



| PBS Arkansas Shows and Times | |
|--|--|
| America Revealed | America Revealed explores the hidden patterns and rhythms that make America work. |
| Reconnecting Roots | Portraying American life across the past six generations, this series exhibits the American journey of unbounded progress with the hope of understanding how exactly we fit in and why. |
| Expeditions with Patrick McMillan | This series overflows with compelling wildlife and wilderness footage captured in the United States and beyond. McMillan's passion and contagious enthusiasm for the natural world is evident as he journeys across America. |
| Expedition with Stephen Blackshall | Head into the unknown with naturalist Steve Blackshall as he journeys to the world's last unexplored places and faces challenges around the globe, encountering extraordinary wildlife and meeting remarkable people along the way. |
| Earth Focus | An environmental news magazine that features investigative reports and in-depth stories about our changing environment and how it affects people around the world. |
| 10 that Changed America | Host Geoffrey Baer takes viewers across the country to the legendary streets, parks, monuments and man-made marvels that changed America. |
| Get the Math | By engaging students in algebra's connection to a variety of careers, GET THE MATH answers the age-old question, "How is this ever going to help me in the real world?" |
| Glaciers of the Winds | Glaciers of the Winds is a documentary on the scientific exploration and retreat of the glaciers in the Wind River Mountains of Wyoming. PBS looks at the big picture of how receding alpine glaciers will affect the ecosystem, municipalities, farmers, and ranchers downstream. |
| SciGirls | SciGirls showcases bright, curious, real tween girls putting science, technology, engineering and math (STEM) to work in their everyday lives. |
| The Forgotten Coast: Return to Wild Florida | Following in the footsteps of a wandering Florida black bear, three friends leave civilization and enter a lost American wilderness on a rugged thousand-mile journey by foot, paddle and bike. The expedition encounters stunning and rare wildlife including black bears, manatees, alligators, ancient river fish and endangered woodpeckers. |

All books need to be returned by May 15 to the book box located by Barton's main entrance. This includes library books, class novels, rolling cart books, and classroom library books. Students, you will not receive your report card or schedule for next year until books are returned or paid for.

*****Not all learning opportunities require watching PBS*****

Literacy Corner

1. Complete the required weekly reading passage.

You must do the Weekly Reading Passage

- **Required Weekly Passage:**
- Each week complete the required reading passage. [Click here for the Google Form.](#)
- To complete on paper go to page 6.



2. Choose **3** literacy learning opportunities listed below to practice your reading, writing and communication skills.

ALL BOOKS ARE DUE BY MAY 15

- **Presentation:** Time for YOU to be the expert! Make a presentation about something you learned this week. Be sure to include facts and pictures. This can be done on paper, poster, google presentation, etc. You can present for family at home or video chat with family and friends for a learning experience for all!
- **Create a Playlist:** An episode of *Reconnecting Roots* this week explores the ways that technology has made it possible for music to bring people together over the past few generations. Create a playlist of songs that represent your life. Why did you make the choices you made? How does the music connect to your life? What kind of technology would you use to share this playlist with family and friends?
- **Design a Green Space:** This week on *10 Things that Changed America*, we learned about 10 city parks that had a huge impact on the ways that neighborhood and urban areas have been developed to create green spaces for people to enjoy. Think about a location near you (or imagine a place) and draw a plan to develop that area into a green space. Write a description of this new green space and explain how you might use it. Be sure to use sensory details and action verbs in your explanation!
- **Survival Guide for Humans:** In *Earth Focus: Urban Habitat*, we learned that wildlife in Los Angeles County has adapted to being in the urban areas--coyotes have learned how to cross the street by using the traffic lights! If we humans were transplanted to a new habitat, what would we need to learn from animals in order to survive? Create a 3-section brochure of survival lessons from the perspective of an animal of your choice. Consider sections such as shelter, food, and predators. Use illustrations and captions to support your ideas. *Fold a piece of paper into thirds to make the brochure.
- **Read an Article:** Read ["The Art of Singing"](#) and answer the questions.
- **Journal Writing:** Begin keeping a daily journal or diary on the current pandemic.
- **Write an Adventure Story:** In *Forgotten Coast: Return to Wild Florida*, Mallory, Joe, and Carlton must work together as they follow the 'path of the bears' and explore 1,000 miles of Florida's forests and coastal lands. Each of them has a specific role or job on each day of their trip so that they stay safe and are successful. Write a story where three friends go on an adventure and explore a jungle or forest. Think about important story elements--Who are the characters? What are their jobs during the exploration? Where are they going? What are they trying to discover?
- **FREE Choice-** What are your interests? Choose a topic and create a document, presentation or performance that will teach someone else about your topic.



