

## INSPIRE GK12 Lesson Plan



<b>Lesson Title</b>	Rocket Time!
<b>Length of Lesson</b>	One (50 minute) class period
<b>Created By</b>	Bo Cherry
<b>Subject</b>	General Science
<b>Grade Level</b>	7 <sup>th</sup> grade
<b>State Standards</b>	7 <sup>th</sup> : 1 f (Inquiry); 4 e (Earth and Space Science)
<b>DOK Level</b>	DOK 2
<b>DOK Application</b>	Investigate, Compare, Make Observations
<b>National Standards</b>	5-8: A (Inquiry); D (Earth and Space Science)
<b>Graduate Research Element</b>	Satellite imagery is used often in geosciences, which is related to space exploration in that it uses much of the same technology.

### **Student Learning Goal:**

#### MS 7th Grade:

(Inquiry) 1 (f) Explain how science and technology are reciprocal (DOK 1); (Earth and Space Science) 4 (e) Research and develop a logical argument to support the funding of NASA's Space Programs. (DOK 3)

#### National Science Education Standards of Content 5-8:

(Inquiry - A) Think critically and logically to make the relationships between evidence and explanations; (Earth and Space Science - D) Earth in the solar system.

### **Materials Needed (supplies, hand-outs, resources)**

Computer, Projector, Powerpoint (INSPIRE\_Cherry\_PP\_12.1.11), straws, play-doh, tape, index cards, scissors, rocket launcher

<http://jleslie48.com/straw09/Straw%20Rocket%20Lesson%20Material%20with%20BIG%20IDEA%20STD.pdf>

### **Lesson Performance Task/Assessment:**

This lesson will introduce students to the history the development of the modern multistage rocket. The powerpoint will show students previous attempts at space exploration and the advances made through time. Also included in this lesson will be the contribution of Mississippi as a state to space exploration. Finally, students will have the opportunity to construct their own rocket. In groups of two, students will use a straw, play-doh, tape, and index cards to design and construct a rocket. There will be two competitions: greatest distance and closest to a target. Each team will get two trial runs and one real attempt for each competition. It will be important for students to understand variables at this point. Students must understand that the power at which they launch the

## INSPIRE GK12 Lesson Plan



rocket is just as important as the angle at which they launch the rocket. They cannot change both variables and expect to know how the rocket will fly.

### **Lesson Relevance to Performance Task and Students:**

This lesson will show students how the modern rocket has developed. The interesting history behind the rocket will show students failed attempts at space travel, as well as show students how modern technology has put hundreds of rockets into space. Special attention will be paid to making sure students understand the reason multistage rockets work well for sending satellites and capsules into orbit or into space. Key terms that students need to know for a complete understanding will be briefly discussed. All of this will be done through a powerpoint presentation. This will become relevant to students as they learn about Mississippi's contribution to space exploration.

### **Anticipatory Set/Capture Interest:**

The capture interest for this lesson will be a video that Dr. Donna Pierce recorded at a recent launch in Florida. This will capture student's interest while also making it relevant to students because it was recorded by a colleague.

### **Guided Practice:**

This lesson will guide students through the history of the rocket and space exploration by using a powerpoint presentation. The lesson will include pictures and stories about previous attempts at space exploration. Also, for the activity, an example rocket will be made for them.

### **Independent Practice:**

Students will be required to take notes during the powerpoint presentation. These notes will be used to study for test material following the lesson. Also, constructing rockets on their own will be more independent practice.

### **Remediation and/or Enrichment:**

Remediation - Individual IEP

Enrichment - Have students research various types of space vessels and explain differences between all of them.

### **Check(s) for Understanding:**

The instructor should be moving around the classroom in order to check the students' notes as they move through the lesson. Also, formative feedback from the students will be important as a check for understanding.

### **Closure:**

## INSPIRE GK12 Lesson Plan



Question 1: Why, in a time when our nation is in a huge recession, would our government want to put millions or even billions of dollars into space exploration?

Question 2: How does a multi-stage rocket help the rocket escape Earth's gravitational pull?

**Possible Alternate Subject Integrations:**

Physics, Physical Science, Astronomy

**Teacher Notes:**

None