

## Education

# Paint a Reef Mural



Photo: FGBNMS/Drinnen

## Grade Level

K-8

## Timeframe

4-5 Hours

## Materials

- 170 8" canvas or art paper squares
- Template printouts
- Pencils
- Aprons or smocks
- Table covers
- Acrylic paint in a variety of colors
- Assorted paintbrushes suitable for acrylics
- Varnish for oil and acrylic paint
- Paint trays (i.e. paper plates)
- Water containers/cups
- Water
- Paper towels
- Pictures of reef creatures
- Foam, double-sided mounting tape

Appendix A provides more detail about each of the materials needed for this project, including actual product brands and colors used for the original mural.



Photo: FGBNMS/Drinnen

## Activity Summary

In this lesson, students will learn about different types of animals that inhabit a coral reef environment, then work cooperatively to construct a mural that depicts a coral reef scene.

## Learning Objectives

Students will be able to:

- Identify different species of animals that inhabit a coral reef environment.
- Identify the preferred habitat niche of each species in a coral reef environment (i.e. sandy bottom, reef structure, water above reef)
- Artistically represent the coral reef environment in a painted mural.

## Background Information

Flower Garden Banks National Marine Sanctuary (FGBNMS) is a system of coral reefs found in the northwestern Gulf of Mexico. It is home to many different animal species: corals, sponges, other invertebrates, fish, sharks, rays, sea turtles, and whales.

Each of these animals plays a specific role in this habitat and lives in a preferred area, or niche.



Photo: FGBNMS/Drinnen

## Key Words

- Habitat
- Invertebrate
- National Marine Sanctuaries
- Niche
- Species

Marine educator and artist Jacqui Stanley created an interactive, artistic means for people to learn about this at our annual Ocean Discovery Day event in 2011.

Jacqui started by creating a 12' x 6' mural template depicting the beautiful coral reefs of Flower Garden Banks National Marine Sanctuary. We mounted Jacqui's original painting on exhibit stands and used string and pins to grid off the 8" x 8" blocks (photo above). Each block was labeled with a unique number.

As people arrived to our event, they selected a block on the template they wanted to paint and removed the number. We gave them a corresponding 8" x 8" canvas square with the outline penciled onto it and the same number noted on the back. We then gave each artist an old t-shirt to protect his/her clothes and a plate of paint colors needed for that particular square. Photographs of the animals shown in the painting were displayed on the walls in the room for the artists to use as a reference.

Once the paint dried on the canvas squares we used sturdy, foam, double-sided mounting tape to attach them on the wall, using the numbers for

placement. This continued throughout the day until the entire mural was constructed.

The event was such a success that we wanted to share it for all to have the opportunity to develop their own version.

## Vocabulary

Habitat – The natural home of an organism

Invertebrate – An animal without a backbone

National Marine Sanctuaries – A national system of marine protected areas managed to conserve natural and cultural features while allowing people to use and enjoy the ocean in a sustainable way

Niche – A specific place within a system

Species – A class of living things with some characteristics in common

## Preparation

- Identify a 12' x 6' location and mark out the location for mounting each square of the mural
- Collect and prepare listed materials (see Appendix A for more details)
- Display animal images to use as reference for painters
- Cover tables to prevent damage
- Identify a location for painted canvases to dry before being mounted on the wall
- Distribute old t-shirts or smocks to protect street clothes



## Learning Procedure

1. Introduce students to the coral reef environment and the types of animals that live there.
2. Identify coral reef locations in the United States (Florida, Hawaii, Texas/Louisiana).
3. Introduce students to Flower Garden Banks National Marine Sanctuary (FGBNMS) in the Gulf of Mexico off of the Texas/Louisiana coast. Use the sanctuary website as a reference.
4. Project a photo of Jacqui Stanley's FGBNMS mural onto a wall for reference. As a group, identify as many of the animals in the mural as possible.
5. Share the Critter Guide from Appendix C (separate document) with students and

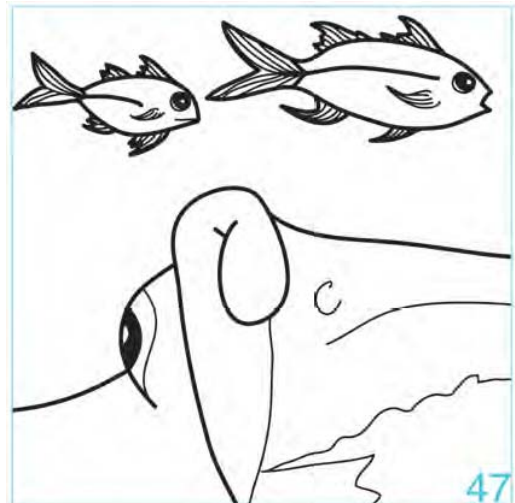
encourage them to learn about the specific species from the mural, including where each of these animals lives in the coral reef environment (i.e. sandy bottom, reef structure, water above reef).