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Math Mania:

Choose 3 math learning opportunities to build and reinforce your math skills.

- **Khan Academy:** If you have internet access, it is recommended that your child utilize the Khan Academy modules with built-in instruction to support math learning at least 3 days a week. Select your grade level or type in the web address and select the GET STARTED button. (Counts as one each day) If needed students may select a different grade, regardless of age.

[5th grade math](https://www.khanacademy.org/math/cc-fifth-grade-math) <https://www.khanacademy.org/math/cc-fifth-grade-math>
[6th grade math](https://www.khanacademy.org/math/cc-sixth-grade-math) <https://www.khanacademy.org/math/cc-sixth-grade-math>
[7th grade math](https://www.khanacademy.org/math/cc-seventh-grade-math) <https://www.khanacademy.org/math/cc-seventh-grade-math>
[8th grade math](https://www.khanacademy.org/math/cc-eighth-grade-math) <https://www.khanacademy.org/math/cc-eighth-grade-math>
[Algebra I](#)

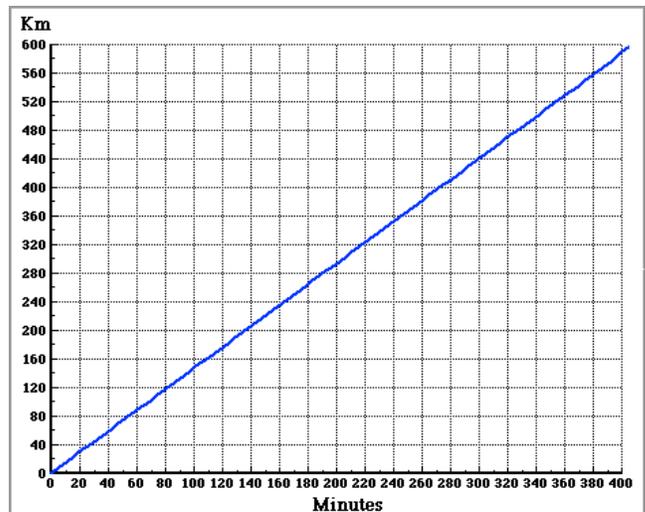
- **Are We There Yet?** Every year, arctic terns fly from the arctic to the antarctic and back, a distance of about 9000 miles each way. Suppose the birds fly at an average speed of 25 miles per hour for 12 hours a day. How many days of flying would be necessary to make the roundtrip? (Hint: The distance traveled by a moving object can be found using its rate and time. Calculating distance is important for railroad companies, airlines, and trucking firms, as well as family travelers on vacation.)
- **Back-to-Back:** *Materials: 2 pieces of paper and 2 pencils.* Ask two family members to play this game with you. Two of you stand with your backs together. A third family member says "numbers up," requiring each competitor to write a number on a piece of paper within a specified range (Ex. 1-10). The third person multiplies the numbers together and says the product of the two numbers. Using this information, a competitor wins by stating the other person's number first.

- **Site A! Site B!** Archaeologists noticed differences in the types of evidence found at five dig sites. The table shows the percentages of material found at each site. Using this information, which two sites seem the most alike?

| Site | Pottery | Ceramic Figures | Bones | Coins | Copper/ Bronze Tools |
|------|---------|-----------------|-------|-------|----------------------------|
| A | 10% | 20% | 0% | 40% | 30% |
| B | 30% | 5% | 10% | 10% | 45% |
| C | 0% | 35% | 35% | 10% | 20% |
| D | 40% | 0% | 20% | 32% | 8% |
| E | 5% | 22% | 30% | 15% | 28% |

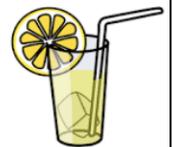
- **Distance Driving:** A car is travelling along at a constant rate of speed, as depicted in the graph. Use the information in the graph to the right to **explore** the following questions.

1. How far did the car travel in one hour?
2. How far did the car travel in six hours?
3. How fast is the car traveling?
4. How long does it take the car to travel 220 kilometers?
5. How long does it take the car to travel 560 kilometers?



MATH MANIA Options Continued...

