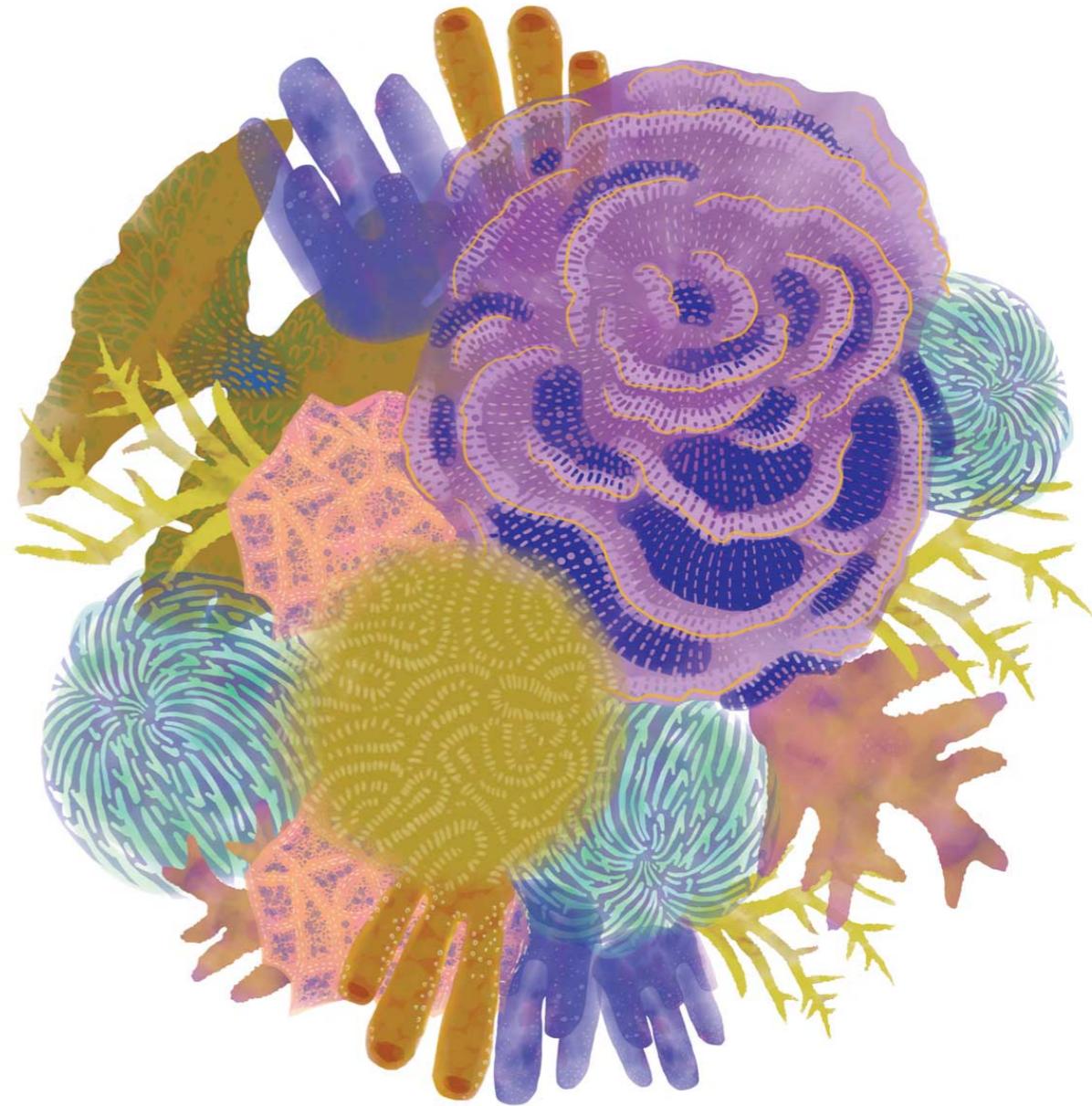


STEAM PROJECT BY ARTIST JESSICA LING FINDLEY

SONGS FOR THE SEAS

The oceans are in danger and need your help! Learn about coral bleaching and share what you learn with your friends in a song!

ESTIMATED TIME: 1-2 HOURS PER PART



PART 1

MAKE A SONG ABOUT CORAL BLEACHING

Materials Needed

- Pencil and Paper for writing lyrics
- Optional: Computer with internet connection

ESTIMATED TIME: 1-2 HOURS



PART 1

STEP 1

LET'S LEARN ABOUT CORAL BLEACHING!

