Unit #2

Content Area: **Science**
Course(s): **Science 5**
Time Period: **March**
Length: **Trimester #2**
Status: **Published**

Unit Overview

Water Cycle & Earth´s Systems

In this unit, students consider the profound importance of water as a natural resource. Students investigate the distribution of water, how it cycles through Earth's systems, and explore how it affects human societies.

Spaceship Earth

In this unit, students explore patterns of the Earth, Sun, Moon, and stars. They investigate how shadows change throughout the day, how the Sun's position changes throughout the year, and how stars change throughout the seasons. They also create Earth, Sun, and Moon models to explore Moon patterns.

Stars & Planets

In this unit, students explore our solar system! They investigate how bright the Sun appears from each planet in our solar system in addition to stars of other solar systems in galaxies far away. They also investigate gravity on Earth and gravity on other planets to discover patterns of this incredible force.

Priority Standards

SCI.5-ESS2-2	Describe and graph the amounts of salt water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth.
SCI.5-ESS1-2	Represent data in graphical displays to reveal patterns of daily changes in length and

	direction of shadows, day and night, and the seasonal appearance of some stars in the night sky.
SCI.5-ESS1-1	Support an argument that differences in the apparent brightness of the sun compared to other stars is due to their relative distances from Earth.
SCI.5-ESS2-1	Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.
SCI.5-PS2-1	Support an argument that the gravitational force exerted by Earth on objects is directed down.

Learning Goals

-I can describe and graph the amounts and percentages of water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth.

-I can develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and atmosphere interact.

-I can represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night and the night sky.

- I can support an argument that differences in the apparent brightness of the sun compared to other stars is due to their relative distances from Earth.

-I can support an argument that the gravitational force exerted by Earth on objects is directed down.

Essential Questions

Water Cycle & Earth´s Systems

How much water is in the world?

When you turn on the faucet, where does the water come from?

How does the geosphere, biosphere, hydrosphere and atmosphere interact?

Earth & Space Patterns

How fast does the Earth spin?

Who set the first clock?

How can the sun tell you the season?

Why do the stars change with the seasons?

Why does the moon change shape?

Stars & Planets

How can the Sun help us explore other planets?

Why is gravity different on other planets?

Materials and Resources

Mystery Science Online & Assessments

Student Readers (English & Spanish Carolina Science Kits)

Play videos to introduce 4 spheres: https://www.youtubecom/watch?v=VMxjzWHbyFM (PArt 1 Geo and Bio)

https://www.youtube.com/watch?v=UXh_7wbnS3A (Part 2 Hydro and Atmos)

Additional Materials (optional) 4 Stations w/trade books (Not available at Harker school)-Geosphere, Hydrosphere, Atmosphere, Biosphere,

Create Flip Books from copier paper in Advance and distribute to each student. Students will define academic vocab and design their flip book pages.

http://eschooltoday.com/earth-system/what-is-earth-systems-thinking.html

https://www.youtube.com/watch?v=HurK-1rrdb8&list=PLvhCUXmv1KwKI1YdSbQ0tAg3XUY18mQ7Z

www.ducksters.com/science/atmosphere.php , www.youtube.com/watch?v=5sg9sCOXFlk

TPT layers of the atmosphere template.

Students will read 3 Readworks non-fiction articles, summarize, RACER, and peer edit their work. Their final copy will be submitted via google doc. Readworks "Earth's Atmosphere: The Mesosphere", "Earth's Atmosphere: The Thermosphere", "Earth's Atmosphere: The Troposphere" **https://www.readworks.org/find-content#!q:atmosphere/g:21/t:12/f:0/pt:A/sr:false/features:/**

TPT Water Filter challenge (Google Drive) **: https://www.youtube.com/watch?v=FFhrwmy6Yb0**, **https://www.youtube.com/watch?v=oaQCiwzjnCM:**