- **Highway Miles:** A friend of mine came to me the other day with a question about her new car. She asked, "My car gets 30 miles per gallon when I drive on the highway and 25 miles per gallon when I drive in the city. How many highway miles do I drive on a 400-mile trip if the car consumes 14 gallons of gasoline during this trip?" Solve this problem.
- **101 and Done:** *Materials: Paper, pencil, die.* The goal in this game is to score as close to 101 points as possible without going over. Each person takes a turn rolling the die, strategizing to count the number at face value or multiply it by 10. For example, roll a six and you may keep that number or turn it into 60. The person that gets closest to 101 without going over wins.
- **Multiplying Integers:** *Materials: Deck of cards.* Black cards (spade and club) are positive numbers and red cards (heart and diamond) are negative numbers. Cards have the following values:
 - Ace – 1
 - Two to 10 – Face value
 - Jack – 11
 - Queen – 12
 - King – 13Each player draws two cards and multiplies the numbers together. Whoever has the highest hand wins everyone else's cards. Continue playing until all the cards in the deck are gone. The one with the most cards wins the game!
- **Making Lemonade:** A lemonade recipe calls for the juice of 5 lemons, 2 cups of water, and 2 tablespoons of honey. Invent four new versions of this lemonade recipe:
 1. One that would make more lemonade but taste the same as the original recipe.
 2. One that would make less lemonade but taste the same as the original recipe.
 3. One that would have a stronger lemon taste than the original recipe.
 4. One that would have a weaker lemon taste than the original recipe



THINK like a Scientist!

Pre-AP science must select **3** of the following choices **AND** read your choice of the two articles and answer the questions for the article selected. (3 activities **and** 1 article)

Regular science must select **2** of the following choices **AND** read your choice of the two articles and answer the questions for the article selected. (2 activities **and** 1 article)

- **Plant Mystery:** In *Expeditions with Patrick: Rediscovering Catesby's Carolina*, Patrick explains that we are able to figure out all the places where Mark Catesby explored based on the plants he collected and described. Go outside and collect different types of plants. Press them inside of a big book to dry them. Create a Botany journal using these plants.
- **Effects of Rain:** After the next rain, go to your outdoor area. Make observations of the results of the rain, the location of puddles, the apparent flow of the water to and from your area. How does the flow and gathering of water affect your outdoor area? Are there any ways that the flow of water could be improved? Explain your thinking.
- **Earthquake Simulation:** Using a bucket of sand, put water in the bucket to get the sand really wet. Place a large rock on top of the sand. Then hit the sides of the bucket with a stick. What happens to the rock and the area where the rock is sitting? Why? How might this model resemble an earthquake?
 - **Crane Comparison:** The video *The Whooping Crane's Majestic Return* states the whooping crane is the tallest bird in North America with a height up to five feet tall. This crane can have a wingspan that is 7.5-8 feet wide. Measure five feet and **compare** your height to the whooping crane. Have family members compare their height to the whooping crane. Mark off seven to eight feet and **observe** how wide their wings are spread when they are in flight.
 - **Catapult Construction:** Build a catapult to toss something into the air, like a marshmallow or a cheese puff. Use materials you have around the house like a spoon or a wooden spoon, rubber bands, tape, sticks, a ruler, or other household items. Plan your catapult with a drawing. Build your prototype. Test it, and then adjust your design.
- **Lab Analysis:** Read how Patrick and Spongebob investigated different brands of bubble gum and answer the questions. [Lab analysis form](#) (Google Form to submit answers available [Lab Analysis Google Form](#))
- **Lab:** Using a penny and a dropper of any kind, see how many drops of water can stay on the penny before the water spills. Write your hypothesis; state the independent and dependent variable for this investigation; make observations; and write **your** explanation of what happened.
- **Reading Passage Choice 1:** [Tiger at New York City's Bronx Zoo Has Coronavirus](#) (Google Form to submit answers available [Tiger at New York City's Bronx Zoo Has Coronavirus Google Form](#))
- **Reading Passage Choice 2:** [The Levels of the Food Chain in the Earth's Oceans](#) (Google Form to submit answers available [The Levels of the Food Chain in the Earth's Oceans Google Form](#))



Reading passages can also be found at the back of this packet on pages 10–13. Remember you only have to select one article but complete the assigned number of activities based on your science class.

