Dreamcatchers
THE LOS ALAMOS NATIONAL BANK POPEJOY HALL SCHOOLTIME SERIES TEACHING GUIDE
Always new worlds to explore.

20,000 Leagues
UNDER THE SEA

PRESENTED BY: VIRGINIA REPERTORY THEATRE
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GRADES: K - 5

Dreamcatchers Teaching Guides align with the Common Core State Standards and New Mexico State Learning Standards.
Travel the oceans of the world aboard the *Nautilus* with Captain Nemo and his crew! Based on the classic novel by Jules Verne and adapted for stage by Brian Meredith and Bruce Miller, this show entertains, excites, and educates young audiences as it promotes earth science and geography curricula. Following the many exciting adventures of the mysterious submarine as it navigates through deep seas and oceans all over the globe, the viewers will enjoy the show’s lavish sets and costumes, lively music, and stunning deep ocean videography. In their travels, Nemo’s crew must catch enough fish to eat, find fresh water, and surface often enough to keep their oxygen supply fresh—not to mention maneuvering around underwater mountains! Young viewers will learn how to navigate the treacherous seas, what they need to know about water and different kinds of tides before embarking on a sea expedition, and the various kinds of herbivores, carnivores, and omnivores that inhabit the depths of the sea.
Synopsis
The show is built on Jules Verne’s classic science fiction novel, Twenty Thousand Leagues Under the Sea. Published in 1870, the novel follows the adventures of the French marine biologist Professor Pierre Aronnax, a Canadian whaler and master harpooner Ned Land, and Aronnax’s faithful servant Conseil, who all embark on a mission to find a mysterious sea monster. The crew discovers the monster, but when they try to capture it, they realize that the “monster” is actually a technologically advanced submarine named Nautilus, and is piloted by its enigmatic creator and commander: Captain Nemo. Aboard the Nautilus, the protagonists and their host travel through several seas and oceans, visiting some of the most remote and fascinating places (including the submerged city of Atlantis) while also bringing to light numerous marine life forms and underwater landscapes. The three protagonists manage to escape the ship shortly before it meets its fate in a gigantic whirlpool off the coast of Norway. The show’s adaptation allows young viewers to enjoy this classic adventure tale while expanding their knowledge of underwater travel, geography, and biology.

Vocabulary

Captain: the person in command of a ship
Carnivore: meat eaters (e.g., sharks, dolphins, orcas, barracudas, etc.)
Currents: like rivers that flow through the sea in a definite direction
Dinghy: the smallest of a ship’s boats
Herbivore: plant eaters
League: an old unit of measurement; at sea, a league is three nautical miles (6,076 yards)
Omnivores: eat both plants and meat (e.g., tiger sharks)
Periscope: a long tube that contains lenses and mirrors used to look over or around something (especially by a person in a submarine to see above the surface of the water)
Port: left side of a ship (as one faces the front of the ship)
Propeller: a device with two or more blades that turn quickly and cause a ship or aircraft to move
Starboard: right side of a ship (as one faces the front of the ship)
Submarine: a ship that can operate underwater
Tide: the alternate rising and falling of the sea, usually twice each day at a particular place, due to the motion of the earth and pull of gravity
Voyage: a long journey involving travel by sea
Waves: caused by the friction of the wind over the surface of the water
Whirlpool: an area of water in a river, sea, etc. that moves very rapidly in a circle
Interesting Facts for Students

Water covers almost three-quarters of the surface of the Earth.

Seawater makes up 97% of all of the Earth’s water. If all of the salt of the ocean were collected in a single pile, it would be larger than all the land above water on the African continent.

The oceans are actually one continuous mass of water.

The major oceans are the Atlantic, Pacific, Indian, Arctic, and Antarctic.

The highest mountains and deepest trenches on Earth lie at the bottom of the oceans.

Salt is a natural anti-freeze.

There are animals adapted to almost every habitat and ecological niche in the sea.

“Captain Maury” in Verne’s book was a real-life oceanographer. He explored and charted the winds, seas, and currents and collected samples from the bottom of the ocean.

Science fiction stories have common themes, such as space travel, scientific progress, catastrophic events, supernatural powers, alien invaders, robots, and the dangers of machines. The themes often have underlying social or political messages that address human interactions on a global level.

“20,000 Leagues” doesn’t refer to the depth that they travel, but to the distance. If you really traveled 20,000 leagues, you would circle the Earth six times.

In the initial version, Nemo was a Polish nobleman whose family was killed by Russians, but later Verne changed Nemo’s nationality to Hindu Indian.