6. Once students are familiar with coral reef animals, lead them in creating a painted mural of a coral reef.

## Mural Procedure

**NOTE:** This procedure assumes use of the templates included with this lesson. If you wish to create your own mural, you will need to create your own templates.

1. Display a photo of the mural with each square numbered (Appendix B).
2. Have each artist select a specific square to paint or simply assign a square to each artist.
3. Give each artist the corresponding template outline and a blank canvas. Mark the back of the canvas with the number selected so that it will be mounted in the correct location in the finished mural, and fill in the "Mural Artists" spreadsheet. This is your record of the student artwork.
4. Give each artist a pencil to copy/recreate the specific template on the blank canvas (example below).



5. Provide each artist or table with a variety of brushes and a palette of paint colors.
6. Remind artists of the photographs and information available for reference.
7. **PAINT!!!** A general guideline is provided on the template so that edges of major components in the painting will match up, but it is up to the artists to incorporate their own ideas into the painting.
8. Set aside each completed square until the paint is dry.
9. Use mounting tape to attach each dry painting in the appropriate location on the presentation wall. Refer to the number on the back of each canvas to assist with placement.

## Connections to Other Subjects

- English Language Arts
- Art

## Related Links

Flower Garden Banks National Marine Sanctuary  
<http://flowergarden.noaa.gov>

FGBNMS Critter Collage  
[http://flowergarden.noaa.gov/document\\_library/eddocs/collage.pdf](http://flowergarden.noaa.gov/document_library/eddocs/collage.pdf)

National Marine Sanctuaries  
<http://sanctuaries.noaa.gov>

## For More Information

Flower Garden Banks National Marine Sanctuary  
4700 Avenue U, Building 216  
Galveston, TX 77551  
409-621-5151 (phone)  
409-621-1316 (fax)  
[flowergarden@noaa.gov](mailto:flowergarden@noaa.gov)

## Acknowledgements

This lesson was developed for NOAA's Flower Garden Banks National Marine Sanctuary by marine educator and artist Jacqui Stanley with assistance from Emma Hickerson, Sanctuary Research Coordinator.

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<http://flowergarden.noaa.gov/education.html>.

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## Education Standards

### National Education Standards

- [Science](#): NS. K-4.3 Life Science
- [Science](#): NS. 5-8.3 Life Science
  
- [Art](#): NA-VA.K-4.1 Understanding and applying media, techniques, and processes.
- [Art](#): NA-VA.K-4.2 Using knowledge of structures and functions to explain form.
  
- [English Language Arts](#): NCTE/IRA Standards. 3) Adjust use of spoken, written, and visual language to communicate effectively with a variety of audiences for different purposes.
- [English Language Arts](#): NCTE/IRA Standards. 11) Participate as knowledgeable, reflective, creative, and critical members of literacy communities.
  
- [English](#): RI. K-5.1-3 Key Ideas and Details
- [English](#): RI. K-5.4 Craft and Structure
- [English](#): RI. K-5.7 Integration of Knowledge and Ideas
- [English](#): RI. 6-8.4 Craft and Structure
- [English](#): RST. 6-8.4 Craft and Structure
- [English](#): SL. K-5.2-3 Comprehension and Collaboration
- [English](#): SL. K-5.12 Applying Language Skills
- [English](#): SL. 6-8.1 Comprehension and Collaboration
- [English](#): W. 6-8.7-8 Research to Build and Present Knowledge
- [English](#): L. 6-8.1 Conventions of Standard English

### Texas Essential Knowledge and Skills (TEKS)

- [Science](#): K.10.A Sort plants and animals into groups based on physical characteristics such as color, size, body covering, or shape.
- [Science](#): 1.10.A Investigate how the external characteristics of an animal are related to where it lives, how it moves, and what it eats.
- [Science](#): 2.9.C Compare and give examples of the ways living organisms depend on each other and on their environments.
- [Science](#): 3.9.A Observe and describe the physical characteristics of environments and how they support populations and communities within an ecosystem.
- [Science](#): 3.10A Explore how structures and functions of plants and animals allow them to survive in a particular environment.
- [Science](#): 4.10A Explore how adaptations enable organisms to survive in their environment.
- [Science](#): 5.10A Compare the structures and functions of different species that help them live and survive.
- [Science](#): 7.10.A Observe and describe how different environments support different varieties of organisms.
- [Science](#): 7.10.B Describe how biodiversity contributes to the sustainability of an ecosystem.
  
