

5E Lesson Plan

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Science / grade level: 4th grade

Topic: How does the appearance of the moon's shape change over time?

TEKS: <https://tea.texas.gov/index2.aspx?id=6148>

- (8) Earth and space. The student knows that there are recognizable patterns in the natural world and among the Sun, Earth, and Moon system. The student is expected to:
 - (C) collect and analyze data to identify sequences and predict patterns of change in shadows, seasons, and the observable appearance of the Moon over time.

Lesson objective(s):

Learning Objectives (for Cognitive Domain)

Objectives:

- SWBAT 1: Students will be able to recognize and observe how the Sun plays a role in the phases of the moon.
- SWBAT 2: Students will be able to use words, such as *first moon*, *quarter moon*, *crescent*, *gibbous*, etc. to identify the different moon phases. Lesson vocabulary includes: Full moon, waxing gibbous, first quarter, waxing crescent, new moon, waning crescent, last quarter, waning gibbous, phases, orbit
- SWBAT 3: Students will be able to label each phase of the moon through graphic organizers.

English Language Proficiency Standards (ELPS)

ELPS - <http://ritter.tea.state.tx.us/rules/tac/chapter074/ch074a.html#74.4>

- (1) Cross-curricular second language acquisition/learning strategies.
 - (A) use prior knowledge and experiences to understand meanings in English;
- (2) Cross-curricular second language acquisition/listening.
 - (E) use visual, contextual, and linguistic support to enhance and confirm understanding of increasingly complex and elaborated spoken language;
- (3) Cross-curricular second language acquisition/speaking.
 - (D) speak using grade-level content area vocabulary in context to internalize new English words and build academic language proficiency;

Technology Integration

Technology Applications - <http://ritter.tea.state.tx.us/rules/tac/chapter126/index.html>

- Computer or tablet
- Projector
- PowerPoint lesson
- Document Camera

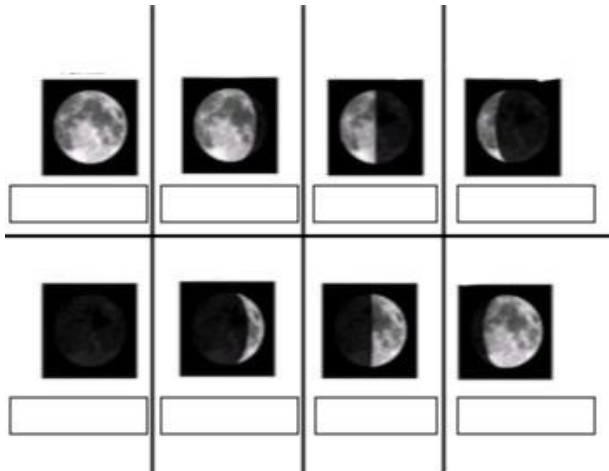
Safety Concerns

- Students will have to wait for instructions before beginning the activity
- Students will not be allowed to taste or place any objects in their mouths until instructed to do so
- The teacher will have to be aware of any allergies and make modifications accordingly

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- Students should not play around during the lesson
- Students must use all lesson materials appropriately
- Students will be given the opportunity to walk around the classroom during the exploration activity. The teacher will place a 1-minute timer to allow the students to place their labels around the room to their corresponding moon phase.

ENGAGEMENT



- Before the class begins, the teacher will place different posters around the room. These posters will look like the different phases that the moon goes through while the Earth revolves around the Sun. The teacher will begin the lesson by asking the students to look around the classroom and observe the posters that have been placed. These posters will not have any labels on them, so after the students have had a chance to observe the posters, the teacher will ask the students the following questions:
 - Have you seen these shapes before?
 - What do these shapes remind you of?
 - What are some similarities or differences you see between the shapes?
 - Why do you think these shapes may be similar or different?
 - If you look up at the sky, where would you see these shapes: In the daytime or in the nighttime?