Better Lessons Online Plans & Activities

Unit Assessments

Mystery Science Assessment for each lesson

Mystery Science Unit Assessment

Learning Plan

Time	Lesson	Priority Standard	Learning Targets	Lessons/Activities
Week 1	Lesson 1: How much water is in the world?	5-ESS2-2. Describe and graph the amounts and percentages of water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth.	I can describe and graph the amounts and percentages of water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth.	Day 1: Introduction Video & Discussion Day 2: Lab & Lab Paper Day 3 & 4: End of Video, Discussion & Teacher pay teacher worksheet to go along with lesson Day 5 Test: https://docs.google.com/presentation/d/1tVNVK-R8qL7AsqhJ2CZWhc01UmieuJ4w3oaJsG5rdrw/edit?usp=sharing Key: https://docs.google.com/presentation/d/1nT7uBgD0uEfOuLy1v3U4V3PRLv91gDurYRPdynaUmws/edit?usp=sharing
Week 2	Lesson 3: When you	5-ESS2-2. Describe and	I can describe and graph	Day 1: Introduction Video & Discussion Day 2: Lab & Lab Paper

		turn on the faucet, where does the water come from?	graph the amounts and percentages of water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth.	the amounts and percentages of water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth.	Day 3 & 4: End of Video, Discussion & Teacher pay teacher worksheet to go along with lesson Day 5:Test: https://docs.google.com/presentation/d/1tVNVK-R8qL7AsqhJ2CZWhc01UmieuJ4w3oaJsG5rdrw/edit?usp=sharing Key: https://docs.google.com/presentation/d/1nT7uBgD0uEfOuLy1v3U4V3PRLv91gDurYRPdynaUmws/edit?usp=sharing
Week 3	Welcome to Earth Brochure	5-ESS2-1 Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and atmosphere interact.	I can develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and atmosphere interact.		Day 1: Read and take notes about the spheres. https://www.generationgenius.com/wp-content/uploads/reading-material/interaction-of-earths-spheres-reading-material-grades-3-5.pdf Day 2: Watch the video and take notes: https://www.generationgenius.com/videolessons/earths-spheres-video-for-kids/ Day 3 & 4 https://drive.google.com/file/d/1HA-sCdLaX0QXmp8iTvqZ94FwZ9buRQam/view?usp=sharing Day 5:Test

Week 4	Lesson 1: How fast does the Earth spin?	5-ESS1-2. Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the night sky.	I can represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night and the night sky.	Day 1: Introduction Video & Discussion Day 2: Lab & Lab Paper Day 3 & 4: End of Video, Discussion & Teacher pay teacher worksheet to go along with lesson Generation Genius: Earth's Orbit and Rotation Day 5:Test: https://docs.google.com/presentation/d/1tVNVK-R8qL7AsqhJ2CZWhc01UmieuJ4w3oaJsG5rdrw/edit?usp=sharing Key: https://docs.google.com/presentation/d/1nT7uBgD0uEfOuLy1v3U4V3PRLv91gDurYRPdynaUmws/edit?usp=sharing
Weeks 5	Lesson 2: Who set the first clock?	5-ESS1-2. Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadow	I can represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and	Day 1: Opening Video (Reviewing Latitude and Longtiude) Day 2: Make Shadow Clocks and use flash lights Day 3: Shadow Clocks outside & Shadow Length Activity https://www.youtube.com/watch?v=1SN1BOpLZAs Day 4: Make a bar graph with the data Day 5: Assessment Test: https://docs.google.com/presentation/d/1tVNVK-R8qL7AsqhJ2CZWhc01UmieuJ4w3oaJsG5rdrw/edit?usp=sharing Key: https://docs.google.com/presentation/d/1nT7uBgD0uEfOuLy1v3U4V3PRLv91gDurYRPdynaUmws/edit?usp=sharing

		s, day and night, and the night sky.	night and the night sky.	
We ek 6	Lesso n 3: How can the Sun tell you the seaso n?	5-ESS1-2. Represe nt data in graphic al displays to reveal patterns of daily changes in length and directio n of shadow s, day and night, and the night sky.	I can represen t data in graphic al displays to reveal patterns of daily changes in length and directio n of shadow s, day and night and the night sky.	Day 1 & Day 2 Follow the mystery science videos Each student has piece of paper and they write their answer and two reasons why Day 3: Take notes & Show videos https://www.youtube.com/watch?v=b25g4nZTHvM&t=23s https://www.youtube.com/watch?v=kyE3Yd1_zDc Day 4: Review Elapsed Time https://www.youtube.com/watch?v=NWf6PbxcOno https://www.youtube.com/watch?v=eUgyC_vThdY Day 5: Teacher pay teacher worksheet Day 6: Elapsed Time & Bar Graph Day 7: Assessment Test: https://docs.google.com/presentation/d/1tVNVK-R8qL7AsqhJ2CZWhc01UmieuJ4w3oaJsG5rdrw/edit?usp=sharing Key: https://docs.google.com/presentation/d/1nT7uBgD0uEfOuLy1v3U4V3PRLv91gDurYRPdynaUmws/edit?usp=sharing
We ek 7	Week 4: Why does the Moon chang e	5-ESS1-2. Represe nt data in graphic al displays	I can represen t data in graphic al displays to reveal	Day 1: Opening Video Day 2: Activity Day 3: Add Notes:

