

LESSON: The Birth of the Space Shuttle

Title: The Birth of the Space Shuttle
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Lesson Overview:

Students will learn about the history of the Space Shuttle and the planning process that made NASA's dream of having a reusable launch vehicle a reality.

Suggested Classroom Time: 60 minutes

Grade Levels: 6-7

KLASS Module: 2-Orientation

Topic/Console: Shuttle Information

Materials Needed:

Activity	Documents	Other Materials
1	Background information: http://www.nasa.gov/centers/kennedy/shuttleoperations/index.html http://history.nasa.gov/shuttlehistory.html	Demonstration computer with Internet connection or Shuttle poster/photo
2	RDG_Birth-Space-Shuttle.doc	
3	AS_Birth-Space-Shuttle.doc KEY_Birth-Space-Shuttle.doc	Writing tools

National Standards/Objectives:

Discipline	Standard	Objective
Science	E. Science and Technology	Students discover the abilities of technological design.
Science	G. History and Nature of Science	Students explore science as a human endeavor.
Technology	Social, ethical, and human issues	Students understand the ethical, cultural, and societal issues related to technology.
Math	Measurement	Students apply appropriate techniques, tools, and formulas to determine measurements.

Desired Results:

Students will be able to answer these essential questions

- How did the concept and design of the Space Shuttle begin?
- What were the obstacles and successes for the Space Shuttle program in its early years?

Students will know

- That NASA's efforts to design and build a reusable launch vehicle took great effort and funding.

Students will be able to

- Summarize the design, budget, timeline, and testing process for the initial Space Shuttle missions.

Learning Plan/Activities:**1. Introducing the Lesson.**

Show a poster or brilliant photo of the Space Shuttle launching.

Script: "When I look at the Space Shuttle, I am completely in awe over its complexity and brilliance. Realizing that it is the most sophisticated system ever built, my mind wonders how it all started. What kinds of questions come to mind when you look at this photo? For example, how did it all start? How was the Space Shuttle born? Specifically, how was it designed? Who approved the design? Who paid for the design and prototyping? How did they test the first system?"

2. Presenting and Exploring Information.

Pass out the *Birth of the Space Shuttle* document (RDG_Birth-Space-Shuttle.doc). Explain to the class if you want them to read quietly, read along with you, or take turns reading aloud.

3. Evaluating the Lesson.

Have students work through the *Birth of the Space Shuttle* assessment (AS_Birth-Space-Shuttle.doc). When they are finished, review their answers with them and help them work through any questions they may have. Note that this activity has 3 Exploring Further problems to solve. Explain to the class how you will be grading/scoring this activity, and if the last 3 questions are required or are for extra credit.

Assessment Evidence:

Performance Tasks

1. Collect and evaluate the student work on the *Birth of the Space Shuttle* assessment (AS_Birth-Space-Shuttle.doc).
2. Give feedback regarding how they worked during the class session, and discuss strategies used for solving the computation problems.

Other Evidence

1. Perform normal classroom observation and assessment of progress and participation.

Extensions and Going Further Resources:

Using the Launch Archives site as a great data source, implement one or more of the following activities based on the subject and grade level. <http://www.nasa.gov/centers/kennedy/shuttleoperations/archives/2005.html>

- Have the students create a collaborative timeline for the entire history of the Space Shuttle. Assign each student a time period to research and have him or her tape their timelines together to hang across the room.
- Have the students each write 3 computation problem sets to exchange with their peers. Of course, before they can “quiz” others, they will have to create the answer key.
- Have the students analyze trends in the mission data. This is a skill that NASA engineers perform in their quest for process and product improvement. Possible tools could be Excel, charts, and tables or graphs.
- Be sure to check for student opportunities, additional educational resources and more at: <http://www.nasa.gov/education>