- [English, Language Arts and Reading](#): K-8 Reading/Comprehension of Informational Text.
- [English, Language Arts and Reading](#): K-8 Research/Gathering Sources.
- [English, Language Arts and Reading](#): K-8 Reading/Vocabulary Development.
- [English, Language Arts and Reading](#): K-8 Listening and Speaking/Speaking.

## Education Standards

### Texas Essential Knowledge and Skills (TEKS) *(continued)*

- Art: 3.1 Rely on perceptions of the environment as a source for creating artworks. Express thoughts and ideas creatively.
- Art: 3.2 Analyze artistic styles and historical periods to develop respect for traditions and contributions of diverse cultures. Respond to and analyze artworks.

### Ocean Literacy Principles

1. The Earth has one big ocean with many features.
5. The ocean supports a great diversity of life and ecosystems.
6. The ocean and humans are inextricably connected.



## Appendix A – Detailed Material List

### Canvas Squares:

*Master's Touch\* Artist Canvas Panel 8" squares*

**Paint:** *Sargent Art Acrylic\**

Purchase one 16 oz. bottle of each color.

- Carbon Black
- Brown
- Raw Sienna
- Raw Umber
- Titanium White
- Gamboge
- Emerald
- Ultra Marine Blue
- Deep Phthalo Blue
- Spectral Yellow
- Spectral Red
- Spectral Orange
- Peach
- Grey
- Magenta

### Paint Colors by Marine Life:

#### Sea Background:

- Titanium White
- Ultra Marine Blue
- Deep Phthalo Blue

#### Orange Sponges:

- Titanium White
- Spectral Orange
- Gamboge
- Brown
- Raw Umber
- Emerald Green
- Spectral Yellow

### Green Star Corals:

- Spectral yellow
- Titanium White
- Emerald Green
- Raw Umber
- Brown

### Sand Background:

- Spectral Yellow
- Titanium White
- Raw Sienna

### Brain Corals:

- Titanium White
- Emerald Green
- Spectral Yellow
- Brown
- Raw Sienna
- Raw Umber

### Mushroom Shape Corals:

- Titanium White
- Emerald Green
- Deep Phthalo Blue
- Magenta
- Peach
- Raw Sienna

### Hammerhead Sharks and Barracuda:

- Grey
- Titanium White

### Horse Eye Jacks:

- Carbon Black
- Titanium White
- Grey
- Spectral Yellow

### Manta Ray:

- Titanium White
- Carbon Black
- Midnight Blue

**Marble Grouper:**

- Titanium White
- Brown
- Raw Umber
- Spectral Red
- Raw Sienna

**Turtle:**

- Titanium White
- Brown
- Raw Umber
- Raw Sienna
- Emerald
- Spectral Yellow

**Spotted Eagle Rays:**

- Midnight Blue
- Titanium White
- Carbon Black

**Queen Angelfish:**

- Spectral Yellow
- Emerald
- Ultramarine Blue
- Carbon Black

**Christmas Tree Worms:**

- Spectral Red
- Brown
- Titanium White
- Magenta

**Crinoids:**

- Spectral Orange
- Brown
- Titanium White

**Red Lipped Blenny:**

- Titanium White
- Spectral Red
- Ultramarine Blue
- Brown
- Spectral Red

**Pencil Corals:**

- Spectral Yellow
- Titanium White
- Gamboge
- Peach
- Brown

**Urchins:**

- Carbon Black
- Titanium White

**Brittle Starfish:**

- Spectral Red
- Titanium White
- Brown

**Spotted Drum Fish:**

- Titanium White
- Carbon Black

**Brushes:** *Gold Taklon\* Brushes* suitable for acrylics

- Flat Brush 1" wide and ¼" wide
- Detail Brush
- Angular (shader) brush
- Filbert Brush

