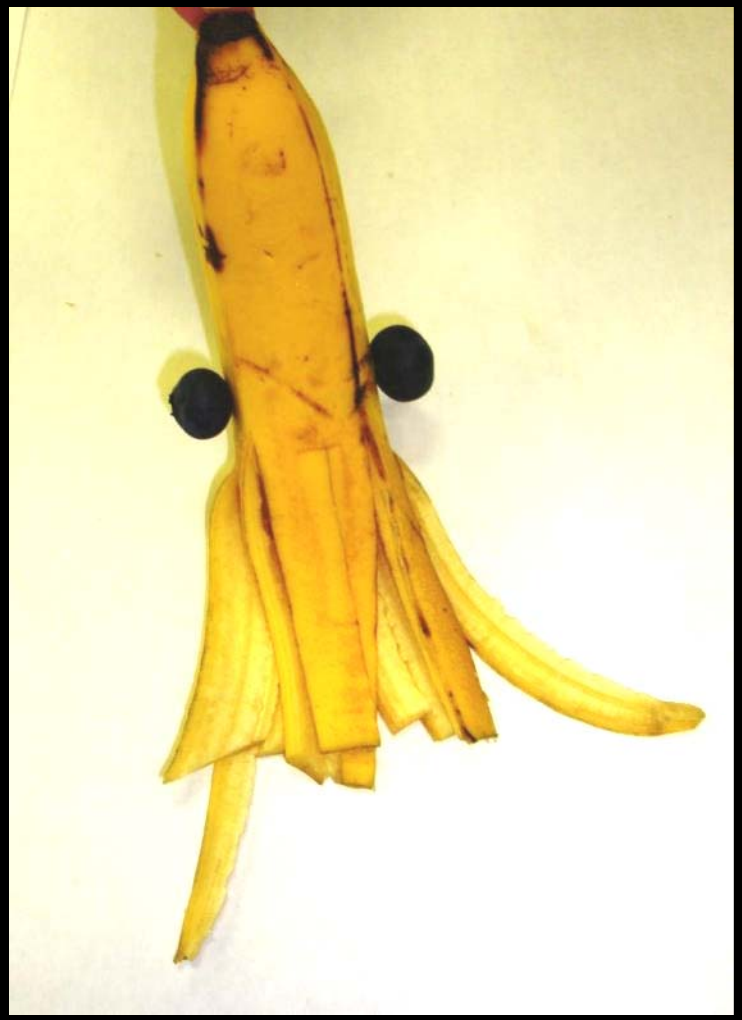
Octopus, Squid, Cuttlefish, Nautilus

- Bilateral symmetry
- Soft bodies
- Shells are either small or absent, except in the nautilus
- Marine predators!
- Beaklike jaws located at the base of their feet

Fear the Banana Squid!