Jules Verne was way ahead of his time, writing about space, air, and underwater travel, among other things. Many of his descriptions of these futuristic adventures were eerily similar to what mankind has actually achieved today.

In 1863, Verne wrote a book entitled Paris in the 20th Century. In the book, he describes glass skyscrapers, gasoline-powered automobiles, high speed trains, and calculators. Verne put the manuscript in a safe for future publication, where it was discovered by his great-grandson in 1989.

The Nautilus predated actual powered submarines by 25 years.

In 1886, the first electric powered submarine was named The Nautilus after Verne’s creation. Unlike today’s subs, Verne’s version was able to dive to any depth.

Upon finding out Jules was involved with the theater, his father cut him off, and Verne became a stockbroker. Although he hated it, he was actually quite good at it.

Verne published at least one book a year for over 40 years on a wide range of subjects.

About the Author

Jules Verne was a 19th century French author whose revolutionary science-fiction novels, including Around the World in Eighty Days (1873) and Journey to the Center of the Earth (1864), have entranced readers for over a century. Born in the port city of Nantes, France, in 1828, he was often immersed in observing the comings and goings of ships and schooners, which developed his imagination for adventure and travelling. He started to write short stories while he was in boarding school. However, following in his father’s footsteps, Verne went to law school and eventually found himself dividing his time between practicing law and writing. In 1857, Verne married a widow named Honorine de Viane Morel. Together, they took the first of about 20 trips to the British Isles. Later, when the author purchased a ship of his own, the scope of his expeditions stretched even farther, providing the inspiration for many of his literary works. Verne’s career in writing truly began with the 1863 publication of his first adventure tale, Five Weeks in a Balloon, which received wide acclaim and was followed by fifty-four hugely successful adventure novels. A true visionary and innovator, Jules Verne wrote about a number of important inventions and conveniences that did not exist in his time but are now a normal part of what we experience today. He predicted the use of hydrogen as an energy source as well as future technologies such as submarines, airplanes, helicopters, and skyscrapers. He also addressed ways of traveling to and exploring the north and south poles, and even the moon!
Oceanic Dioramas

Lesson 1 Adapted from an activity at Tears of Joy Theatre

In this lesson, students identify some of the ocean creatures featured in this production of 20,000 Leagues Under the Sea. Students will select some of the animals to research further and create dioramas that display what they have learned about the habitat, diet, and behaviors of their selected animal.

Objectives

Students will:
- Identify oceanic animals that they are interested in learning about.
- Use classroom resources such as computers and books to gather information about their selected animal.
- Use the information gathered to create realistic dioramas of their chosen oceanic animal and details of its habitat.

Materials

- Classroom computers
- Books about ocean creatures
- "Animal research Project" page
- Small box (shoe box, cereal box, etc.); 1 per student
- Art supplies: paint, glue, fabric, colored paper, modeling clay, glitter, ribbon, etc.

Procedure

1. 20,000 Leagues Under the Sea depicts a grand underwater adventure. The adventurers in the story discover many unique oceanic animals. After seeing the show, make a list of all of the oceanic animals the class remembers from the performance. (If the class has not seen the play yet, have them think of the oceanic animals they know.)

2. Have each student select an ocean animal to study. It’s best if each student selects a different animal, though younger students may want to work together in small groups to research the same animal.

3. Using classroom resources, such as computers with Internet access and books about ocean animals, have students research their selected animal. As they find information, they should fill out the “Animal Research Project” page. On this page, students will:
   - a. Draw a picture of the animal.
   - b. Correctly identify the name, description, diet, and habitat of their animal.
   - c. Supply additional interesting facts about their animal.

4. Have students share their fact sheets with the class. As you go, note the animals that live in the same types of habitats. What is their relationship to each other? (predator/prey, symbiotic relationship, etc.)

5. Have each student bring a small box from home.

6. Begin by painting the inside of the box ocean colors. (You can also use fabric or paper to line the box.)

7. Have students decorate the boxes to resemble the habitat of their ocean animal. This can include sea landscapes, seaweed, other plants, animals, etc.

8. However students choose to decorate their boxes, they will need to make a model of their chosen animal and feature it prominently in the diorama. The model can be made from clay, paper, etc.

9. Create a classroom display that features the dioramas and the Animal Research Project sheets. Group similar habitats together. Have students make observations about each other’s work. What have they learned about ocean habitats and the animals that live in them?

Extensions/Modifications

- Younger students (K-1) can select 1-3 animals to learn about as a class. Dioramas can feature the selected class animal and be enjoyed for each student’s individual artistry.