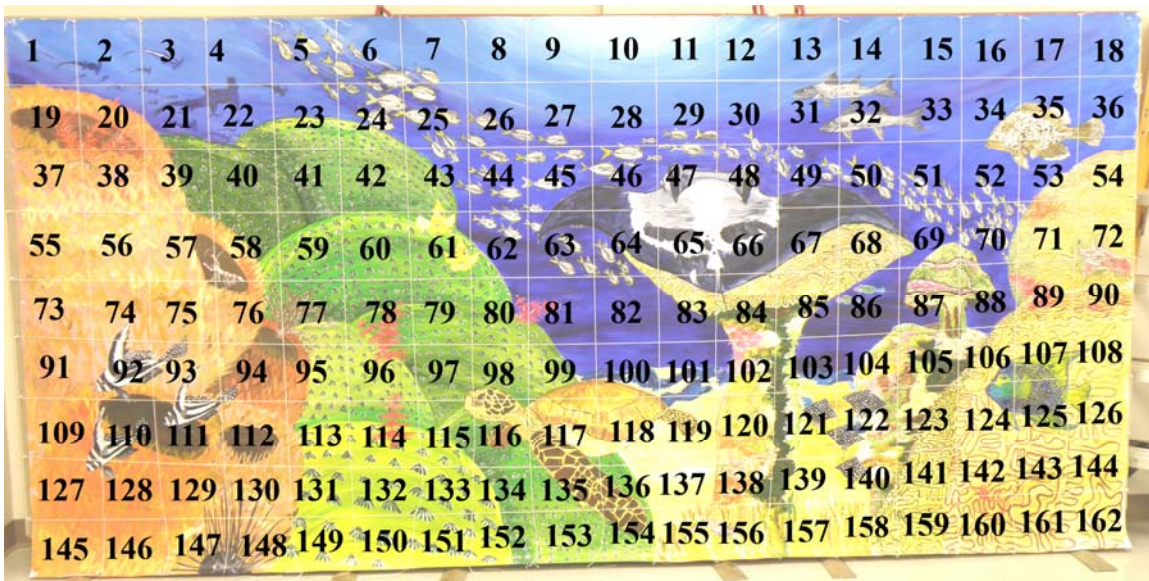
*\* These are the brands we used for the original project. Feel free to substitute other brands as needed.*



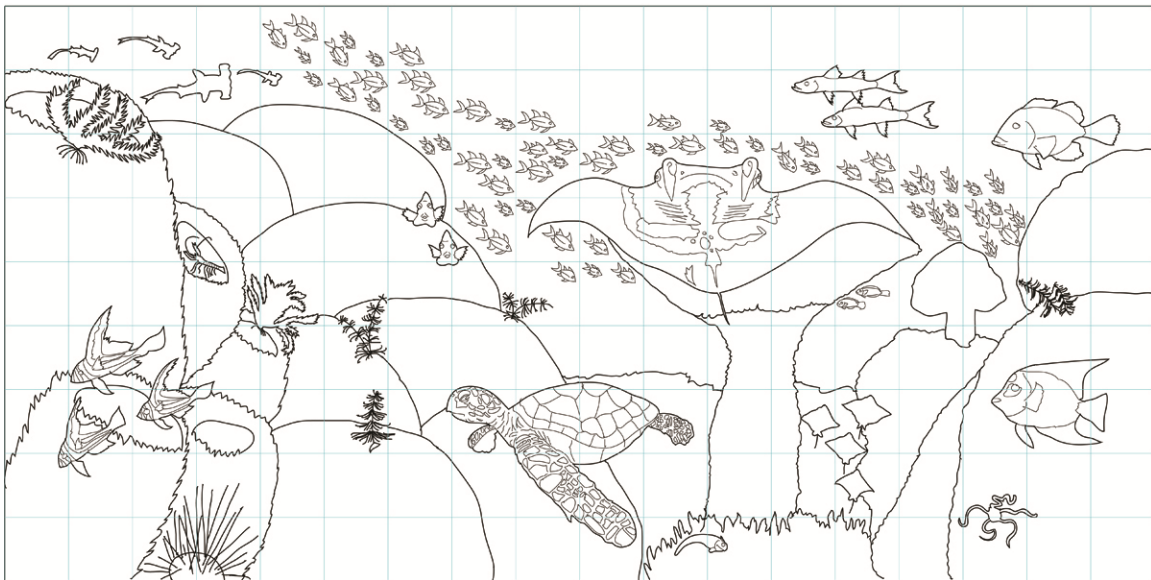
## Appendix B – Pictorial Progression of Mural