FUN ZONE

Choose **1** FUN ZONE opportunity for the week for Career Development, Keyboarding, CCT, Electives and Rotation.

- ★ **Get active-** dance, do exercises, create an obstacle course, go for a walk or run.
- ★ **Perform-** Write and perform an original song or dance.
- ★ **Play** a family game (Uno, Heads Up, Battleship, Chess, etc...)
- ★ **Create a masterpiece-** Paint or draw
- ★ **Cook a meal** for your family
- ★ **Code** with Code.org, Scratch, or other approved sites
- ★ **Play BreakoutEDU.com/Live** daily at 1:00pm to win prizes (10 minutes)



The Art of Singing by Kyria Abrahams

(From ReadWorks.org)

About six months ago, Alana finally started taking singing lessons. She's wanted to sing ever since she was a young girl, and now she was finally realizing her dream. Today she auditioned for the lead role in her school's production of Annie.



When Alana's mother took her to see Annie, Alana became inspired to really try singing. Annie was performed at an old theater called The Palace. The Palace isn't like the big multiplex movie theater downtown. For one thing, it was built in 1922 and is considered a historical building. For another, it only has one screen.

The stage at The Palace is decorated in an ornate fashion with red velvet curtains as tall as an oak tree. The Palace only has a lobby and one room with a stage. The room is very big and the sound echoes through the whole venue. If you were a loud opera singer, you could perform here and would not need a microphone.

Alana's favorite thing about The Palace was a series of giant brass pipes high up on the wall. To her, they looked like a row of teeth. Alana later learned some history about them. As it turned out, they were part of a great big pipe organ.

Back when the theater was first built, movies didn't have sound. So someone would sit at the edge of the stage and play songs on the organ. That way, there would be music to go with the movie. These were silent movies, but they didn't call them "silent" back then. Many people didn't think there would be a kind of movie with sound. When movies with sound came out, they called them "Talkies." Only then did the once regular movies become known as "Silent Films."

Alana found out that the organ stopped functioning in the 1960s. Now it's just a decoration because the music comes from the movie itself.

When Alana first saw Annie, she knew she wanted to audition for the lead role at some time in her life. She went home and sang "Tomorrow." She recorded herself singing and listened back to it, but it didn't sound as good as she thought it had in her head.

Her mother explained that singing is a musical talent, like playing any instrument. "You can't just pick up a trombone or a guitar and start playing it, can you?"

"No, of course not!"

"Well, your voice is also an instrument. You need to learn how to use it."

At school, Alana joined a band and the glee club. She learned how to read sheet music and sing scales. She also learned how to sing harmony and improvise with other students.

As Alana learned how to be a better singer, she learned different techniques. If she held her mouth open in certain ways, she could make different sounds. She could open her mouth wide and create an open, bright note. Or, she could push her bottom jaw out and make her voice sound higher. Sometimes, she would scrunch up her face and create a nasal sound. She loved to experiment with different sounds.

One day her music teacher gave her an assignment to write down her five favorite female singers of the 20th and 21st centuries. Alana realized she didn't actually know a lot of singers, so she went to the local library and took out some CDs to listen to. She wanted to take full advantage of the library's extensive CD collection.

These were the five artists she took out of the library:

1. Aretha Franklin
2. Janis Joplin
3. Billie Holiday
4. Whitney Houston
5. Bjork

Each of these women has a very different style of singing. They are all from different times and eras. Billie Holiday was popular in the 1940s, whereas Janis Joplin was popular in the 1960s. Janis performed at the famous Woodstock music festival. Whitney Houston had her first radio hit in the 1980s. Bjork is from Iceland and became popular in the early 2000s.

First, Alana put on Aretha Franklin. Aretha is affectionately known as the Queen of Soul. The song “Respect” came on. She belted out the letters, “R-E-S-P-E-C-T.” Her voice was high pitched and clear. Alana tried to emulate it, but she couldn’t do it. It just sounded like she was screaming. This is because her range wasn’t high enough.

A “range” represented a certain amount of tones. It is the distance between the lowest note and the highest note a person can sing. Most people cannot sing as high and as powerfully as Aretha Franklin can.

When Alana tried to hit these high notes, it didn’t sound the same. She lost a lot of power in her voice. Aretha sings high notes very loudly, but Alana sounded soft and operatic. She realized that there is a very good reason for which Aretha is known as the Queen of Soul. “She’s amazing!” Alana thought.