	shape?	to reveal patterns of daily changes in length and direction of shadows, day and night, and the night sky.	patterns of daily changes in length and direction of shadows, day and night and the night sky.	Earth's rotation creates day and night Earth's revolution around the sun creates seasons and change in stars. *Finish Video discussion about the north star Day 4: Edpuzzle Day 5: Assessment Test: https://docs.google.com/presentation/d/1tVNVK-R8qL7AsqhJ2CZWhc01UmieuJ4w3oaJsG5rdrw/edit?usp=sharing Key: https://docs.google.com/presentation/d/1nT7uBgD0uEfOuLy1v3U4V3PRLv91gDurYRPdynaUmws/edit?usp=sharing
Week 8	Week 5: Why does the Moon change shape?	5-ESS1-2. Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the night sky.	I can represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night and the night sky.	Day 1: Opening Video Day 2: Activity Day 3: Cut and paste Day 4: Oreo activity Day 5: Generation Genius: Moon Phases & Google Form Day 6: Test Test: https://docs.google.com/presentation/d/1tVNVK-R8qL7AsqhJ2CZWhc01UmieuJ4w3oaJsG5rdrw/edit?usp=sharing Key: https://docs.google.com/presentation/d/1nT7uBgD0uEfOuLy1v3U4V3PRLv91gDurYRPdynaUmws/edit?usp=sharing
Week 9	Week 1: How can the Sun help us explo	5-ESS1-1. Support an argument that differences in the	I can support an argument that differences in the apparen	Day 1 Opening Day 2 Make the model Day 3 Experiment Day 4 Assessment Test: https://docs.google.com/presentation/d/1tVNVK-

	re other planets?	apparent brightness of the sun compared to other stars is due to their relative distances from Earth.	t brightness of the sun compared to other stars is due to their relative distances from Earth.	R8qL7AsqhJ2CZWhc01UmieuJ4w3oaJsG5rdrw/edit?usp=sharing Key: https://docs.google.com/presentation/d/1nT7uBgD0uEfOuLy1v3U4V3PRLv91gDurYRPdynaUmws/edit?usp=sharing
Week 10	Week 2: Why is gravity different on other planets?	5-PS2-1. Support an argument that the gravitational force exerted by Earth on objects is directed down.	I can support an argument that the gravitational force exerted by Earth on objects is directed down.	Day 1: Opener and review lab Day 2: Jump 1 & Jump 2; Go to the hallway near the gym: Use tape instead of post it notes next year Day 3: Complete the chart and graph Day 4: Assessment Test: https://docs.google.com/presentation/d/1tVNVK-R8qL7AsqhJ2CZWhc01UmieuJ4w3oaJsG5rdrw/edit?usp=sharing Key: https://docs.google.com/presentation/d/1nT7uBgD0uEfOuLy1v3U4V3PRLv91gDurYRPdynaUmws/edit?usp=sharing
Week 11	Review & Unit Test	5-PS2-1 5-ESS1-1 5-ESS1-2 5-ESS2-1 5-ESS2-2.	I can represent data in graphical displays to reveal patterns of daily changes in length and direction of	Test: https://docs.google.com/presentation/d/1tVNVK-R8qL7AsqhJ2CZWhc01UmieuJ4w3oaJsG5rdrw/edit?usp=sharing Key: https://docs.google.com/presentation/d/1nT7uBgD0uEfOuLy1v3U4V3PRLv91gDurYRPdynaUmws/edit?usp=sharing Genius Generation: 5-PS2-1 Balanced & Unbalanced Forces 5-ESS1-1 Sun and Other Stars 5-ESS1-2 Earth´s Orbit and Rotation

shadows, day and night and the night sky.	5-ESS2-2 Water Quality & Distribution 5-ESS2-1 Water Cycle: Interaction of Earth´s Sphere
I can support an argument that the gravitational force exerted by Earth on objects is directed down.	
I can support an argument that differences in the apparent brightness of the sun compared to other stars is due to their relative distances from Earth.	

