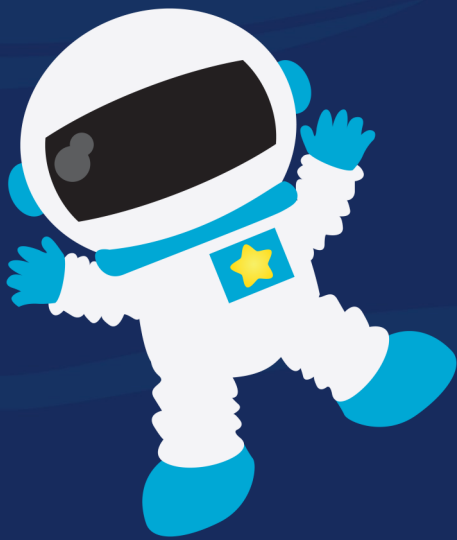


The Sea of Tranquility

Unit Study



The Sea of Tranquility Unit Study

Book by Mark Haddon

Unit study written by Kristy Seaman

Social Studies

Geography: Cape Canaveral

On a map, find Cape Canaveral, Florida. Place a story disk there (maybe a rocket ship or picture of an astronaut) At the time of the mission to the moon, it was called Cape Kennedy. Located on the eastern side of Florida along the Atlantic coast, it sits due east of Merritt Island, separated from it by the Banana River. It is part of a region known as the Space Coast, and is the site of the Cape Canaveral Air Force Station. Many spacecraft are launched from both the Air Force station and the nearby Kennedy Space Center on nearby Merritt Island. The term "Cape Canaveral" or "Canaveral" has become synonymous with the launch site of spacecraft.

Occupations: Astronaut

It takes many years of training to become an astronaut. Many are trained at special facilities in Florida, Texas and Alabama. They have to learn how to move their bodies in space. Many astronauts train in special suits underwater. They fly in special jet-planes so they can feel what it is like to be weightless. The airplane dives 35,000 to 24,000 feet in about 20 seconds. They also learn parachute jumping, scuba diving, sea survival and land survival. Astronauts can be doctors, scientists, pilots, engineers, teachers and authors. They may work 16 hours a day. Astronauts have many jobs. They may deliver special equipment, like satellites or telescopes, pick up equipment or other astronauts, study the Earth from space, or conduct scientific experiments.

History—Man's first landing on the moon

From 1950-to the early 1960's the United States was in a "space race" with the Soviet Union to reach the moon. On May 25, 1961 President John F. Kennedy announced to the world that the United States would put a man on the moon. Up to this point, astronauts had not ventured very far so this was a huge task. Shortly after President Kennedy's announcement, the United States space program, NASA (National Aeronautics and Space Administration), began Project Gemini in order to

gain experience in 2-man, longer-flight missions. NASA attempted 10 space missions in 2 years, named Apollo. These missions were preparing NASA for the final moon landing. After several successful missions that orbited the Earth and the moon, NASA was finally ready to land on the moon. The crew of Apollo 11--Neil Armstrong, Edwin "Buzz" Aldrin and Michael Collins--took off from Cape Kennedy (Cape Canaveral) in Florida on July 16, 1969. Three days later the crew was orbiting the moon. Neil Armstrong and "Buzz" Aldrin separated from Collins in a lunar module called "Eagle". Eagle safely landed on a lava plain, called the Sea of Tranquility. Six hours later Neil Armstrong climbed down the ladder touching the surface of the moon, saying "That's one small step for man, one giant leap for mankind."

You may want to have your older child research Neil Armstrong, "Buzz" Aldrin, or Mike Collins.

Possible go-along books:

One Giant Leap: The Story of Neil Armstrong by Don Brown

Reaching for the Moon by Buzz Aldrin

Neil, Buzz, and Mike go to the Moon by Richard Hilliard

Apollo 11: First Moon Landing by Michael D. Cole

Neil Armstrong: Young Flyer (series: COFA) by Montrew Dunham

Scrapbooking

Scrapbooking in its earliest form was a way to blend memorabilia collections and journaling. People have been scrapbooking since printed material became available to the average person.

Some of the earliest and most famous American scrapbookers include Thomas Jefferson and Mark Twain. Scrapbooking often includes memorabilia, such as photos, magazine clippings, letters and journaling. Have your child begin a scrapbook about a particular interest. Don't forget to give the scrapbook a title.

Language Arts

Title

Look at the front cover and the title, ask your student what they think the book will be about. Explain that the word tranquility means free from disturbance or peaceful, quiet.

After you have read the book, ask again why the author chose the title “Sea of Tranquility”. If your child doesn’t remember, gently remind your child where the two astronauts were walking. Explain to your student that choosing a strong title help makes a good book. The title helps interest a reader, relates to the story and helps define the story. A good title may be the difference between a reader choosing to look at your work or passing over it. Discuss some of the titles in your read-aloud books and how the author might have chosen it.

Writing Sentences

In the story, the author carefully writes many of the sentences in series—combining three or more similar ideas—instead of writing shorter separate sentences.

Example: *“He dreamed of going there, of rocketing across the cold, black miles and landing on the crumbly rock.”*

You and your child may want to look through the book and discuss a few of the sentences.

Have your older child write six separate sentences about one idea. Then have them arrange those six ideas into one or more effective sentences.

Capitalization

Throughout the book there are many words or phrases that are capitalized. Have your child point out some.

Discuss some of the mechanics of capitalization: capitalize all proper nouns and proper adjectives, such as days of the week, months, holidays, periods and events in history, special events, geographical names, heavenly bodies, streets, and official titles.