- Create a large diorama as a class. Highlight different habitats within the diorama and place models/drawings of animals throughout in their appropriate settings. Final diorama should show the incredible variety of plant and animal life that can be found in the ocean.

Assessment

- Animal Research Project sheet is complete and contains factual information about selected animal.
- Diorama shows details of animal’s habitat and features selected animal prominently.
- Quality of participation

Resources

Click here for photographic examples of underwater dioramas.
Elements of Science Fiction

Lesson 2 Adapted from a lesson at Teacher’s Network

20,000 Leagues Under the Sea is a work of science fiction, which, at the time it was written, contained technology that did not exist but potentially could in the near future. In this lesson students will evaluate their own ideas about technology in the future and use these ideas to generate their own unique science fiction stories.

Objectives

Students will:

• Identify elements of the science fiction genre.
• Make predictions about the future.
• Prewrite to generate ideas for an original story.
• Write an original science fiction story.

Materials

• “Science Fiction Prewrite” page
• Pencil and paper
• Science fiction story or movie (optional)

Procedure

1. Note to students that 20,000 Leagues Under the Sea is a work of science fiction. Science fiction can be defined as an imaginary story that usually could not occur in present time. It deals with what scientific and technological advances might be possible in the future, without the use of magic. 20,000 Leagues Under the Sea was written in 1870, before submarines resembled the vessels we recognize today. Yet Verne, using what he knew of developing submarine technology, imagined an advanced sea vessel powered by hydroelectricity.

2. Have students think of other examples of science fiction they are familiar with. Examples can include: Star Trek, Star Wars, Wall-E, A Wrinkle in Time, Back to the Future, etc. Have them identify the specific elements that make these stories science fiction. What inventions are featured? Where do you think the ideas for these inventions came from?
   a. If possible, find a short story or movie in the science fiction genre. As a class, identify the elements that make this a work of science fiction.
3. Tell students they will be writing their own science fiction stories. In order to help generate ideas, have them write down their predictions about the future in the following categories:
   a. Schools (what will schools be like in the future?)
   b. Transportation (fuel, new vehicles, speed/distance, etc.)
   c. Cities (where will people live? what will homes look like?)
   d. Recreation (sports, hobbies, fun, etc.)
   e. Food (what will we eat in the future?)
   f. Medicine (new cures, life expectancy, etc.)
   g. Science and technology (computers, space travel, new inventions, etc.)
   h. Foreign relations (how will the earth be divided politically? What countries will exist, if any?)
   i. Communication (how will we communicate in the future?)
   j. Environment (air, water, plants, etc.)

4. Divide students into small groups and have them share their ideas with each other. Instruct groups to begin brainstorming on how to turn their ideas into stories.

5. Working individually or in groups, have students fill out the “Science Fiction Prewrite” page to solidify and flesh out their ideas. Be sure that students understand the following concepts:
   a. Setting: When and where does the story take place? What does the setting look like?
   b. Characters: Who are the people (or beings) in this story? What do they look like? How do they act/interact? What is their importance in the story?
   c. Scientific Link: What scientific connections are included to make this story seem credible or convincing? What technological innovations are being featured?
   d. Problem: What challenge(s) do the main characters face in this story? What do they need to overcome? What kinds of constraints or conditions are present?

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Elements of Science Fiction

Lesson 2 Continued

e. Solution: How do the main characters solve the problem? What resources do they use? How do their personalities and attributes help them overcome their problems and challenges?

6. Once students have planned their stories and shared their ideas with the teacher or classmates, have them write the story. Again, students can work individually or in groups to create an original science fiction story. Allow students time in class to share their stories and get feedback.

Extensions/Modifications

• Younger students can think about many of the concepts listed in this lesson and draw pictures of their ideas. Have them draw an invention or a scene in the future. Encourage them to use as much detail as possible.
• Write a script for a science fiction TV show or movie. Act out part of your script for the class.
• Imagine what your school will look like in the future. Create a display entitled “(School Name) in the Future.” Create drawings and brief write-ups that explain your class’s vision. Display it where other classes can see it.

Assessment

• Quality of participation
• Student stories feature predictions about the future and/or technological advances.
• Student stories have a setting, characters, scientific link, problem, and solution.

Resources

Smithsonian.com
GoodReads
Lessons & Activities
Ask your students these questions and have a general discussion with everyone who wishes to take part while the others listen: Do people’s actions tell who they are? How? How would Professor Aronnax answer this question? How would Captain Nemo answer it? Why? Name some of Captain Nemo’s actions. Are they good or bad? What do these actions tell you about Nemo?