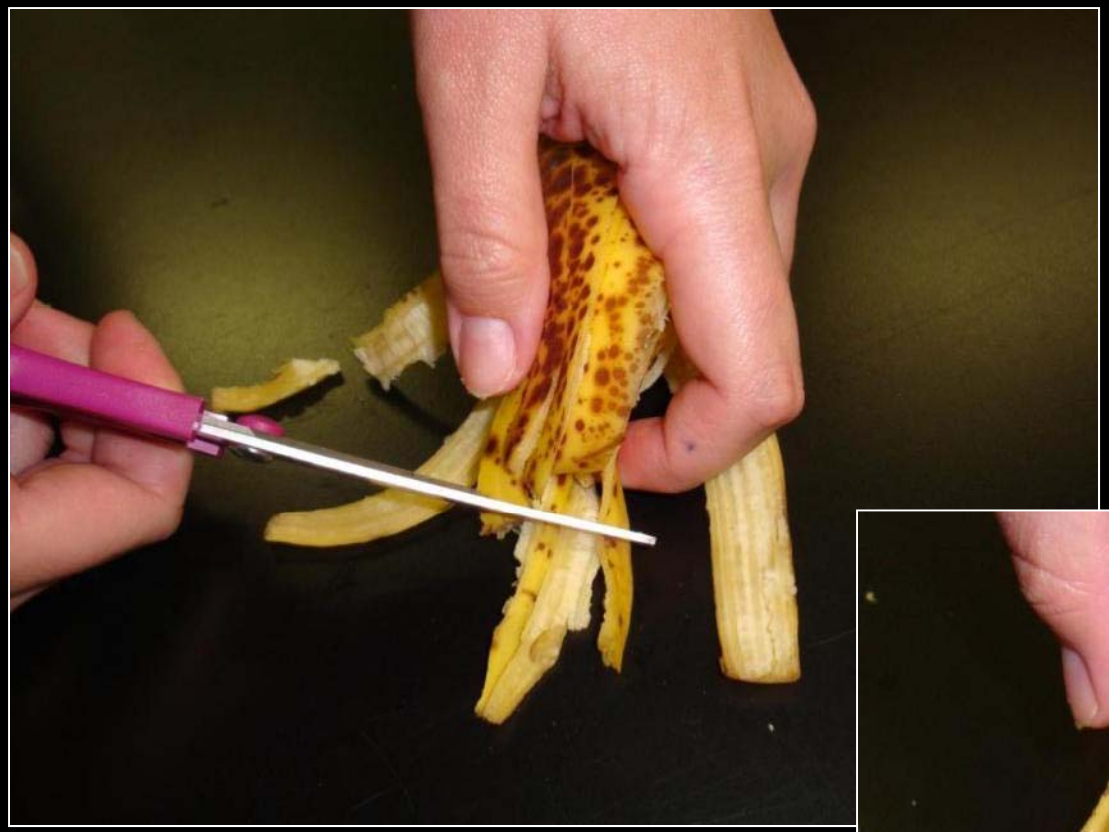






Step 1: Peel banana halfway open and gently break off half of the banana fruit

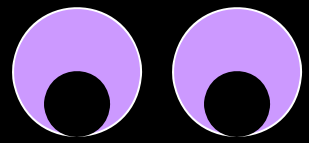
Step 2: Divide the peel into 10 different sections by splitting peel lengths into narrower widths

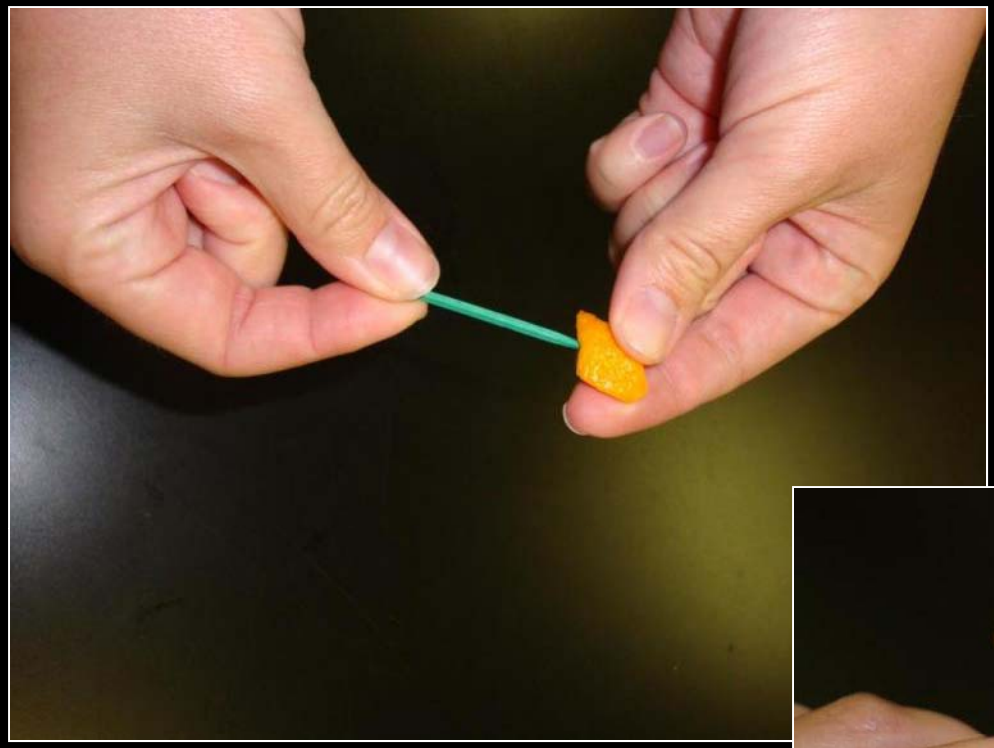


Step 3: Cut approximately 1 inch off 8 of the peel lengths for legs, leaving two long peel lengths for tentacles