- Watch this animation “What Is Coral Bleaching?” by Time magazine about coral bleaching.
- Write down what you remember.
- Circle the words you think are important to the story of coral bleaching.

<https://www.youtube.com/watch?v=fA6mpexcyN4>

What is coral **bleaching**?

What is coral **bleaching**?

reaching

teaching

screeching

sing

thing

STEP 2

LET'S RHYME

- For all the words you circled make a list of words that rhyme!
- How many can you get?
- Are they perfect rhymes like:
“smelly” and “jelly”
“egg” and “beg”
- or are they imperfect rhymes where the sound similar but don't have identical letters like:
“crate” and “braid”
“steak” and “skate”

STEP 3

WRITE OUT YOUR LYRICS

- Write a rhyme that helps you tell the story about coral bleaching. Why does it happen? How does it happen? What can we do?
- Take notice how many syllables are in each of your lines. The syllables here are divided by red lines and counted the syllables up top. When your syllable count matches you create rhythm (a repeated pattern of sound).
- Need a beat for inspiration? You can make your own on this online app: <https://musiclab.chromeexperiments.com/Rhythm/>

EXAMPLE 1

1 2 3 4 5 6 7
Twinkle Twinkle little star

1 2 3 4 5 6 7
How I wonder what you are

EXAMPLE 2

1 2 3 4 5 6 7 8 9
Listen to my song, I am teaching.

1 2 3 4 5 6 7 8 9
You should know about coral bleaching.

STEP 4

SONG STRUCTURE

- Think about your song structure. What forms do you use? Is it call and response like Day-O (the banana boat song), is it a round like Row Row Row Your Boat? or ABA like Twinkle Twinkle Little Star?
- Video about song form: <https://bit.ly/2WRuB6w>