EXPLORATION

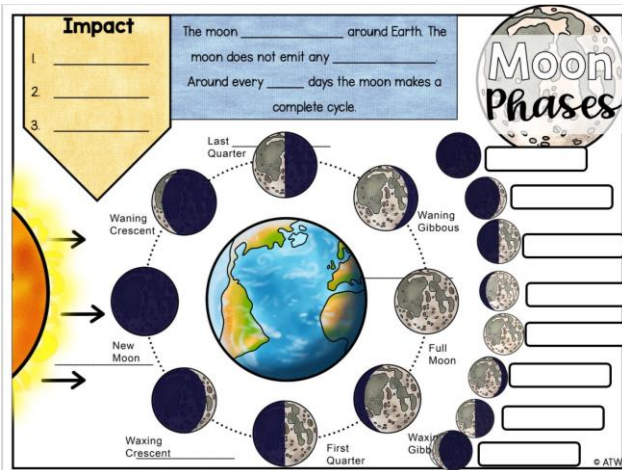


- Video Link: <https://www.youtube.com/watch?v=yXe0yxzYkjo>
- After the engagement activity, the teacher will show the students a short video on the phases of the moon. This video will briefly go over why the moon goes through different phases and what the different phases may look like. After the students have watched the video, the students should have a little bit of an understanding of what the phases of the moon look like and what their names are.

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- The teacher will go around the room and give each group a different Ziplock bag with cut-out labels that contain the names of the phases of the moon. The teacher will instruct the students to open the bag and review the labels that are provided. The teacher will give the students 1-2 minutes to discuss with their group members about which labels correspond with the posters that were placed around the room at the beginning of class. After the discussion time is over, the teacher will allow 1 representative from each group to walk up to the posters around the room and place them where their group members thought the labels belonged. Each group will have a different color to help the teacher know where each group placed their labels.
- After all the labels have been placed, the teacher will review each phase and discuss with the students their answers. The teacher will ask new questions such as:
 - If all of these shapes around the room represent the Moon, why are they different?
 - What effect does the Sun have on the moon?
 - What is the first phase of the moon?
 - What is the last phase of the moon?
 - How do we know if a phase is a Crescent or Gibbous?

EXPLANATION



- The teacher will show the students a PowerPoint presentation on the phases of the moon. This presentation will explain how the Sun plays a role in the moon phases (because the moon doesn't produce its own light), the names of the different phases, how long the moon cycle lasts, the difference between the day side and the night side of the moon, key vocabulary terms and their definitions, and how the moon phases have an impact on the Earth.
- While the teacher is giving the presentation, the students will follow along by completing a graphic organizer. This graphic organizer will help the students remain on task and engaged in the presentation. The teacher will ask the following questions during the presentation:
 - Does the moon produce light? Why or why not?
 - What parts of the moon show the daytime side and what parts of the moon show nighttime?
 - Using your graphic organizer, can anyone explain what the moon is doing around the Earth?