Have your child determine why a few of the phrases are capitalized

Rabbit—names of persons and things should be capitalized
Mars, Saturn, Pluto, Jupiter—heavenly bodies are capitalized
Prosper Henry, Bay of Rainbows, Sea of Rains—geographical names are capitalized
Cape Canaveral—Official state titles are capitalized
Christmas—holidays are capitalized

Use of Colons

There are two passages in the book that utilize a colon. Discuss the use of colons with your child. In both passages the colon is used to introduce a list. The first passage lists the planets and the second lists craters. Think of other instances when you might want to use a colon in your writing. You may even want to have your child try to write a few sentences using a colon.

Descriptions

The author does a wonderful job at effectively describing objects without using overused expressions or clichés (such as, “big as a house” , “cold as ice” , or “old as the hills” See if you can think of any more clichés).

A good process for writing a description is “show rather than tell,” use details and interesting examples. When the author writes, “*astronauts in pumped-up suits and fishbowl helmets floating in zero gravity around their little metal rooms*” can you envision the astronauts floating in their spacecraft?

Have your child choose a topic and write a description using details while avoiding clichés.

Science: The Moon

Features of the moon

The moon is very unlike our Earth. There are no rivers, oceans, trees or flowers. If looking at the moon from afar, on a clear night, you can clearly see light and darkened areas of the moon. The Ancient Greeks believed that the moon was like the Earth and the darkened areas were water. Those darkened areas were given water names on the first maps of the moon, like the Sea of Vapors. It wasn't until the 17th century that Italian astronomer Galileo Galilei discovered that the moon had varying depths of terrain. He noted how shadow lengths changed during a day.

His first sketches of the moon, published in November 30, 1609, showed the variation in the surface.

The moon is divided into two main types of terrain. The first is large, dark plains called *maria*, meaning “seas” in Latin. The second terrain is heavily cratered, highland regions. These regions reflect about 4% of the sunlight that hits them making them appear brighter.

The surface of the moon is covered by bits of pulverized meteorites, space rock, ranging in size from a particle of dust to large boulders yards across. There are mountains and valleys on the moon, but there is no water. There is no atmosphere like we have on Earth, so there is no wind or rain on the moon. Those particles of rock will stay in one position for a very long time. Any imprints, like footprints, left on the moon will have very little disturbance and thus will remain for many, many years.

Craters

The moon is most noted for its many craters. The majority of these have been created by impacts from asteroids or space material. Discuss with your child how different sizes, different speeds and different dropping heights of meteorites might affect the size of a crater.

Activity: Place an inch of colored sand (you could also use flour dusted with powdered tempera paint) in the bottom of a pie pan. Have your child drop a small Styrofoam ball from about 6 inches. Ask your child what happened. The ball should create a small bowl-shaped indentation in the sand. Now have your child try with a large Styrofoam ball, a small wooden ball and a marble from different heights. Compare the differences in depths and diameters of each crater. The heavier objects create deeper, wider craters with concentric rings of mountains.

Asteroids usually strike the moon at 45,000 mph. The impact sends shock waves and creates heat. The objects are broken apart, some of the material is vaporized, some is melted and some broken pieces are tossed out of the target area and piled up around the hole produced. A small amount of the fragmented material is tossed great distances from the impact area along paths called rays. The higher the drop height, the greater the velocity of the objects so a larger crater should be made and the ejecta will spread out farther. The resultant crater is about 15 times larger

than the object creating the impact. You may also see what happens if the angle of impact is changed? (If the angle is changed, then the rays will be concentrated and longer in the direction of the impact.)

Have your older student research to find where craters are found on the Earth. (Some famous impact craters include Meteor Crater in Arizona, U.S.A.; Manicouagan in Quebec, Canada; Sudbury in Ontario, Canada; Ries Crater in Germany, Chicxulub in Mexico.)

Bunny Trails

[HSS has a unit about meteorites, which is based on a book entitled *Call Me Ahnighito*](#) that you may wish to share with your student if he is particularly interested in this subject.

In the book, the author borrows his father's binoculars to watch the moon. Try some binocular astronomy of your own. You will need at least a magnification of 7x or 10x.

Homeschool Share has a [Space Lapbook](#) you may want to check out.

Applied Math

Distance

The book mentions that the moon is two hundred thousand miles above the boy's bedroom. With your younger child have them write the number 200,000. You could introduce place value at this time. Lay out 10 small hundreds sheets (we use a laminated 10 cm x 10 cm grid) and explain thousands. Do the same to explain ten thousand and hundred thousand.

How far is 1 mile? (5,280 feet in a mile) How many feet are in 200,000 miles? With an older child, you could also have them measure 200,000 miles from their home on a map. When would we measure in miles instead of feet?

Time

The boy is wide awake at midnight, what time is that? He goes downstairs at 3:00

a.m. How many hours have passed?

Art

Conveying Emotion

The author is telling a story of his childhood and is thinking back to how he felt. The illustrator is able to create an almost dreamlike quality to the artwork on each page. Discuss with your child how the haziness and muted tones in each picture makes them feel. Does the artwork help the author convey a feeling of nostalgia and dreaminess? Is the artwork able to stand alone without the writing and still “tell a story”?

Medium

The artist uses chalk pastels on a warm neutral mid-tone paper in his artwork. Pastels are like crayons only they smudge easily. The artist needs to use a fixative, something that will keep the art from smearing every time you touch it. Try using chalk pastels with your child. First use a dry medium like pencil and then go over with chalk pastels using the stick or a stiff paintbrush. Layering the pastels will make the colors more vibrant. You can use hairspray as a fixative to preserve the artwork.

Go-along books

The Moon Book by Gail Gibbons

One Giant Leap, The Story of Neil Armstrong by Don Brown

The Moon by Robert Louis Stevenson

Mission to Mars by Franklyn M. Branley

Materials and information on this website may be used for your own personal and school use. Material may not be shared electronically or be used for resale.

© Homeschool Share