

LESSON PLAN

Teacher's Name: Samantha Green
Date: 20 November 2014
Professor/Cooperating Teacher's Name: Dr. Ed Donovan
Course: EDEL 448: Teaching Science in the Elementary School
Time: 9:25am – 11:55am
School District: None
School/Room: USC Upstate/Health Education Complex (HEC) 2007
Grade Level(s): 4 th Grade
Subject (Circle all that apply): Science-Astronomy , Mathematics-Patterns , Social Studies , Language Arts , Reading
Lesson Title: Phases of the Moon
Activity Source(s): http://www.moonconnection.com/moon_phases.phtml http://aa.usno.navy.mil/faq/docs/moon_phases.php http://teachers.henrico.k12.va.us/staffdev/clough_d/moon/links.html http://www.usc.edu/org/seagrant/Education/IELessons/Docs/MoonAndTides.pdf
Value/Learning Goal (Why we are doing this lesson?): The students will begin their exploration of STEM concepts and inquiry by creating a tangible model of the phases of the moon and using the model, create mathematical pattern, and explain the pattern.
Advanced Organizer/Theme(s): KLW chart, Moon Phase/CD model, patterns, demonstration
Types of Learning: Visual-Spatial, Bodily-Kinesthetic, Musical, Interpersonal, Logical-Mathematical
Essential Questions/Big Ideas: <ol style="list-style-type: none"> 1. How are day and night caused? – Day and night are caused by the rotation of Earth on its axis. 2. Why does the moon shine at night? – The moon reflects the light of the sun. 3. Why does the moon look different every night? – The moon goes through phases because it orbits around the Earth while it reflects the Sun's light. 4. How does the moon affect the tides? – Tides are caused by a gravitational tug-of-war between the sun, moon, and earth.
Major Topic(s)/Concepts Addressed (and/or Conceptual Framework): Gravitational force, rotation on axis, moon phases, sun's reflection, orbit
Process Skill(s) and/or Learning Domain: Observing, communicating, collaboration, critical thinking, problem solving
Main Teaching Strategies: Demonstrating, summarizing, creating, analyzing, evaluating
Standards & Indicators Addressed: South Carolina Science Standard 4-3.6: Illustrate the phases of the Moon and the Moon's effect on ocean tides. Common Core State Standard Math 4.OA.C5: Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself.
Organizational Sizes in Instruction (Circle all that apply): Whole Group , Small Group (Size = 2 & 4)
Purpose (Plan) – (What will we be doing?): The students will explore the phases of the moon and its affect on the tides by creating a visual representation of each phase on a "wheel".
Materials, Resources & Technology Needed/Used: Recycled CDs (one for each student) Promethean Board (with audio) "S'more" digital flyer (https://www.smores.com/566y1-phases-of-the-moon) (visual lesson plan for students) Construction Paper (different colors) Scissors (for pairs of 2) Glue (for pairs of 2) Markers Metal Brads (one for each student) Dry Erase Board Dry Erase Markers

Literature - Author, Title & Date; What will you do with the literature? Questions?:

The Moon Book by: Gail Gibbons, *Phases of the Moon* by: Gillia M. Olson

The literature will be used to introduce the topic of the Phases of the Moon to the class. The teacher will allow the students to complete a KWL chart while the teacher reads these two books to the class. The students will be instructed to complete the K and W columns of the chart.

Objectives - The learner will (Use 1.0, 2.0, etc.):

1.0 The students will be able to explain the phases of the moon.

2.0 The students will be able to model each phase of the moon.

3.0 The students will be able to collaboratively create a pattern with the phases of the moon.

Related Activities/Math Skills:

Math Skills: Finding and labeling patterns using the phases of the moon.

Safety Provisions:

The teacher will explain to the students about scissor safety since they will be using these to cut the construction paper. The teacher will explain that bending or breaking of the CDs could potentially cause harm to the students and they should avoid doing either one. The teacher will also explain to the students how to properly use the metal "buttons" since these have sharp edges and could potentially break the skin.

Procedure (Exploration, Explanation & Elaboration; Introduction/Set & Activity that includes Engagement, Launch, Anticipatory Set, Hook; List Using 1.1, 1.2...2.1, 2.2...):

1.1 Lesson Introduction

1.2 The teacher will give each student a KWL chart. She will tell the students the topic is Phases of the Moon and she will allow them to fill in the K column in the chart.

1.3 The teacher will introduce the lesson by reading two different books to the class. The first book is *The Moon Book* by: Gail Gibbons and the second book is *Phases of the Moon* by: Gillia M. Olson.

1.4 After reading both books, the teacher will instruct the students to fill in the W column in the chart. They should just list the books that were read as an inspiration to want to learn, and any other questions or speculations they had prior to the lesson introduction.

2.1 Lesson Content

2.2 The teacher will load the S'more and have it displayed on the Promethean board. The teacher will first tell the students the objectives of the lesson.

2.3 The teacher will next ask student if they know the phases of the moon. (Most students will respond with the Full Moon or Crescent Moon or New Moon). The teacher will inform the students that there are actually 8 phases of the moon. After the teacher tells the 8 phases, she will scroll down on the S'more to display the 8 different phases of the moon

2.4 The teacher will tell the students a neat trick of how to remember the difference between a waxing and waning moon. (*Wax on [light on], Wan off [light off]*)

2.5 The teacher will pause here and ask if anyone has any questions/comments/concerns before moving on.

This is a great time to pause, because students may get confused with the "trick" and need further explanation.

2.6 Next, the teacher will scroll down to the Fast Facts section. This section contains interesting facts about the moon and its phases. The teacher will address the question in the Fast Facts section about illumination. After the students have answered the question, she will show the clip of the illumination of the moon.

3.1 Technology

3.2 The next section on the S'more is the Crazy Cool Moon Links. These links are all educational and extensions to the lesson.

3.3 The teacher will begin by showing the students what the moon looks like today. This link shows what day the moon cycle is in as well as the illumination of the moon. (This link will also be used for the Moon Journal [see Extension Activities] to enforce what the moon looks like as well as the percent of the moon that illuminated).

3.4 The teacher will next show the student the Phases of the Moon From Earth and Space. This link is a GIF clip that shows the phases of the moon from Earth and from space. It also shows the types of moon that is displayed in the clip.

3.5 The teacher will not show the other links. These links are listed for the student's reference in hope of extrinsically motivating them to want to know more than expected.

4.1 Activity

4.2 The teacher will scroll down the S'more to the Activity section. This section displays the directions for the activity.

4.3 The teacher will read over the directions for the entire class and instruct the students to get in pairs of 2.

4.4 After she has read the directions, she will pass out the materials: construction paper, recycled CDs, metal brads, glue, and scissors.

4.5 While the students are working on the activity, the teacher will walk around the room to help students who