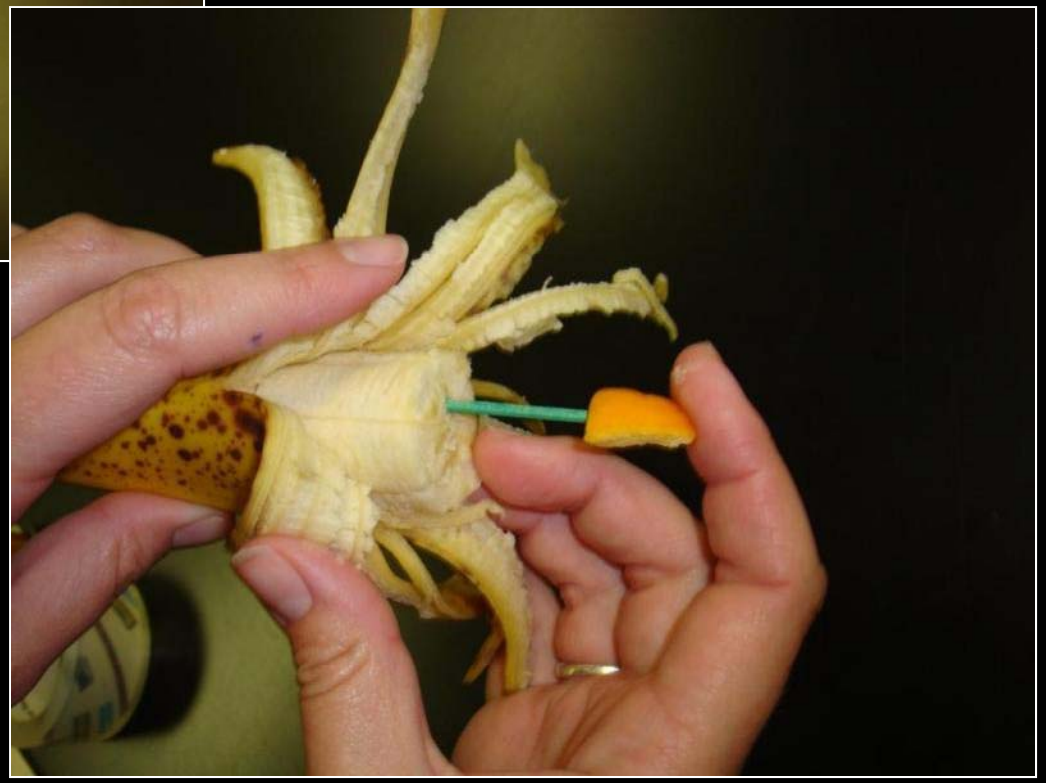
Step 4: Slide toothpick through banana and peel, so that even portions are showing on both sides of the ‘squid’

Step 5: Slide 1 grape on each exposed toothpick point for eyeballs!





Step 6: Slide triangle shaped orange peel onto the end of a toothpick twice, for each side of the squid beak



Step 7: Slide beak toothpicks into the flat end of the fruit next to each other


Banana
Squid!