Strategies for Multilingual Learners

- Continue practicing vocabulary
- Choice of test format (multiple-choice, essay, true-false)
- Vary test formats
- Read directions to student
- Provide study guides prior to tests
- Clarify test directions, read test questions
- Read test passages aloud (for comprehension assessment)

Strategies for Students in Need of Intervention

- Additional time on assignments
- Review of directions
- Review sessions
- Provide notes
- Support auditory presentation with visuals
- Work in progress check
- Tiered assessment
- Choice of test format (multiple-choice, essay, true-false)
- Read directions to student
- Highlight directions and key words
- Provide opportunities for cooperative partner work

Strategies for Enrichment

- Higher-level cooperative learning activities
- Provide higher-order questioning and discussion opportunities
- Tiered assessments
- Provide texts at higher reading level
- Extension activities

Technology Integration

Google Classroom Science

Mystery Science

Genius Generation

Nearpod

Crash Course Kids: https://www.youtube.com/user/crashcoursekids

Interdisciplinary Connections

ELA.L.WF.5.2 Demonstrate command of the convention of writing, including those listed under grade four foundation skills.

ELA.L.VL.5.2 Determine or clarify the meaning of unknown and multiple-meaning academic and domain-specific words and phases based on grade 5 reading and content, choosing flexibly from a range of strategies.

ELA.RI.CR.5.1 Quote accurately from an informational text when explaining what the text says explicitly and make relevant connections when drawing inferences from the text.

ELA.IW.5.2 Write informative/explanatory texts to examine a topic and convey ideas and information clearly.

ELA.SL.PE.5.1 Engage effectively in a range of collaborative discussions with diverse partners on grade 5 topics and texts, building on others´ ideas and expressing their own clearly.

5.DL.A.1 Understand how different visualizations can highlight different aspects of data. Ask questions and interpret data visualizations to describe and analyze patterns.

5.DL.A.2 Develop strategies to collect, organize and represent data of various types and from various sources.

Communicate results digitally through a data visual (e.g. chart, storyboard, video representation).

5.DL.A.3 Collect and clean data to be analyzable (e.g., make sure each entry is formatted correctly, deal with missing or incomplete data).

5.DL.A.4 Using appropriate visualizations (i.e. double line plot, double bar graph), analyze data across samples.

5.G.A.2 Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.

ELA.L.WF.5.2	Demonstrate command of the conventions of writing, including those listed under grade four foundational skills.
ELA.L.VL.5.2	Determine or clarify the meaning of unknown and multiple-meaning academic and domain-specific words and phrases based on grade 5 reading and content, choosing flexibly from a range of strategies.
ELA.RI.CR.5.1	Quote accurately from an informational text when explaining what the text says explicitly and make relevant connections when drawing inferences from the text.
ELA.W.IW.5.2	Write informative/explanatory texts to examine a topic and convey ideas and information clearly.
MATH.5.DL.A.1	Understand how different visualizations can highlight different aspects of data. Ask questions and interpret data visualizations to describe and analyze patterns.
MATH.5.DL.A.2	Develop strategies to collect, organize and represent data of various types and from various sources. Communicate results digitally through a data visual (e.g., chart, storyboard, video presentation).
MATH.5.DL.A.3	Collect and clean data to be analyzable (e.g., make sure each entry is formatted correctly, deal with missing or incomplete data).
MATH.5.DL.A.4	Using appropriate visualizations (i.e., double line plot, double bar graph), analyze data across samples.
MATH.5.G.A.2	Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.
ELA.SL.PE.5.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 5 topics and texts, building on others' ideas and expressing their own clearly.

21st Century Life & Career Ready Practices

- CRP11. Use technology to enhance productivity.
- CRP2. Apply appropriate academic and technical skills.
- CRP1. Act as a responsible and contributing citizen and employee.
- CRP12. Work productively in teams while using cultural global competence.
- CRP4. Communicate clearly and effectively and with reason.
- CRP6. Demonstrate creativity and innovation.
- CRP7. Employ valid and reliable research strategies.

- CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.