THE SCIENCE DI-GEST

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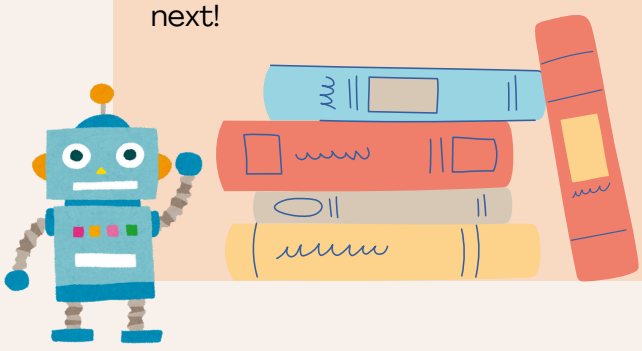
Welcome Back!

We're really excited to bring you another edition of the GEST newsletter! Last year, our event was an incredible success! We hosted GEST at the Duke Marine Lab in April 2025 with 100 middle school students. The event itself was chock-full of just so many wonderful activities and panelists.

In addition to the activities on the day of the event, last year we also created the first edition of the Science Di-GEST! To see the first edition, which features interviews with PhD students, a GEST member spotlight, and more, go to our website!

Huge shout-out to all the sponsors, volunteers, activity leaders, and leadership team members who made last year's event so awesome. Onto the next!



GEST 2026

SAVE THE DATE!

GEST will be held on **April 18, 2026** at the Duke University Marine Lab in Beaufort, North Carolina! We are excited to have you all join us for another year of fun STEM hands-on learning and bonding!

In This Issue

MEET A GEST MEMBER

BRITTNEY MITCHELL

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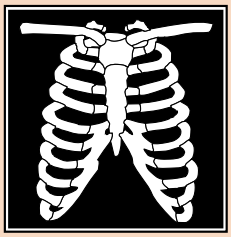
About Me

Hey there, I'm Brittney! I am a PhD Candidate here at Duke studying marine science, conservation, and toxicology.

My research studies how barnacles and fish respond to materials in their environment. Chemicals are added to a lot of materials (such as plastic or paint) to make them useful, but those chemicals can change how animals function, develop, and behave.

I use a lot of techniques to ask questions about how animal bodies and behavior change when exposed to different materials, but my favorite technique is using x-ray technology to study skeletal changes.



Q&A

Brittney is the president of GEST– her leadership makes everything go! Here are some questions to get to know her a little better.

Who's one of your role models in STEM?
Brittney: Rachel Carson, she was a gifted storyteller. I like listening to "The Edge of the Sea" during long road trips.

If you weren't a scientist, what would you be?
An artist! I could spend every day painting, crafting, and doing photography.

What's the best advice you've ever received?
"Your 100% looks different every day."

Favorite middle school memory?
Snorkeling at night during a field trip to the Catalina Islands in 7th grade.

Favorite animal?
Either white ibis or great blue heron.

Favorite movie?
The Mist.

Favorite color?
Pink.

Favorite hobby?
Painting, photography, wood burning, kayaking.

INTERVIEW A SCIENTIST

with Kathy Rawls, Director of the North Carolina Division of Marine Fisheries

What is your background in science, and what do you do/have you done at the NCDMF?

I graduated from the University of NC at Wilmington in 1989 with a Bachelor of Science degree in Marine Biology. My career with the DMF began in 1990 as a **Marine Fisheries Technician II** on the River Herring Monitoring Project. I am currently the **Director of DMF**, and have been in this role since 2021. I have had many jobs at DMF including biological data collection, analysis, report writing, fishery management plan development and management.

Why are marine fisheries important to North Carolina?

Many of our coastal communities and economies are built on the marine and estuarine resources of NC. People from NC as well as **all over the world** travel to NC to enjoy recreational fishing opportunities as well as local NC seafood. Healthy resources are important to all of us.

What is the main purpose of the North Carolina Division of Marine Fisheries?

The DMF is dedicated to ensuring sustainable marine and estuarine fisheries and habitats for the benefit and health of the people of NC.

What is one success the division is proud of?