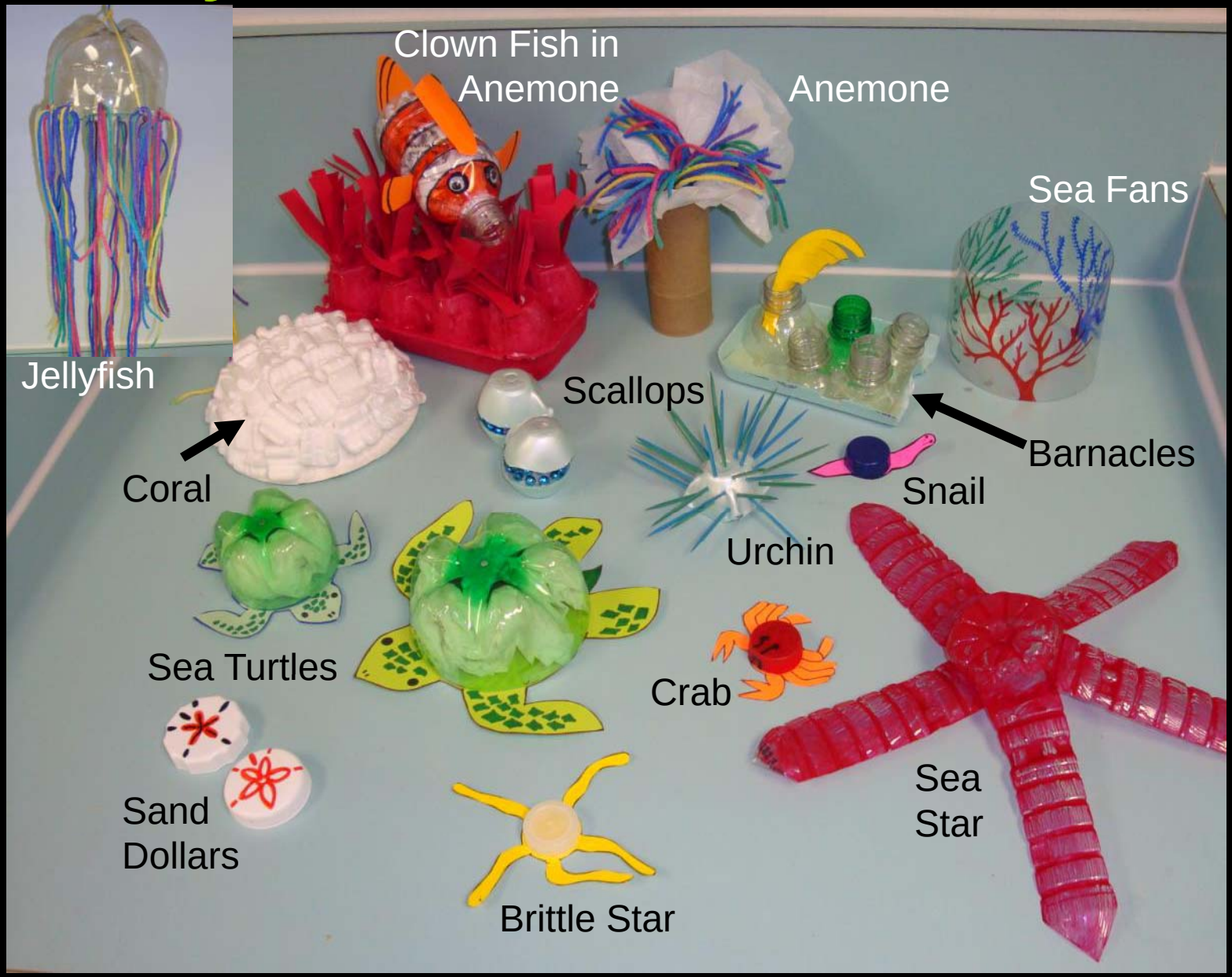
A Sea Cucumber whose guts you WANT to eat!

Step 1: Place fresh broccoli crowns onto the ends of tooth picks

Step 2: Using the half of the banana fruit from the squid project, stick the broccoli toothpicks into the flat end of the fruit

For extra SEA CUCMBER pizzazz, add some celery strings coming out the anus!

Recycled Coral Reef Critters!

