

NGSS Comet Lesson Plan: Day 1

Grade: Five	Topic: Space Systems: Stars and the Solar System	Lesson # <u>1</u> in a series of <u>5</u> lessons
Brief Lesson Description: Students will meet in groups to discuss what information scientists need to know about comets, and develop ideas how to find out that information. These ideas will be based on thinking about how scientists investigate smaller items on earth with tools available on earth.		
Performance Expectation(s): The student will cooperatively work with their group to develop a list of information scientists need to know about comets, as well as ideas how scientists might learn that information.		
Specific Learning Outcomes: The student will extend their understanding of comets through collaboration, discourse, and research. Students will understand that scientists learn about comets by asking similar questions and utilizing similar tools as they use for an investigation on earth.		
Narrative / Background Information		
Prior Student Knowledge: Students have an understanding that comets are astronomical bodies.		
Science & Engineering Practices: Analyzing and Interpreting Data Represent data in graphical displays (bar graphs, pictographs, and/or pie charts) to reveal patterns that indicate relationships. (5-ESS1-2) Engaging in Argument from Evidence Support an argument with evidence, data, or a model. (5-PS2-1),(5-ESS1-1)	Disciplinary Core Ideas: PS2.B: Types of Interactions The gravitational force of Earth acting on an object near Earth’s surface pulls that object toward the planet’s center. (5-PS2-1)	Crosscutting Concepts: Patterns Similarities and differences in patterns can be used to sort, classify, communicate, and analyze simple rates of change for natural phenomena. (5-ESS1-2) Cause and Effect Cause and effect relationships are routinely identified and used to explain change. (5-PS2-1)
Possible Preconceptions/Misconceptions: Students are not sure what a comet is, using the term interchangeably with asteroid and meteor in classroom discussions.		
LESSON PLAN – 5-E Model		
ENGAGE: Opening Activity – Access Prior Learning / Stimulate Interest / Generate Questions: YouTube video: “The Top Ten Comets of All Time” https://youtu.be/XcEq9O94tL ; Introduce the Unit Question: What natural forces could cause a comet to crash into the earth? This question is based on the ELA selection of the week, “Davy Crockett Saves the Earth”. In this Tall Tale, Davy Crockett saves the earth by wrestling Halley’s Comet. The questions for this lesson are: What do you, as a scientist, need to know about your comet? How can you find out that information?		
EXPLORE: Lesson Description – Materials Needed / Probing or Clarifying Questions: For this lesson, seven spherical objects are wrapped in foil. These represent comets. Each group places the string of yarn from their science tub in the shape of a circle on a flat surface. This represents space. Inside the yarn circle, the teacher places the “comet”. Students are not able to reach across “space” to explore their “comet”. They must think like a scientist, and, as a group, decide what information they need to know about their “comet”, focusing on its properties. Then, they must develop ideas concerning		

how they could find out that information.

This information is recorded in their science journals.

Class brainstorming session: List is generated on the white board, listing information scientists need to know, and means, methods, and tools scientists could use to learn that information. This is built on student knowledge about scientists' investigations and tools used on earth.

At this point students develop two claims that answer the lesson's questions, and record it on their recording sheet.

EXPLAIN: Concepts Explained and Vocabulary Defined: Using a Triple Venn Diagram to organize information

Vocabulary: Properties: characteristic, what something is like

Universe small bodies: comets, asteroids, and meteors

Comet: composed of ices and rock, elliptical orbits originating at the outer edges of the Solar System; only a few kilometers in diameter

Asteroid: metallic, rocky bodies that orbit the sun, size can range from very small to very large.

Meteor: very small

ELABORATE: Applications and Extensions:

Students will watch the Discovery Education Video "Space Exploration: Comets", learning basic information about comets.

EVALUATE: Students will add to their CER, listing properties of comets that scientists need to know and methods scientists use to find that information.