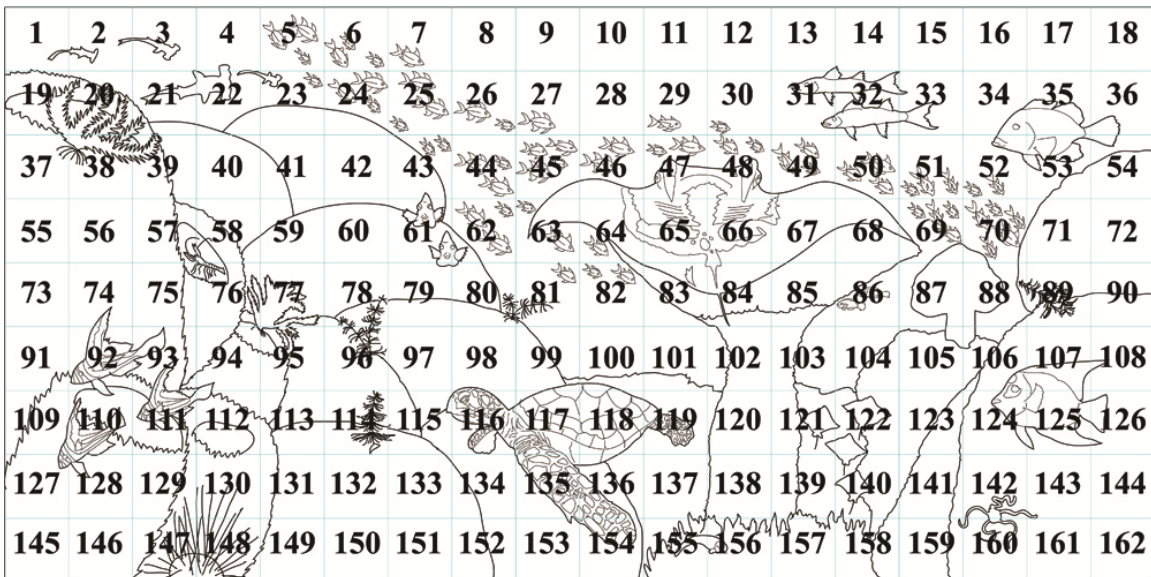
Original mural of Flower Garden Banks National Marine Sanctuary, created by Jacqui Stanley in 2011. Strings were used to identify 162 8” x 8” blocks.



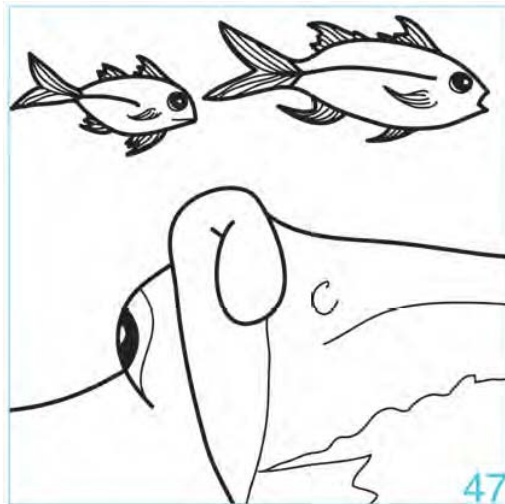
Sticky notes with unique numbers were placed in each block starting in the top left corner with #1, moving horizontally to #18 at the top right, then continuing from left to right on each successive row. Square number #162 was the bottom right corner.



A template was drawn outlining the main features of the entire mural. This was then transferred block by block to the individual canvas squares.



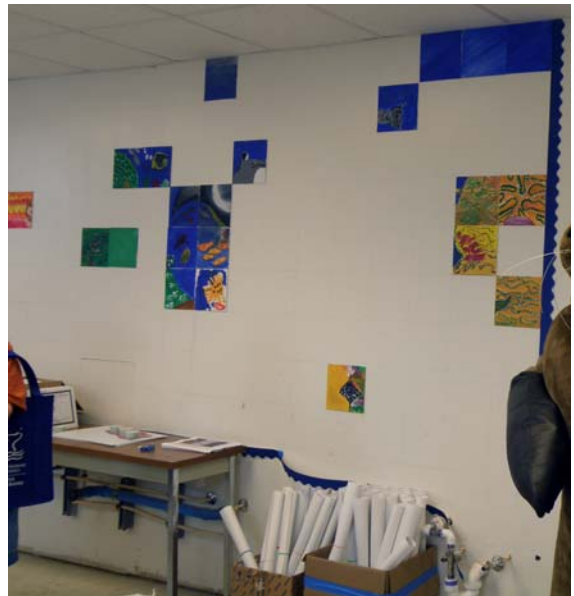
The template was also numbered for reference.



Outlines of main mural features were transferred to each 8" x8" canvas as a template for the artist. The coordinating block number was written on the back (not on the front as in this example).



Painted squares were laid out to dry before being added to the mural.



The first few pieces of the mural were added to the prepared space on a blank wall.



The picture started to take shape as more squares were added to the mural.



As the day progressed, the manta ray was once again a focal point of the mural.



Jacqui Stanley was quite pleased with our visitors' interpretation of her mural.



When all was said and done, the final mural was painted by 162 friends between the ages of 3 and 63!!



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54
55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72
73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108
109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126
127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144
145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162