Then, Alana put on some Billie Holiday. An old jazz song called “Stormy Weather” played. When she began, her voice sounded high pitched and a little scratchy, but then she hit the word “weather” and suddenly it was really low. It resonated in her chest. Alana tried to recreate this. She loosened her neck and shoulders and then breathed in from above her belly with the diaphragm.

Alana watched her belly get bigger and smaller as she breathed. She pushed with a breathy cry: “we-aaaaather.” She thought that it sounded pretty good.

Alana ran through the other female artists, doing the same thing. She listened to their voices and tried to copy them. Alana thought that Bjork sounded kind of silly, whispering and screeching like a child. Janis Joplin screamed from her heart and soul. Whitney Houston sang powerfully and clearly, like the echoes of a church choir.

Each singer has a different voice because they form the notes in a different way. The human voice is amazing and elastic. It can stretch in so many different ways. In fact, a person can make different sounds just by choosing where to push the sound. In singing, this is called “placement.” People can make a note through their nose, their chest, or various locations throughout their upper body.

As Alana experimented with different ways of singing, she got more comfortable with what her own voice naturally sounded like. And around this time, it was announced that her school would, in fact, be producing their own performance of Annie. Alana wanted the lead!

When she auditioned for Annie, she sang very powerfully. She let all the notes resonate from her vocal chords and echo around in her head.

“The sun’ll come out... tomorrow!” she belted out. “You’re only... a dayyy... a... wayyyyy!”

Her music teacher applauded. “Alana, you’ve been working hard to become a better singer, and it shows. Congratulations. You’ve got the lead role! You’re our new Annie!”

When Alana heard this, her dream came true. But she knew her dream didn’t just happen because she wished and hoped it would. She’d been taking lessons and working hard. Finally, the hard work had paid off. She walked home whistling a happy little song.

Comprehension Questions

1. What event inspired Alana to really try singing?
 - A. She learned that The Palace theater had a big pipe organ.
 - B. She saw Annie at The Palace theater.
 - C. She joined the glee club at school.
 - D. She listened to Aretha Franklin sing "Respect."
2. What was the result of Alana's efforts to practice singing?
 - A. She got to see Annie at The Palace.
 - B. Her mother gave her CDs of artists like Janis Joplin and Whitney Houston.
 - C. She saw Bjork perform live in Iceland.
 - D. She won the lead role in her school's production of Annie.
3. Alana followed her mother's advice to learn how to use her voice like an instrument. What evidence from the text supports this conclusion?
 - A. Alana visited The Palace and saw Annie.
 - B. Alana recorded herself singing "Tomorrow" and listened back to it.
 - C. Alana joined a band and the glee club at school and learned to read sheet music and sing scales.
 - D. Alana learned some history about the pipe organ in The Palace.
4. Which of the following best describes Alana?
 - A. confused
 - B. discouraged
 - C. adventurous
 - D. motivated
5. What is the main idea of this story?
 - A. Alana decides to become a singer after becoming inspired by the beautiful Palace theater.
 - B. Inspired to become a better singer, Alana practices hard and wins the lead role in her school's version of Annie.
 - C. Alana learns the different singing styles of artists like Aretha Franklin and Billie Holiday.
 - D. Alana discovers how to control her voice's pitch, range, and placement as she listens to different female artists.
6. Choose the answer that best completes the sentence.

After seeing Annie, Alana went home and recorded herself singing "Tomorrow." _____, the recording didn't sound as good as she thought it would.

 - A. Including
 - B. Earlier
 - C. However
 - D. Such as
7. What assignment did Alana's music teacher give her?
8. What did Alana do to help her with the assignment?
9. Explain how her music teacher's assignment helped Alana win the lead in Annie.

Reading Passage #1:

Tiger at New York City's Bronx Zoo has coronavirus



Image 1. This photo shows an entrance to the Bronx Zoo in New York. A tiger at the zoo has tested positive for the new coronavirus.

Photo: Jim Fitzgerlad/AP Photo

By Associated Press, adapted by Newsela staff

Published:04/07/2020

A tiger at the Bronx Zoo in New York has tested positive for the coronavirus.

The coronavirus is a flu-like illness. It began in China. It has been spreading across the globe since December 2019. Health officials have been encouraging social distancing. This means staying home and staying away from other people to help slow the spread of the virus. Many schools have shut down. So have many places where people gather. This includes stadiums, aquariums and zoos.

