My Mission, My Patch

Grade 4 Academic Lesson #7

Topics: mission patches, space history, symbolism (science, social studies, language arts)

Length of Lesson: 45 minutes

Lesson Reference: U.S. Space Camp for Educators

Objectives:

- Students will understand the purpose of NASA mission patches.
- Students will analyze mission patches to identify U.S. manned mission events and learn space history.
- Students will create their own mission patch.

CCSS ELA Standards:

- RI.4.1-Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.
- RI.4.3-Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text.
- RI.4.4-Determine the meaning of general academic and domain-specific words or phrases in a text relevant to a grade 4 topic or subject area.
- RI.4.10-By the end of year, read and comprehend informational texts, including history/social studies, science, and technical texts, in the grades 4-5 text complexity band proficiently, with scaffolding as needed at the high end of the range.

Background Information: (from NASA Explores)

Mission patches have become a part of every manned spaceflight mission. Today's astronauts launch with patches of their own design sewn on the suits to represent the objectives and goals of their missions. This wasn't always the case. The Mercury astronauts launched with only the NASA insignia sewn on their suits. The Mercury patches we see today were made after the missions to commemorate the flights. The first flight to use a patch in addition to the NASA patch was Gemini IV. This flight crew wore an American Flag patch on the shoulders of their pressure suits. This patch has become a permanent addition to all pressure suits worn by American astronauts.

The crew of Gemini V created the first crew-designed mission patch to be worn in space. This began the trend of mission patches being created to represent the crew's mission and to personalize their flight. Each crew works together to come up with a rough idea for the design of the patch. This idea is then given to a graphic designer to finalize the design and create the final images that will be made into a patch. The patches are then worn on the right chest of the space suit, below the astronaut's nameplate.

Materials:

- drawing paper, copy paper, or card stock
- pencils, crayons, and/or markers
- Teachers need a free account with Newsela. The articles below are appropriate for this lesson and will allow students to meet the ELA standards attached to this lesson.
  - "Dream Jobs: Astronauts"
  - "The Explorers: Dr. Mae C. Jemison"
  - "John Glenn, an All-American Hero, Astronaut and politician, has died"

NOTE: The more mission patch examples you can show and discuss with the students, the more creative their own individual patches will be! You may want to watch a brief video about mission patches for your own background knowledge, or show them to your class.

"Our World: Mission Patches"

"8 Days or Bust: NASA's First Mission Patch"

"Design a Mission Patch"

Lesson Presentation:

1. Ask students if they know what a NASA mission patch is. Tell students that they will be studying NASA mission patches today. Explain to students that a mission patch is a patch designed by astronauts to show special qualities/tasks related to their

mission. In 1965, astronauts began using patches to personalize their mission. (If you have an example to show students, show them at this time.) Although astronauts could use design artists to help them, the crew was involved in the creation of their patch. Tell students that the astronauts wore their patch on their flight suit. Copies of the patch also become available for people to purchase.

2. Break students into small groups and give each group one of the three articles above and a small piece of posterboard. Allow students to read the article and note five things they learned from the article.

3. Allow each group of students to present what they learned from the articles and share with the group.

4. Tell students that the patches are full of symbolism. Tell them that they will practice analyzing patches today to help them learn about some past space missions. Tell them to pay close attention to the design techniques the astronauts used as they (the students), will design a patch a little later.

5. Show students the mission patch created for the first U.S. manned space mission. Tell students that this mission took place in 1961, which was before astronauts designed patches for their mission. This patch was made later to commemorate Alan Shepard's Mercury 3 flight. Explain the symbolism for the mission patch.

   ➢ **Mercury 3**.
   - Mercury 3: third launch in the Mercury Program, which was the name of NASA's first manned space program
   - Shepard: last name of the astronaut on this flight, Alan Shepard, who was America's first man in space
   - Lines coming from Florida attached to capsule: represents Shepard launching from Florida, going up to space, and landing in the ocean (Shepard's entire flight lasted about 15 minutes.)
   - Freedom 7: name of Shepard's capsule ("Freedom" represents the free people of the U.S. and the fact that Shepard was the first "free" man in space. Even though the Soviet Union was the first country to launch a man into space, the Soviet Union was a communist country. The "7" represents the manufacturing model number on his capsule; however, the "7" came to represent the 7 astronauts who were part of the Mercury Program.)

6. Continue showing pictures and discussing the symbolism. As you continue, **ask students** to provide their ideas for patch meanings.

- ➢ **Mercury 6:** John Glenn is the first U.S. man to orbit Earth (1962)
    - Mercury 6: "Mercury" is the program name. The "6" indicates the sixth flight in the Mercury program.
    - Friendship 7: "Friendship 7" is the name of Glenn's space capsule. "Friendship" represents a message that Glenn wanted to convey to the world – friendship. His wife and kids came up with the name. The "7" represents the 7 men selected to be astronauts in the Mercury Program.
    - three circles of thread around the Earth: symbolize Glenn's 3 orbits
    - Friendship 7 shape: designed to look like the capsule headed for re-entry.