The DMF is a leader in biological data collection. We have focused the resources we have on establishing/continuing data collection programs to best inform management. **Some of the oldest data collection programs have been around since the 1950's and 1970's.** We are very proud of the effort that we make to collect the best data possible, with limited resources (people/funding). The backbone of this agency is the employees who work tirelessly in all aspects of fisheries and habitat protection and management. Many have dedicated their careers to assuring sustainable fisheries and habitats in NC.

How does NCDMF use science to make decisions?

The DMF collects the data, formulates recommendations by analysis of that data and consideration of applied fisheries science. These recommendations are then forwarded to NC's rulemaking body for fisheries management, the **NC Marine Fisheries Commission**.

How can students help protect marine life in North Carolina?

Continue to educate yourselves on marine and estuarine resources and the importance of their protection. **Teach that to your parents**. We can always make a difference. Our understanding is the first step to protection of and responsible use of our natural resources.

AT-HOME EXPERIMENT

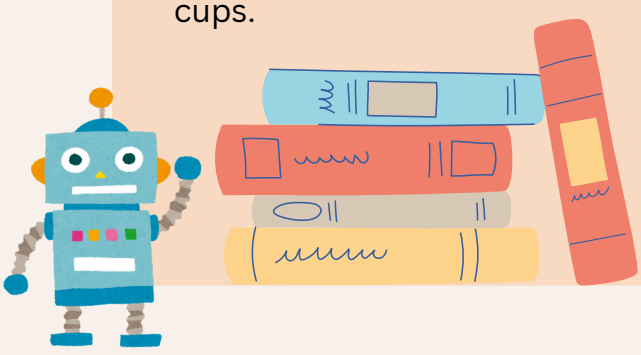
Walking Water

Supplies Needed:

- Six cups (preferably clear)
- Water
- Paper Towels
- Food Coloring: red, yellow, and blue

Set Up:

- Set up the cups: Arrange the cups in a circle. Fill every other cup about halfway with water, leaving the cups in between empty.
- Add food coloring: Place drops of a different primary color into each cup with water.
- Prepare the paper towels: Fold paper towels lengthwise multiple times to create long sturdy strips.
- Connect the cups: Drape a paper towel strip so one end is in a cup of colored water and the other end is in the adjacent empty cup. Repeat this for all cups.



Observe!
Watch as the water travels up the paper towels and mixes the colors in the empty cups to form new colors!

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Capillary Action: This is the main process at play, where liquid moves up against gravity due to adhesion (water sticking to the paper towel fibers) and cohesion (water molecules sticking to each other)
Color Mixing: When the primary colors meet in the empty cups, they blend to create secondary colors. This is another demonstration of molecules mixing and spreading out through a process called diffusion.

CREATURE SPOTLIGHT: Cone Snails

When you think of the ocean's most efficient predator, you might be thinking of sharks, killer whales, or even barracuda. Quick fish with razor-sharp rows of teeth. But you would never expect a snail, known to be one of the slowest creatures on earth, to be one of the most efficient predators in the ocean. These snails are called cone snails, named after their beautiful seashells.

With over 800 species, these snails live mainly in warm, tropical waters, often hiding in sand or coral reefs. Their shells are brightly colored and intricately patterned, a warning sign in disguise. They may seem harmless, but don't touch; cone snails can sting when threatened.

Instead of teeth for biting their prey like sharks, cone snails use a harpoon-like tooth called a radula. This tiny dart shoots out at lightning speed, injecting a powerful venom that can paralyze fish almost instantly. Some species even release a form of fast-acting insulin, which causes prey to become disoriented and "sleepy," making capture easy.

While their venom can be deadly, it's also incredibly valuable. Cone snail toxins are helping scientists develop new painkillers and neurological drugs, and researchers are exploring whether their insulin could inspire better treatments for diabetes.

Cone snails are a perfect reminder that even the most dangerous creatures can hold life-saving secrets.