First Known Case In Animal In U.S.

This is believed to be the first known case in an animal in the United States, the zoo said on April 5. This is also the first case of a tiger anywhere getting the coronavirus.



The 4-year-old tiger is named Nadia. Six other tigers and lions have also become sick.

Image 2. This undated photo provided by the Wildlife Conservation Society shows Nadia, a Malayan tiger at the Bronx Zoo in New York. Photo: Julie Larsen Maher/Wildlife Conservation Society via AP

The first animal started showing signs of illness on March 27. However, all of the animals are doing well and are expected to get better, according to the zoo.

The test result surprised people at the zoo. "I couldn't believe it," director Jim Breheny said. He hopes that finding out about Nadia can add to the worldwide fight against the virus.

The news brings up questions about how the virus spreads in animals. The U.S. Department of Agriculture (USDA), which confirmed the tiger's test result, said that there are no known cases in U.S. pets or farm animals.

On April 5, the USDA said that it is not recommending testing zoo animals, other animals or zoo employees for the coronavirus.

The coronavirus spreads when infected people come in contact with healthy people, experts say.

There have been a few cases outside the United States of pet dogs or cats getting the coronavirus after coming too close to infected people. For example, a dog in Hong Kong has the coronavirus. Agriculture experts in Hong Kong said that pet dogs and cats cannot give the virus to human beings. However, pets can get sick if they come into contact with owners who have it.

Limiting Contact With Animals

In general, people who have the coronavirus should limit their contact with animals. Also, all people should wash their hands after handling animals. This will help keep pets and their homes clean.

At the Bronx Zoo, Nadia, three other tigers and three lions developed dry coughs. And some of the cats had shortness of breath and loss of appetite, said Dr. Paul Calle. He is the zoo's chief veterinarian.

The zoo workers figured there must be a reason for the cats' sickness. They tested Nadia for the coronavirus just to be safe, Breheny said.

Calle said that the test was different from the one that is used for people. It was done by a lab that deals with animals only, not humans.

The seven sick cats live in two different areas at the zoo. However, all of the animals had contact with the same worker, who is doing OK, zoo workers said. They said that there are no signs of illness in other big cats on the property.

People who work with the cats will now wear special clothing to protect against infection.

For most people, the coronavirus causes mild symptoms, such as fever and a cough, that go away in two to three weeks. However, for some people, especially older adults, it can cause more severe sickness. It can also be deadly.

[Google Form to submit answers](#)

1. Read the section "First Known Case In Animal In U.S." Select the sentence from the section that shows how people get the coronavirus.
 - A. The news brings up questions about how the virus spreads in animals.
 - B. The coronavirus spreads when infected people come in contact with healthy people, experts say.
 - C. There have been a few cases outside the United States of pet dogs or cats getting the coronavirus after coming too close to infected people.
 - D. However, pets can get sick if they come into contact with owners who have it.
2. Read the section "Limiting Contact With Animals." Which sentence from this section supports the conclusion that the zoo is working to stop the spread of the coronavirus?
 - A. At the Bronx Zoo, Nadia, three other tigers and three lions developed dry coughs.
 - B. And some of the cats had shortness of breath and loss of appetite, said Dr. Paul Calle.
 - C. They tested Nadia for the coronavirus just to be safe, Breheny said.
 - D. People who work with the cats will now wear special clothing to protect against infection.
3. What caused Nadia to be infected with the coronavirus?
 - A. She caught it from a visitor before the zoo closed.
 - B. She caught it from a dog who had been to the zoo.
 - C. She caught it from a person who works at the zoo.
 - D. She caught it from one of the other tigers at the zoo.
4. Why did Breheny feel surprised that Nadia had coronavirus?
 - A. She was the first tiger in the world to get the virus.
 - B. People did not know animals could get the virus.
 - C. She had not been in contact with any other animals.
 - D. Zoo workers wore special clothing to protect the animals.

Reading Passage #2:



The levels of the food chain in the Earth's oceans By National Geographic Society, adapted by Newsela

Image 1. A tiger shark (*Galeocerdo cuvier*) eating tuna in Fuvahmulah, Maldives, in 2018. Photo: Andrey Nekrasov/Barcroft Media via Getty Images

Scientists have identified around 300,000 different marine, or ocean, species. Together, these make up about 15 percent of all known plants and animals on the planet. However, the ocean is so vast that much of it has not yet been carefully explored. A million or more as yet undiscovered species might live in its waters.