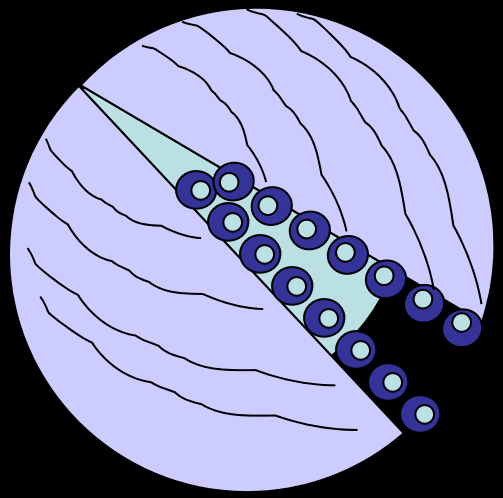


Phylum Mollusca, Class Bivalvia

Muscles, Clams, Oysters, Scallops

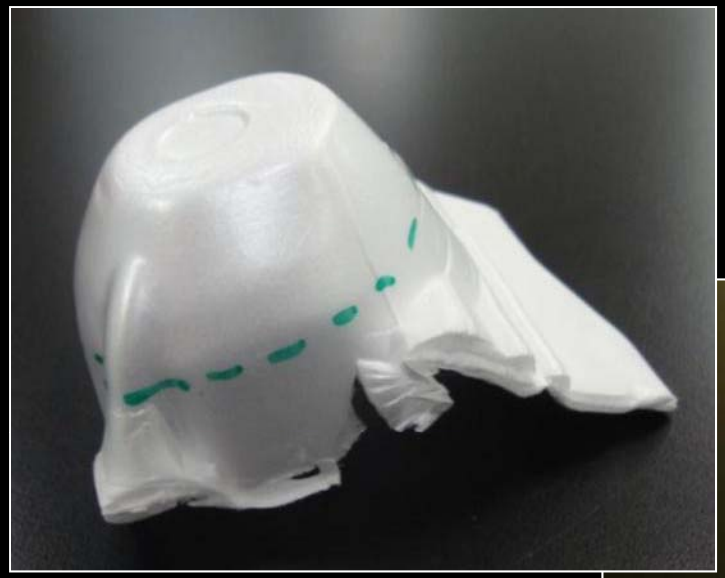
- Latin: *bi-*, double *valva*, leaf of a folding door
- Most are sedentary and live in sand or mud
- Many species are filter feeders, using mucus on their gills to trap food particles in the water
- Very strong abductor muscles control the hinging of the shell

•Scallops are an exception to most bivalves because if threatened, they can clap their valves together to jet short distances

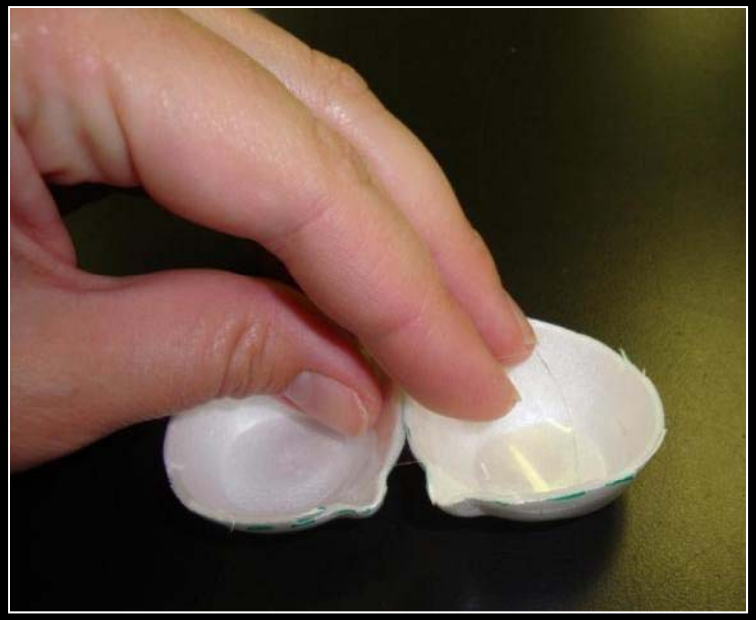


Egg Carton Scallops

NOAA
Dann Blackwood



Step 1: Cut 2 egg cups about ½ an inch from the top, to remove funky corners and ridges



Step 2: Using about 1 inch of clear tape, attach two cups together creating a hinge. Make sure both cups are facing up when taping them together to create your scallop shell!