Have students tell or write about something they have done and what it says about them.

Invite students to imagine that Captain Nemo is still alive and wants to explain to Professor Aronnax why he built the Nautilus and why he acts the way he does. Have them write Nemo’s letter to the professor, who has returned to Paris.

Have partners choose a scene from the play or book and take turns being Professor Aronnax and the interviewer. Before presenting the interview to the class, remind students how to prepare for an interview and that they should discuss specific events.

Invite students to research submarines and compare their findings to details about Nemo’s Nautilus. Involve them in a roundtable discussion to answer the question: How do you think Jules Verne knew so much about submarines when they hadn’t been invented yet?

Outreach Activities
Albuquerque Biopark offers numerous educational opportunities, from self-guided school field trips to specialized educational programs and even Aquarium overnights! Students can enjoy the Aquarium, the Zoo, and Tingley Beach as they learn more about aquatic animals and the environment.

The Rio Grande offers plenty of amazing options for enjoying the water and observing aquatic life: Shady Lakes, Rio Grande Valley State Park, and Rio Grande Nature Center Park are all home to many fish, birds, and other wildlife and offer many ways for hiking, boating, bicycling, mountain biking, kayaking, and other fun activities for the whole family or for the whole class.

Students can deepen their understanding and appreciation of the role water and water conservation play in our society and on our planet through the River Xchange year-long educational program.

Resources
BOOKS

WEBSITES
Western Explorers An in-depth study of the design of Captain Nemo’s Nautilus.
SciFi Busters: 20,000 Leagues Science fiction facts and myths of 20,000 Leagues Under the Sea.
Sea Quotes A collection of quotes from some of the most famous ocean explorers, oceanographers, writers, poets, and artists.

Prediction or Influence? A list of times science fiction became fact.

VIDEOS
1954 classical Disney film adaptation starring Kirk Douglas and James Mason.
1997 film adaptation starring Michael Caine as Captain Nemo.
Free Audio Podcast of the Book This work is a part of the Lit2Go collection, a collaboration between the Florida Department of Education and the University of South Florida College of Education.

Questions to Engage & Connect
After seeing the show, ask your students to answer these questions:
• Before seeing this show, I didn’t know that...
• This show made me think about...
• Overall, the show made me feel...
• I’d like to invent something that... because...
• One of the coolest inventions I use is...
• An invention I can’t imagine not having is...
• I would/would not like to explore the ocean because...
• After seeing the show, I would like to learn more about...
• I think the main difference between the book and the show is...
• Something I want to share with my family about the experience is...

About the Company
Theatre IV, a division of Virginia Repertory Theatre, is dedicated to the creation of professional, exciting, and innovative theatrical productions of the highest national caliber. Since 1975, the theatre has brought highly compelling productions of literary classics, holiday shows, and historical biographies to young audiences across the nation. They are always seeking to demonstrate the unique power of theatre to engage, enthral, educate, and inspire. Through a wide array of inventive programs and initiatives, Theatre IV constantly explores and expands the ways in which the theatre arts can have a positive impact on education and on children’s health.
The Schooltime Series presents national and international touring companies and performers that you will not see anywhere else in or around Albuquerque. These companies are selected with youth and family audiences in mind, from titles and materials that reflect the cultural diversity of our global community. These professional performing artists create educational experiences designed to encourage literacy, creativity, communication and imagination.

Join our community and sign up for our monthly newsletter at: facebook.com/schooltimeseries. Click on “Join My List,” or send an e-mail with your name and e-mail address to schooltime@popejoyresents.com requesting to be added to the newsletter list. You can contact us at schooltime@popejoyresents.com or visit us at www.schooltimeseries.com.

Etiquette

The performing arts—theater, music and dance—are all collaborative endeavors. They require the cooperation of many skilled people: playwrights, directors, performers, designers, technicians, lyricists, choreographers, musicians, and the audience. Live performances can transport you to other times and places but to do so, they require you, the audience, to listen, observe, discover, and imagine.

The inside of a theatre is called a “house.” There are rules inside the house to make the experience smooth and enjoyable for everyone. A summary poster of Theatre Etiquette is available on our website. Please post it and discuss it with your students and chaperones before attending this show.

House Policies

Please visit our website for detailed information about House Policies. This includes our guidelines on safety, special needs, food and drink, backpacks, cell phones, photography, recordings, and more.

Credits

Selected Dreamcatchers Teaching Guide materials provided by Theatre IV, Wikipedia, eHow, The Deliverers, Bio, Hampton-Brown Highpoint, and other resources noted within this guide.