CALL AND RESPONSE

SOLO CALL

Me say day, me say day-o

GROUP RESPONSE

Daylight come and me wan go home

ROUND

1st PERSON STARTS SONG

Row, row, row your boat gently down the stream

2nd PERSON DELAYED

Row, row, row your boat

ABA STRUCTURE

A

Twinkle, twinkle, little star
How I wonder what you are

B

Up above the world so high
Like a diamond in the sky

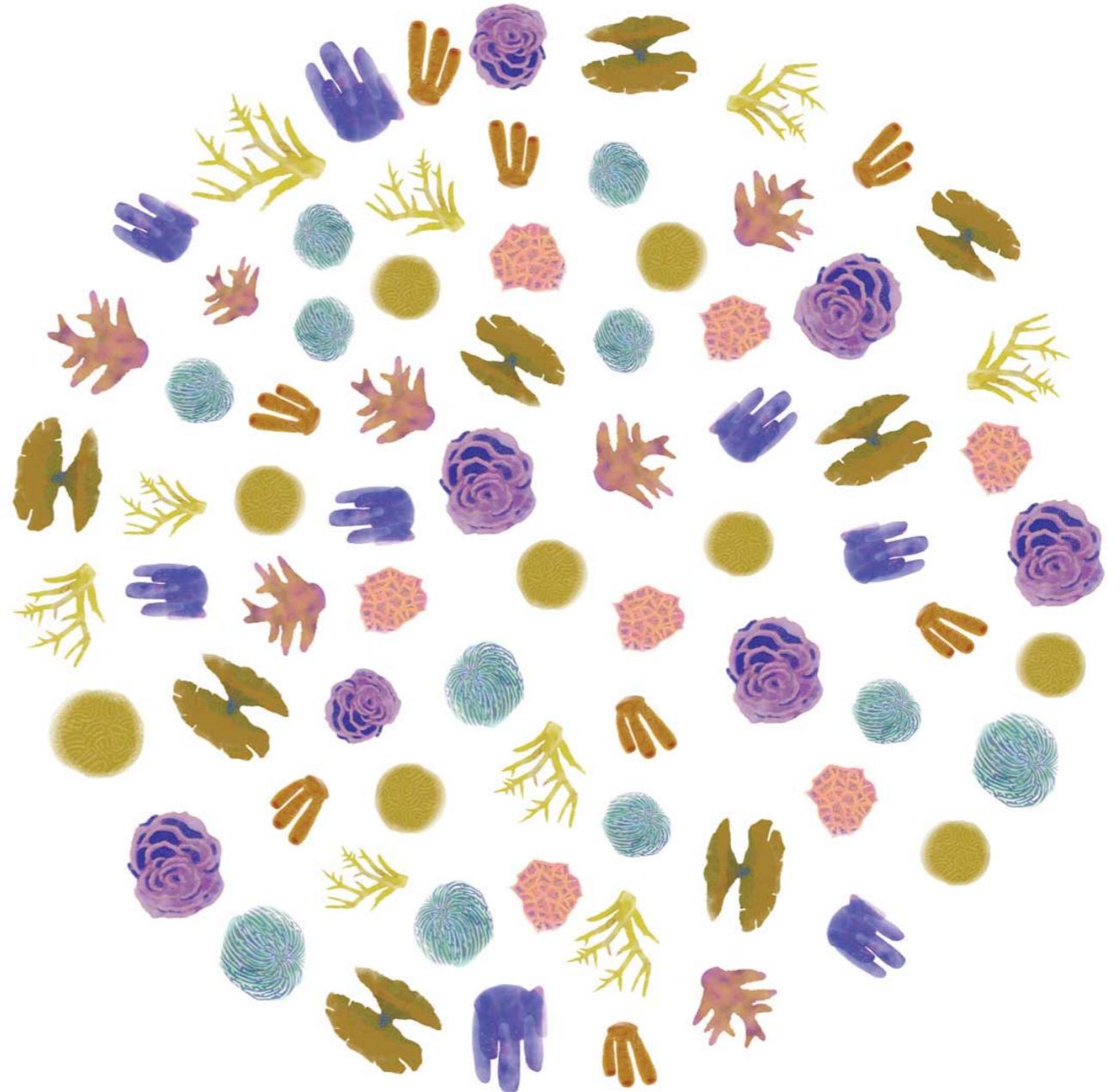
A

Twinkle, twinkle little star
How I wonder what you are

STEP 5

SHARE YOUR RHYME

- Help the reef and share the story of the coral bleaching. You can sing or rap or speak your rhyme.
- Make a recording and send it to your class, family and friends. Ask them to make one too!
- Send your song to the artist Jessica Ling Findley: j@sonicribbon.com



PART 2 (OPTIONAL/ADVANCED)

PRODUCE & RECORD YOUR SONG

Materials Needed

- Multitrack recording application
Garageband (Mac) or Mixed Pad (PC) and your voice
- Optional:
Instruments or anything to make sound with and voices!

ESTIMATED TIME: 1-2 HOURS



ADD BEATS & INSTRUMENTS

- Using loops, chose a drum beat to add and repeat on your first track
- Add a second audio track. With your headphones on, record yourself singing or rapping or speaking your lyrics.
- You can add as many tracks as you want, more instruments, back up vocals, invite a friend.

GARAGEBAND VIDEO TUTORIAL

- Learn to add beats and vocals and record your song. <https://youtu.be/faRlzTg1Ueg>



39 / 12:16

PART 3 (OPTIONAL/ADVANCED)

EXPAND YOUR KNOWLEDGE FOR A SECOND SONG

5th grader Linden Kempthorne interviewed Scripps research oceanographer, Samantha Clements who specializes in reefs.

Listen to the interview and create a new song from what you learn to share.



ESTIMATED TIME: 1-2 HOURS

LISTEN AND READ ALONG

Listen to the podcast and read along. Make notes the important ideas.

PODCAST LINK (Quote starts at 08:50min)
<https://apple.co/3ctjuqY>

Linden: How are coral reefs getting bleached?

Sam: The way that coral reefs bleach is a reaction to warmer waters and higher levels of solar radiation. Basically the combination of those two factors is bleaching. Bleaching is a response to increased photosynthetic activity within the corals tissues. And you might think, "Oh wait hold on so is a coral a plant or an animal? Like you just said photosynthesis but...um I think corals are animals."

So corals are animals but they have within their soft tissues these what we call symbiotic organisms (so symbiotic means they live in conjunction with them) inside their skin basically are these teeny tiny micro algae, so like really small photosynthetic algae called zooxanthellae or we call them "zoox" for short and these little micro algae create food for the coral in exchange for a place to live.

So basically these algae are saying, "I will photosynthesize and give you a lot of the sugars and foods that I am making if you in return keep me safe from the external environment and the predators out there. So give me a place to live, I'll give you food."

When we have really high heat and really high solar radiation,

so flat calm seas that the sun is able to permeate more effectively that combination drives photosynthesis off the charts.

