

Lesson Plan

Space Shuttle Summaries

Book: *The Space Shuttle Missions*

Series: Destination Space

Level: Voyager

Objective

To help students practice objectively summarizing a text.

Supplies

- *The Space Shuttle Missions*
- Space Shuttle Summaries Guided Reading Assignment (attached)
- Paper and pencils

Before the Activity

Have students read *The Space Shuttle Missions*. Divide students into six groups. Print one copy of the Space Shuttle Summaries GRA. Cut the questions on the GRA apart so that the questions for each shuttle are on a separate slip of paper.

Activity

The Space Shuttle Missions gives an overview of NASA's space shuttle program, including the accomplishments of each of NASA's five space shuttles. Split the students into their groups, and give each group a slip of paper related to one of the shuttles. The students in the group should reread the chapter describing that shuttle. Then they should write a brief summary (four to five sentences) describing the major events or achievements of that shuttle.

After each group has written a summary, have each group choose a spokesperson to read the summary out loud to rest of the class.

Evaluation

Give students up to 5 points for creating an accurate, objective summary. Answers will vary, but the attached answer key lists some of the main accomplishments of each space shuttle.

Standards

This lesson may be used to address the Common Core State Standards' reading informational texts standards, grade 6 (RI 6.2).

Space Shuttle Summaries GRA

Group 1: *Enterprise*

The first orbiter was going to be named *Constitution*, in honor of the US Constitution's 200th anniversary. But fans of the TV show *Star Trek* wrote to President Gerald Ford and asked him to change its name to *Enterprise*. Read Chapter 2 ("The *Enterprise* Orbiter"), and write four to five sentences summarizing important events and achievements related to this shuttle.

Group 2: *Columbia*

Columbia was named after two famous vessels. One was the first ship in the US Navy to circle the entire globe. *Columbia* was also the name of the command module during Apollo 11, the first mission to land on the moon. Read Chapter 3 ("From Trailblazing to Tragedy"), and write four to five sentences summarizing important events and achievements related to this shuttle.

Group 3: *Challenger*

Challenger was named after the HMS *Challenger*, a British ship that explored the Atlantic Ocean and the Pacific Ocean during the 1870s. *Challenger* was also the name of the lunar module during the Apollo 17 mission. Read Chapter 4 ("The *Challenger* Disaster"), and write four to five sentences summarizing important events and achievements related to this shuttle.

Group 4: *Discovery*

Discovery was named after two sailing ships from the 1600s. Henry Hudson used one to search for a passage between the Atlantic and Pacific Oceans. Captain James Cook commanded the other ship. Read Chapter 5 ("Satellites, Spacecraft, and *Discovery*"), and write four to five sentences summarizing important events and achievements related to this shuttle.

Group 5: *Atlantis*

Atlantis was named for a research ship used from 1930 to 1966 by the Woods Hole Oceanographic Institute in Massachusetts. The ship's crew used the first electronic sounding devices to map the ocean floor. Read Chapter 6 ("*Atlantis* and Space Exploration"), and write four to five sentences summarizing important events and achievements related to this shuttle.

Group 6: *Endeavour*

Endeavour's name was chosen by students in schools across the United States. They sent suggestions, and President George H. W. Bush announced the winner. *Endeavour* was named for a ship that explored Australia and New Zealand. Its crew discovered many new plant and animal species. Read Chapter 7 ("The Last Shuttle"), and write four to five sentences summarizing important events and achievements related to this shuttle.

Space Shuttle Summaries: Answer Key

Group 1: *Enterprise*

- The *Enterprise* was first orbiter built by NASA (p. 11).
- It was not a complete space shuttle. It was built for the Approach and Landing Test program, not for actual spaceflight (p. 11).
- Two crews used it to do ground tests, glide flights, and vertical ground vibration tests (pp. 12–13).
- These tests helped NASA prepare to launch a shuttle (p. 13) and land the orbiter safely (p. 12).

Group 2: *Columbia*

- *Columbia* was the first complete space shuttle, so it included not just an orbiter but also an external fuel tank and rocket boosters (p. 15).
- It made the first successful space shuttle mission in April 1981 (p. 15).
- It was also the first space shuttle to carry Spacelab, a research laboratory used by astronauts to do experiments in space (p. 16).
- *Columbia* deployed the Chandra X-Ray Observatory (p. 18).
- The shuttle exploded while landing on February 1, 2003, and its seven crew members were killed (p. 18).

Group 3: *Challenger*

- *Challenger* used a new, lighter design (p. 21).
- During the shuttle's second mission, Sally Ride became the first female American astronaut to go to space (p. 22).
- *Challenger* planned to carry teacher Christa McAuliffe to space (p. 22).
- The shuttle exploded during launch on January 28, 1986, and the seven-member crew died (p. 24).
- An investigation found that the shuttle's O-rings had failed as a result of the cold weather during the launch (pp. 24–25).

Group 4: *Discovery*

- *Discovery* launched three communications satellites during its first mission to form part of the TDRS constellation (p. 29).
- The shuttle also deployed the Hubble Space Telescope (p. 30).
- *Discovery* helped to construct the International Space Station (p. 31–32).
- *Discovery* carried more astronauts than any other shuttle (p. 33).
- Crew members included the first African-American commander, Frederick Gregory, and the first female pilot, Eileen Collins (p. 33).

Group 5: *Atlantis*

- *Atlantis* deployed the space probe *Magellan*, which orbited Venus (p. 35).
- The shuttle also deployed the space probe *Galileo*, which orbited Jupiter (p. 36).
- *Atlantis* was the first space shuttle to dock with the Russian space station Mir (p. 36).
- *Atlantis* carried parts of the International Space Station into orbit (p. 36).
- Astronauts aboard the shuttle conducted science experiments (p. 37).

Group 6: *Endeavour*

- *Endeavour* was the last space shuttle built by NASA (p. 41).
- During its first mission, crew members grabbed and repaired a communications satellite (p. 41).
- During this challenging mission, they performed the first three-person space walk (p. 42).
- *Endeavour* helped to construct the International Space Station (p. 42).
- The shuttle flew its last mission in May 2011, when the space shuttle program was also nearing its end (p. 43).