Most marine species are tied together through the food web. A food web is a system of interconnected food chains. A food chain is a top-to-bottom set of animals and plants. They are linked to each other because those on top eat those below.

Level One: Photoautotrophs

The bottom level of the ocean's food chain is largely invisible. It is made up of billions of one-celled organisms, called phytoplankton. These tiny organisms fill sunlit upper-ocean waters worldwide. In a way, phytoplankton work like plants. This is because they take in the sun's energy and, through photosynthesis, turn nutrients and carbon dioxide into organic compounds. On the coast, seaweed and seagrasses do the same thing.

Together, these tiny plants play a large role. They are the main producers of the organic carbon that all ocean animals need to survive. They also produce more than half of the oxygen we breathe on Earth.

Level Two: Herbivores

The next level of the marine food chain is made up of plant-eaters, or herbivores. Many are microscopic, or so small they are invisible to the human eye. These tiny creatures are known as zooplankton. They drift across the ocean's surface, grazing on whatever they come across. There are also larger herbivores, including surgeonfish, parrotfish, green turtles and manatees.

Together, herbivores eat up a huge amount of ocean plant life. However, many of them are eaten in turn. They become food for the carnivorous, or flesh-eating, animals of the food chain's top two levels.

Level Three: Carnivores

The zooplankton of level two provides food for a large group of small carnivores, such as sardines, herring and menhaden. These small carnivores are very successful hunters. However, they often fall prey to a simple fact of ocean life: big fish eat smaller fish.

Level Four: Top Predators

Large predators sit at the top, or apex, of the marine food chain. They are a varied group. They include finned animals such as sharks, tuna and dolphins, feathered animals like pelicans and penguins, and ones with flippers, like seals and walrus. These apex predators tend to be large, fast and very good at catching prey. They also have longer life-spans. Usually, they reproduce slowly. Compared to smaller animals, females do not give birth that often.

The marine food chain's top predators are common prey for the most deadly hunters of all: humans. When populations of top predator species shrink due to overfishing, it can take years for them to recover. This is due to their slow rate of reproduction. The loss of these species can create problems throughout the entire food web. For example, populations of the smaller animals they normally feed on can become too large. These smaller animals might then nearly wipe out populations of even smaller animals. Or, they might eat too much plant life.

Alternative Food Chains

The primary or main, marine food web is based on sunlight and plants. It includes many of the ocean's species. However, it does not include all of them. There are other deep-ocean ecosystems. This article is available at 5 reading levels at <https://newsela.com>. that are entirely independent of the sunlight energy that kick-starts the main marine ecosystem. These ecosystems are fueled by chemical energy. It enters the ocean from sources like hydrothermal vents. Hydrothermal vents are openings in the ocean floor. They release heated minerals from deep within the Earth into the ocean.

[Google Form to submit answers](#)

1. Over 300,000 marine species have been identified. Which of the following statements about marine species is true?
 - A. Most of the marine species in the ocean are linked together in a food web.
 - B. The marine species in the ocean have several food chains that are not linked together.
 - C. Many of the marine species in the ocean do not depend on one another.
 - D. The bottom level of the ocean's food chain is only important to herbivores.
2. Read the following paragraph from the introduction [paragraphs 1–2].

“Scientists have identified around 300,000 different marine, or ocean, species. Together, these make up about 15 percent of all known plants and animals on the planet. However, the ocean is so vast that much of it has not yet been carefully explored. A million or more as yet undiscovered species might live in its waters.”

Which sentence from this paragraph supports the conclusion that there are challenges to studying marine species?

- A. Scientists have identified around 300,000 different marine, or ocean, species.
 - B. Together, these make up about 15 percent of all known plants and animals on the planet.
 - C. However, the ocean is so vast that much of it has not yet been carefully explored.
 - D. A million or more as yet undiscovered species might live in its waters.
3. What is true about food webs in the ocean?
 - A. Food webs consist of many food chains connected together.
 - B. Food webs consist of a single photoautotroph, herbivore, carnivore, and top predator.
 - C. Food webs consist of only a single level such as all herbivores in the ocean.
 - D. Food webs do not show how animals and plants are all connected together.
 4. What role do zooplankton play in the ocean's food web?
 - A. They consume top predators.
 - B. They consume herbivores.
 - C. They consume carnivores.
 - D. They consume phytoplankton.