So these algae are really really good at taking advantage of that excess sunlight and when photosynthesis goes out of control it starts creating things like free radicals and things that are toxic to the coral's system. And so the coral as a defense mechanism actually kicks these zooxanthellae, these "zoox", out of its tissues. Basically says like "Oh! Get out!!" The reason that leads to bleaching is because those zooxanthellae are the thing that gives coral tissue its color. So once it kicks the zooxanthellae out and says "Okay, you are making me sick. I am going to live without you for a while." Then what you see is the white skeleton underneath the corals tissue that's now visible because they've lost their pigments.

Corals can live for a little while when they're bleached because they also can feed. They have little tentacles, like a sea anemone and they can catch prey in the water that's flowing by, but they can only exist for so long on that because the primary way they eat is through those photosynthetic algae. So if the bleaching event is, you know, even a few days or maybe even weeks, the coral can survive on the phytoplankton and other things floating by in the surrounding environment, but if it's prolonged for a long period of time then the coral can potentially starve without those photo synthetic algae in its tissues.

SUGGESTIONS: EXPERIMENT MAKING SONGS

MAKE A SONG FOR ANOTHER PODCAST TOPIC

Listen to all the Braving the High Seas Podcast student/scientist interviews as a mini series within Seaport Sessions Podcast <https://apple.co/2y0MveD>

MELODY FIRST

Sing your lyrics in a tune you make up or your melody first then add instruments later (a sequence of notes) Make a melody to song the story to and forget the rhyme but.

INVITE A FRIEND

Ask a friend to join and make it a game, letting them make a track after you make a track, wait until you both have finished to make any revisions and decide together how it should sound

TRY ANOTHER FORM

One of the other structure forms like call and response or free style: put down a beat or an instrument track and make another vocal track to sing what ever comes into your head! Its fun to see where the flow goes!

MAKE INSTRUMENTS

You can use your own voice to make beats or instrument sounds. Or find objects around the house to create odd instrument sounds or loops with!

MAKE UP YOUR OWN METHOD!

What methods for music making can you think of?

MAKE A MUSIC VIDEO

Get weird and wild and make a music video from your song with costumes! Use stop motion animation.

MAKE A MUSIC VIDEO

Get weird and wild and make a music video from your song with costumes! Use stop motion animation.

COMBINING MUSIC, LANGUAGE AND SCIENCE OBJECTIVES / STANDARDS

NGSS Grades 4, 5 & 6

- **MS-LS1-(4-6) From Molecules to Organisms: Structures and Processes**

VAPA Music Standards

- **Creating—Anchor Standard 1: Generate and Conceptualize Artistic Ideas and Work**
- **Creating—Anchor Standard 2: Organize and Develop Artistic Ideas and Work**
- **Creating—Anchor Standard 3: Refine and Complete Artistic Work**
- **Performing—Anchor Standard 5: Develop and Refine Artistic Techniques and Work for Presentation**

English Literature Arts Standards

- **Reading Informational texts**
- **Writing: Research to Build and Present Knowledge**
- **Speaking & Listening: Comprehension and Collaboration**



VOCABULARY

- rhythm
- syllable
- imperfect & imperfect rhyme
- coral bleaching
- photosynthesis
- zooxanthellae

RESOURCES

- <https://www.rhymezone.com>
- From scientist Sam Clements: “I personally manage the SOAR program in the Smith Lab and have done lots of coral reef research in Maui, Palmyra Atoll, and more broadly for the 100 Island Challenge tracking how reefs change through time. One optimistic thing is that we've seen coral reef recovery after bleaching events and storms in places where there is either no human population or where local marine resource management efforts are effectively implemented. Here's a link to a great video that shows how a healthy reef on an uninhabited island in a marine protected area recovered after the most recent bleaching event (the video spans 5 years of surveys)”
<https://bit.ly/3cHVf8F>



ABOUT

This workshop was designed by artist and educator Jessica Ling Findley in association with CoTA (Collaborations: teachers and artists) and was supported by Seaport Village, SPV Urban Planning and the Port of San Diego. The content was made with input from the scientists from Scripps Institute of Oceanography.

Songs for the Seas was created along with the Braving the High Seas Podcast to increase scientific understanding of climate change and ocean sciences to youth through song making. Students from 5th grade to high school interviewed Scripps' scientists about climate change for the podcast series. The song making workshop lets the kids take ownership through creativity while discovering, processing and sharing new facts around climate change and ocean sciences.

MORE LESSONS BY THE ARTIST

www.JessicaLingFindley.com/lessons