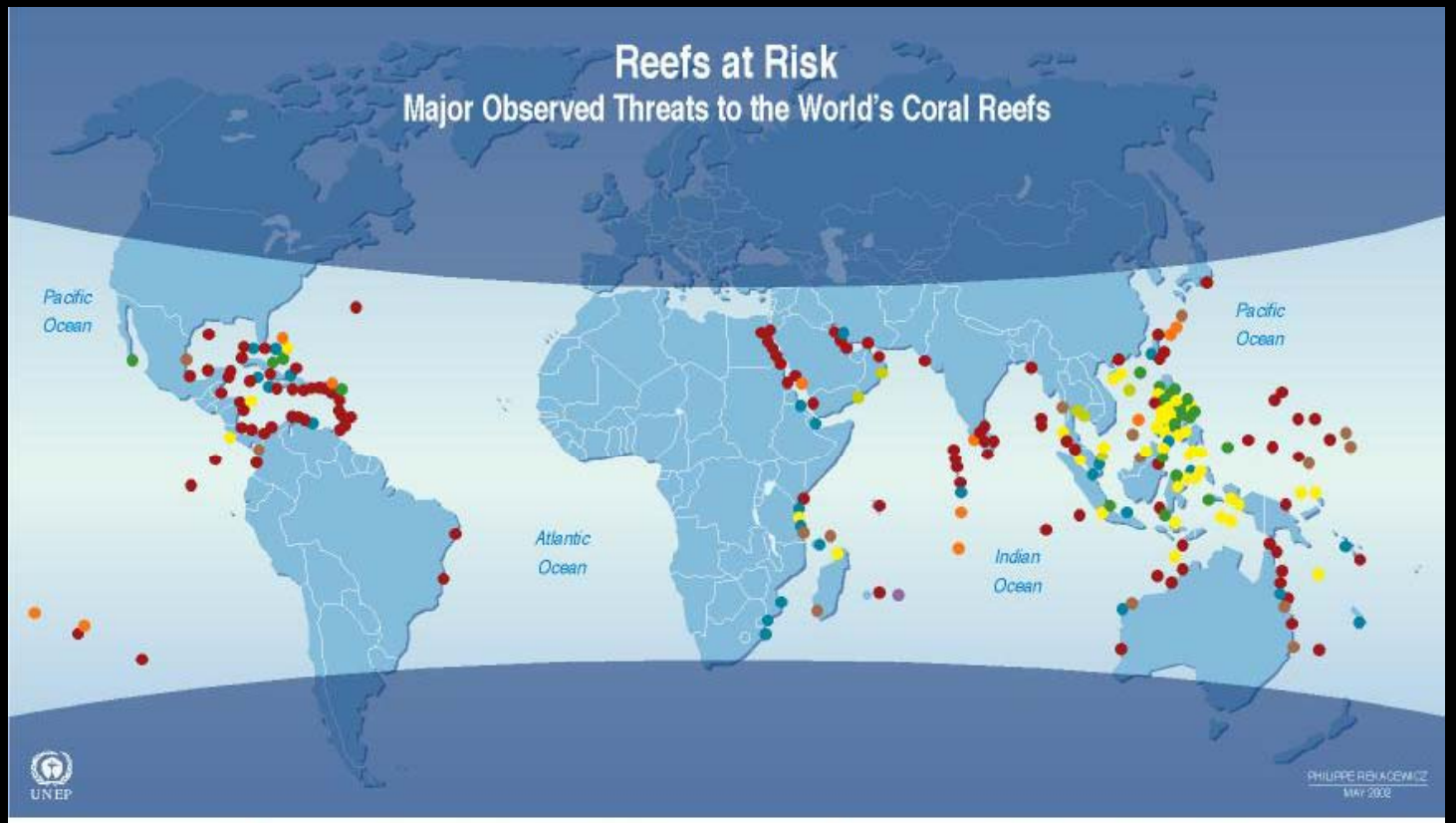
Step 3: Place a cotton ball in each cup representing the body of the scallop

Step 4: Measure out two 4 inch strands of beads for eyes

Step 5: Place two strands along outer edge of shell, and attach using quick dry glue, or clear tape

A very flashy scallop, and finally a use for all those mardi gras beads!

Human Impacts on Coral Reefs Across the World



Source: Bryant et al., *Reefs at Risk; a Map-Based Indicator of Threats to the World's Coral Reefs*, World Resources Institute (WRI), Washington DC, 1998.

Coral Bleaching

Great Coral Reef Resources!

- CORIS by NOAA
- NOAA Coral Reef Conservation Program
- http://www.coralreef.noaa.gov/outreach/resourcecd08/lessonplans.html
- Enchanted Learning: All About Oceans and Seas

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