FUN ZONE: Crossword Puzzle

Clues

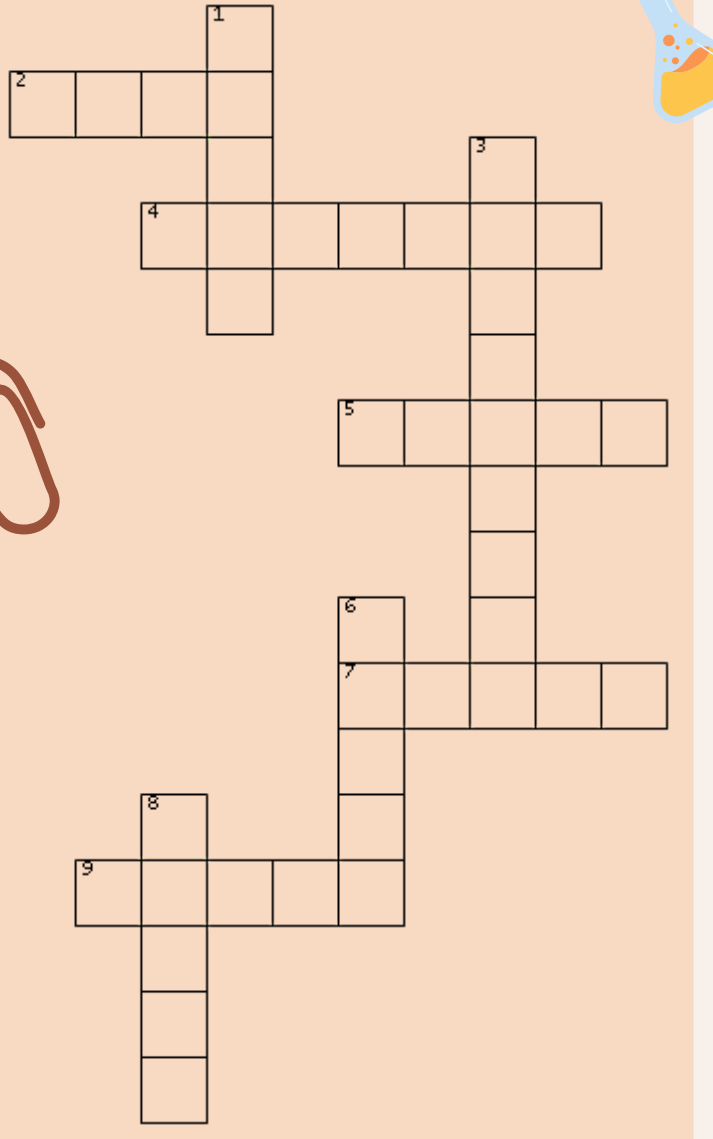
ACROSS

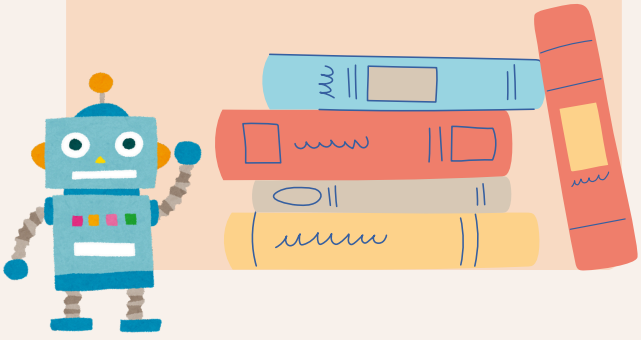
2. Movement of the ocean caused by the moon.
4. Creature with eight arms that lives in the sea.
5. Large fish with sharp teeth.
7. Large body of salt water covering most of Earth.
9. Protective outer covering that many mollusks have.

DOWN

1. The edge of the land by the sea covered in sand.
3. Underwater vehicle that can travel deep below the surface.
6. Brightly colored underwater structure made by tiny animals.
8. Large marine mammal known for spouting water.

Puzzle





FUN ZONE ANSWERS

Answers

Ask a Scientist!

Do you have a scientific question that you want answered? We can help!

Scan the QR code to access our “Ask a Scientist” form where you can submit your question(s) and have the chance to be featured in a future newsletter!

Thanks for reading! Be on the lookout for the next edition of the GEST newsletter, coming April 2026!