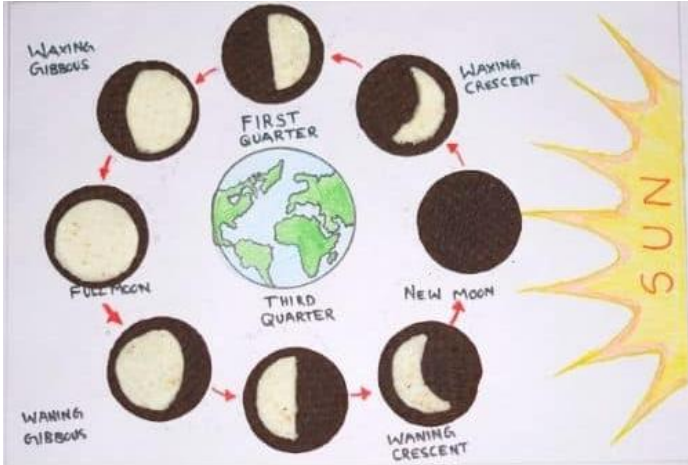
ELABORATION

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- Using the graphic organizer from the explanation portion, the students will create their own physical representation of the moon phases. The students will use two clear cups, construction paper, and a Sharpie to complete this activity. First, the students will place the construction paper inside one of the clear cups. This construction paper will already be cut and prepared for the students to use. Next, the students will have to use the cup with the construction paper and place it inside the clear cup with labels. Then, the students will use the yellow construction paper as a guide to help them draw out each phase of the moon. The students will use the graphic organizer to help them fill in the portion of the yellow circle for each corresponding phase. Once all of the phases are completed, the students will be able to follow each moon phase by rotating the inside cup with the construction paper.

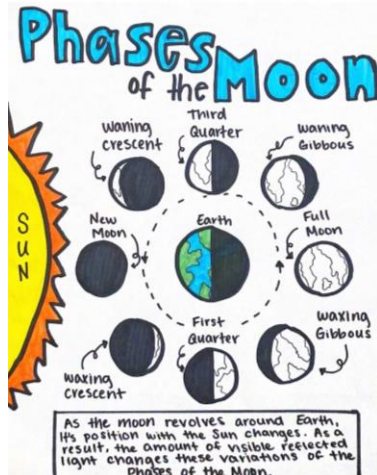
EVALUATION



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- As an assessment, the teacher will give each student 4 oreos, a plastic spoon, and a blank sheet of paper. The teacher will ask the students to place all their lecture materials away and only have out the materials that were just handed out. Once everyone has put their materials away, the teacher will begin the assessment. The teacher will ask each student to open up an oreo and demonstrate a specific moon phase. The teacher will give the students 30 seconds to demonstrate the given moon phase. After all the moon phases have been demonstrated, the teacher will ask the students to use their blank sheet of paper to place the moon phases in the correct order. This picture represents what the final product should look like.

Closure/Ending

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- After the assessment, the teacher will review the students' answers and ensure that the moon phases were placed in their corresponding positions. The teacher will use an anchor chart as a guide for the review. Once everything has been reviewed, the teacher will ask one representative from each group to describe a different phase of the moon. If a phase has already been described, the teacher will ask that group to describe a different phase. This will help the teacher get a better understanding of whether or not the students understand the different phases of the moon and why they look a certain way. The teacher will revisit questions that were asked throughout the lesson to ensure that the students have gathered a better understanding of the phases of the moon.

Modifications for Learners with Exceptionalities

Students with IEPs/504 Plans/ Students with Specific Language Needs/ Students with Other Learning Needs

- Provide quiet workspace
- Transform printed words into graphic aids (crescent and gibbous)
- Extra time for oral responses
- Computer or tablet for word processing or text-to-speech capability
- Provide paper copy of instructions
- Use the word "lunar" to associate with the Spanish word "luna" to help EL students

Materials/Resources

- Black and White Posters
- Velcro for walls
- Labels with Velcro
- Science Journal
- Fill in the blank worksheet
- Glue
- Pencil
- Clear cups
- Black markers
- Black and yellow construction paper
- Labels for cups
- Oreos
- Plastic spoons

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- Blank paper with Earth and Sun drawn
- Phases of the Moon Anchor Chart
- Exploration Video Link: <https://www.youtube.com/watch?v=yXe0yxzYkjo>
- Fill in the blank worksheet - [PhasesoftheMoonSolarandLunarEclipsesScienceNotes-1.pdf](#)
- Elaboration Cup Activity - <https://happytotshelf.com/moon-phases-learning-toy/>
- Evaluation Oreo Activity - <https://gosciencegirls.com/oreo-cookie-moon-phases/>
- Closure Anchor Chart - <https://www.teacherspayteachers.com/Product/EARTH-SCIENCE-SCAFFOLDED-NOTESANCHOR-CHART-Phases-of-the-Moon-7068827>