- ➢ **Gemini 5:** first mission to have an official crew patch (1965); All of the patches you see prior to Gemini 5 were made sometime after their flight. In the Mercury Program, astronauts named their capsules as a way of personalizing their mission. After Gemini 3, astronauts were told they could no longer name their capsules. Cooper and Conrad thought that designing a mission patch would be a great way to personalize their mission. This practice became a requirement.
    - Conestoga wagon: pioneering nature of the early space missions
    - Cooper and Conrad: astronauts of Gemini 5 mission
    - 8 Days or Bust: mission's motto (mission was to stay 8 days in space)
      This motto was left off the crew's patch during the flight, but was shown after its successful completion. (Had NASA allowed the motto to be displayed during the flight, NASA worried that the mission may have been forever referred to as a bust if something had prevented the flight from being successful.)

- ➢ **Gemini 12:** last mission of the Gemini Program, America's second manned space program (1966)
    - Lovell and Aldrin: astronauts in Gemini 12 mission
    - XII: twelfth mission of Gemini and the number "12" that appears on a clock
    - position of the capsule: hour hand of a clock
      The capsule pointing to the "XII" at the top of the patch represents the position of Gemini 12 as the last Gemini flight.
    - waning crescent moon: end of Gemini and beginning of a new program, Apollo, with the ultimate objective to land men on the moon
    - color scheme of orange and black: represents the season in which Gemini 12 was originally scheduled to launch, October

- ➢ **Apollo 8:** first U.S. manned mission to orbit the moon (1968)
    - Borman, Lovell, Anders: astronaut crew of Apollo 8
    - shape of patch: looks like Apollo capsule
    - deep royal blue background: represents deep space
    - red figure eight: Apollo mission number 8 and the flight path of the capsule - from the Earth to the moon and return to Earth

Apollo 11: first manned mission to land on the moon (1969)
- eagle: represents American spirit and name of the lunar lander ("The Eagle has landed." – said after the astronauts landed)
- olive branch: represents peace (The original idea was to have it in the eagle's mouth, but NASA thought that it looked too aggressive.)

STS 51-L: supposed to be first teacher in space (1986)
- red apple: represents McAuliffe's profession (teaching/education)
- comet: represents Halley's Comet and symbolizes a mission objective to study the comet while in space
- open payload bay doors: represents preparation of a satellite for deployment
- Notice the shape of the patch. Does it remind you of a globe that you might find in a classroom?

Tell students that they will now try their hand at designing a mission patch. Tell them that they should design a patch that represents their mission in life, in other words, a patch that reflects their dreams and goals. (Another option is to have them create a patch that represents them as individuals. This type of patch would reflect their personality, things they like, and their skills or talents.)

Write the following steps on the board and tell students this will help them as they decide how to create their patch.
1) Outline the shape of your patch. Pick a geometric shape. (Choose to draw a circle, square, triangle, hexagon, or some combination of figures. Students may choose an object, such as a globe, for the outline of their patch.)
2) Draw items within the shape that symbolize your mission/goals in life. (Modify this statement if you are having the students create a patch that reflects something else.)
3) Color the patch. Remember that even color can be symbolic.
4) Write a paragraph explaining what your patch means. Why did you design it the way you did? What do the colors, shapes, and pictures in your patch mean?

Distribute copy paper, drawing paper, or card stock paper to the students. Have them use their pencils, crayons, and/or markers to design their patch.

Summarization:

Remind students of the old saying, "A picture is worth a thousand words." Mission patches are pictures that mean so much. Ask students why astronauts may have chosen to tell about their missions in pictures rather than words. Ask students if they can tell you about one patch in relation to the mission it signified and the astronaut who wore it.

Character Connection: Encourage students to think about how their actions and body language often tell more about them than the words they use. We like to see good character portrayed in our actions not just our words. Just knowing the right things to say doesn't have as much of an effect as our actions. Just like the mission patches, oftentimes, our actions/picture of our behavior show more than our words.

Assessment:

- teacher observation
- student mission patches
- Newsela article multiple choice and short answer questions

Additional activity ideas to enrich and extend the primary lesson (optional):

- Have students share their patches as they are placed on a bulletin board or on a wall in the room. (Students may wish to tape them to their desks.)

- Have students work in groups or individually to create a patch that reflects the mission of your fourth-grade class, school, community, state, and/or country.

- Have students research other patches using the websites below and share them with the class. These are just a few interesting patches to analyze: STS 1, STS 7, STS 8, STS 9, STS 71, STS 79, STS 88, STS 93, STS 95, and STS 107, Expedition 15 (an International Space Station patch).

Associated Websites:

- NASA: Mission Patches

- Explanation and pictures of many patches:
  Gene Dorr's website and

  Spacepatches website

- NASA: Space Shuttle Mission patches

Mercury 3

Mercury 6

GEMINI 5 Paving the Way

Gemini 12 Smithsonian Air & Space

Apollo 8 "Round the moon and back..."

The Making of the Apollo 11 Mission Patch

Shuttle Mission 51-L