

Design a Mission Patch

Student Worksheet

Name(s): _____

Mission Name: _____

It is time to embark on a new adventure. Space missions use a mission patch to represent who is involved, what they care about, and what the mission is trying to achieve.

A mission patch is an emblem that tells the story of a mission through pictures, colors, shapes, and symbols. Your task is to design a patch for a mission such as:

- A microgravity flight
- A classroom project or research investigation
- A school event or year-long theme

Use the planning space below before you sketch your final patch.

1. Colors and Shapes

Ideas:

Symbolism (what they stand for):

2. School or Team Values

What does your class, team, or school stand for (for example: curiosity, teamwork, courage, service, innovation)?

Ideas:



The insignia representing the **SpaceX Crew-4 mission to the International Space Station** depicts a dragonfly and highlights the crew members Commander Kjell Lindgren, Pilot Robert Hines and Mission Specialists Jessica Watkins and Samantha Cristoforetti.

Kjell Lindgren described the meaning behind the patch:
 “The free-flying Dragon capsule forms the thorax of the central element of the patch, the Dragonfly – a beautiful and agile flyer. For many, the dragonfly represents transformation and good fortune. On its way to the International Space Station, the capsule appears suspended in low Earth orbit with the Earth below and Moon above. Four bright stars represent the four crewmembers’ families and their steadfast patience, love and support. The remaining multitude of stars represent the countless members of the NASA, SpaceX and international partner teams, whose ingenuity, vigilance and tireless work has made this mission possible.” [NASA.gov](https://www.nasa.gov)

Symbolism:

3. Mission Name, Goals, and Trajectory

What is your mission trying to do or discover? Where is it going (for example: parabolic flight, Moon, Mars, orbit around Earth, your community)?

Ideas:

Symbolism (arrows, paths, stars, orbits, etc.):

4. Heritage and Community

You may want to include symbols that show where you come from or who is involved.

Examples: flags, maps, local landmarks, mascots, cultural symbols, or school initials.

Ideas:

Symbolism:

5. Space and Science Elements

Choose at least one space or science element that connects to your mission.

Examples: spacecraft, satellite, planet, star field, astronaut, lab equipment, sound waves, data graphs.

Ideas:

Symbolism:

6. Other important elements, like collaborators, sponsors, inspirational.

Ideas:

Symbolism:

Final Step

At the bottom or on the back of your paper, quickly explain your design to someone using this sentence frame if helpful:

"My mission patch shows _____ because _____."

When you are ready, use a mission patch outline handout or draw your own shape and create your final design.

For patch outline shapes, you can search online for "mission patch template" or "NASA mission patch outline" to find blank templates.

Teacher Handout: Design a Mission Patch

Target grade level: All grade levels

Time frame: One 30-minute lesson for discussion and planning, plus additional time for drawing or coloring as available

Purpose

Students will:

- Recognize the purpose of a mission patch as a visual summary of a mission's story and goals.
- Identify basic elements of design (color, shape, symbols, text) used in NASA and international mission patches.
- Create a mission patch for a class mission, project, or event and explain their design.

This is intended as a simple, low-prep activity that blends art, storytelling, and space exploration.

Materials

- Mission patch planning worksheet (student handout above).
- Mission patch outline template or blank shapes for students to draw inside.
- Examples of real mission patches (printed or projected).
- Art supplies: pencils, colored pencils, markers.

You can find examples of real patches by searching for "NASA human spaceflight mission patches" or "ESA mission patches" on official space agency websites.

Quick Background for Teacher

Every NASA crewed mission since Gemini 5 has had its own mission patch. Astronauts and designers work together to choose the shape, colors, symbols, and text that tell the story of the mission: its destination, goals, and team.

Lesson Flow (Simple and Flexible)

1. Explore real mission patches

Show 3–6 examples from NASA or other space agencies. Keep the discussion informal and visual.

Prompt students to notice:

- Shapes (shields, circles, triangles, custom outlines).
- Colors they see again and again.
- Types of symbols (planets, spacecraft, stars, flags, numbers, paths or orbits).
- Where the mission name appears.

2. Define your class mission

Ask students to decide what mission their patch will represent. Options include a Zero-G or parabolic flight mission, a current classroom project or experiment, a year-long theme, or a schoolwide event.

Have students write their mission name at the top of their worksheet. They can use acronyms, numbers, or mythology as inspiration, for example "PROJECT AURORA."

3. Plan the patch using the worksheet

Students use the planning sections (colors, values, mission goals, heritage, space elements, favorite space object) to brainstorm.

Remind them:

- Every major part of the patch should mean something.
- Simple, bold images work better than tiny details.
- Text should be limited to the mission name, a short phrase, or a year.

Students do not need to fill every line. The worksheet is a guide, not a test.

4. Create the mission patch

Give students a mission patch outline or allow them to design their own patch shape. Provide time to sketch lightly in pencil, then add color.

Options to keep it engaging:

- Allow students to choose from several patch outline shapes.
- Encourage them to include at least one symbol that represents their local community or school.
- Invite them to include a small symbol that only classmates will recognize.

5. Share the stories behind the patches

Have students pair up or form small groups. Each student gives a brief explanation of their patch, including the mission name and goal, one or two symbols and what they represent, and how they used color on purpose.

You can end with a short "patch walk" where students leave their designs on desks and walk around to view them.

Optional Extensions

- Vote for a class or grade-level patch to represent a larger project and turn it into a sticker or printed emblem.
- Ask students to choose a real NASA or ESA mission patch and research the mission behind it as a short homework or presentation.