

# ACTIVITY 2

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## DESTINATION: STATION

### Objective

Students identify the International Space Station (ISS) and different types of rockets as objects in the sky built by humans.

### Standards

Science, Mathematics, Technology, Language Arts

### Materials

- Drawing of the ISS (Figure 1, page 73), colored
- Drawings of space shuttle (Figure 2, page 74, and Figure 3, page 75), colored
- Drawings of Proton (Figure 4, page 76) and Soyuz (Figure 5, page 77), colored
- Photographs of the ISS, rockets, and space shuttle
- Picture or drawing of the Sun
- Pictures or drawings of objects in the sky, some built by humans and some not built by humans
- Globe
- Chalkboard and chalk
- Bulletin board paper or floor graph
- Markers, crayons, and pencils
- Paper, 2 pieces per student

### Educator Information

- This activity requires two class periods to complete.
- Before the lesson begins, read the background information on the ISS, the space shuttle, and rockets. Be prepared to share this information with students.
- Collect pictures or drawings of objects in the sky, some built by humans and some not built by humans. Laminate drawings and photographs for future use.
- Prepare a floor graph with two columns or make a graph out of bulletin board paper. Draw a line to create two columns on the bulletin board paper. Label columns on the graphs with the titles, *yes* or *no*.

### Procedure

#### First Class Period:

1. Introduce the drawing of the ISS. Ask students if they can identify the drawing. Have students share what they know about the space station.
2. Share the background information provided on the ISS. Discuss that humans are building the station in space. If necessary, define the word, *human*.



3. Ask students to think about where the ISS is at this moment. Remind students that the station is constantly circling or orbiting the Earth. Use a globe to demonstrate how the station continuously circles the Earth. If appropriate, introduce the word, *orbit*.
4. Discuss the size of the space station. Ask students to generate ideas about how the station goes to space. Share with them that the station goes to space in pieces. Tell them that rockets play an important role in building the station.
5. Share the drawings of the Proton and Soyuz rockets and the STS (Space Transportation System), or space shuttle. Tell students that these are all rockets that go into space and take people, supplies, and parts to the ISS.
6. Look at the drawings of the ISS, Proton, Soyuz, and space shuttle. Ask students to generate ideas about who made these objects in the sky. Explain to students that people from different countries construct these space vehicles. The ISS, Proton, Soyuz, and space shuttle are all objects in the sky built by humans.
7. Ask students to think of other objects in the sky that people build. Ideas may include airplanes, hot air balloons, helicopters, satellites, and kites. Write a list of student ideas on the chalkboard.

### **Second Class Period:**

1. Using the drawings and pictures of the ISS, Proton, Soyuz, and space shuttle, review the concept of objects in the sky built by people. Review the list of human-built objects in the sky that students generated.
2. Show students a picture or drawing of the Sun. Ask students if people built the Sun. Explain to students that there are objects in the sky that are not built by humans. People

are building the ISS, but people did not build the Sun. Introduce the word, *natural*, if appropriate, to describe objects not built by humans.

3. Have students think of other objects in the sky that people did not build. Ideas may include birds, clouds, stars, lightning, and rainbows. Write a list of student ideas on the chalkboard.
4. Show students the pictures or drawings of objects in the sky. Explain to students that they will use a graph to sort or classify the pictures as objects in the sky built by people or not built by people. Use the floor graph with two columns or the bulletin board paper with two columns. One column is labeled with the title, *yes*. The second column is labeled with the title, *no*. Read and discuss the titles with the class.
5. Show students a picture or drawing of an object in the sky. Ask the question, “Is this object built by people?” Discuss the answer and look at the words, *yes* and *no* on the graph. Demonstrate placing the picture in the appropriate column.
6. Distribute the remaining pictures and drawings to students. Have students look at their picture or drawing, and ask, “Is this object built by people?” Students then answer the question. Have students place the picture or drawing in the appropriate column. Continue until each student has a turn.

## ***Assessment***

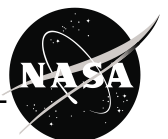
- Observe students as they place the pictures or drawings in the appropriate columns.
- Request that students draw two pictures, one of an object in the sky built by humans and one of an object not built by humans. Observe as students complete the drawings. The educator or the student can write the



name of the object on each drawing. Observe students as they place their drawings in the appropriate column on the floor graph or the bulletin board paper graph.

## ***Enrichment***

- Have students collect and bring in magazine pictures of objects in the sky. Allow them to share the pictures with the class. Ask students to determine whether the picture is of an object built by humans.
  - Allow students to sort the collected pictures using the floor graph or the bulletin board paper graph. Ask students if they can think of other methods to sort the pictures. Ideas may include placing pictures in circles or in boxes with appropriate labels.
  - When complete, the ISS will be the largest object built by people in space. The completed ISS will be the brightest object made by humans in the night sky. If a football field is available close to the school, take students outside to look at the field. Tell them that when it is complete, the space station will be approximately the size of two football fields placed side by side. Ask them to imagine how large a rocket would have to be to carry the ISS into space at one time.
  - Students can see the space shuttle and the ISS in the sky. The Spaceflight web site, <http://spaceflight.nasa.gov>, has information on sighting opportunities.
- Begin a class discussion about the size of objects in the sky. Using an airplane as an example, ask students if a plane appears smaller on the ground or in the sky. Based on their experience, most students will state that the plane appears smaller in the sky. Encourage students to generate ideas about why the plane looks smaller in the sky. Objects that are farther away appear smaller than objects that are closer. Help students reach the conclusion that the plane appears smaller because it is far away. If appropriate, take students outside to the playground. Have one student hold a drawing of the space station. Request that the other students stand close to the drawing and then slowly walk away. Ask students if the drawing appears smaller, the farther away they are. Remind students that when they see the space shuttle or the ISS in the sky, these objects will appear to be very small because they are far away.
  - Choose books from the *Suggested Reading* list or from other sources on space travel, rockets, and the space station. Share the books with the class. Ask students to look at the books and find pictures or drawings of objects in the sky. Encourage students to decide whether humans built these objects.



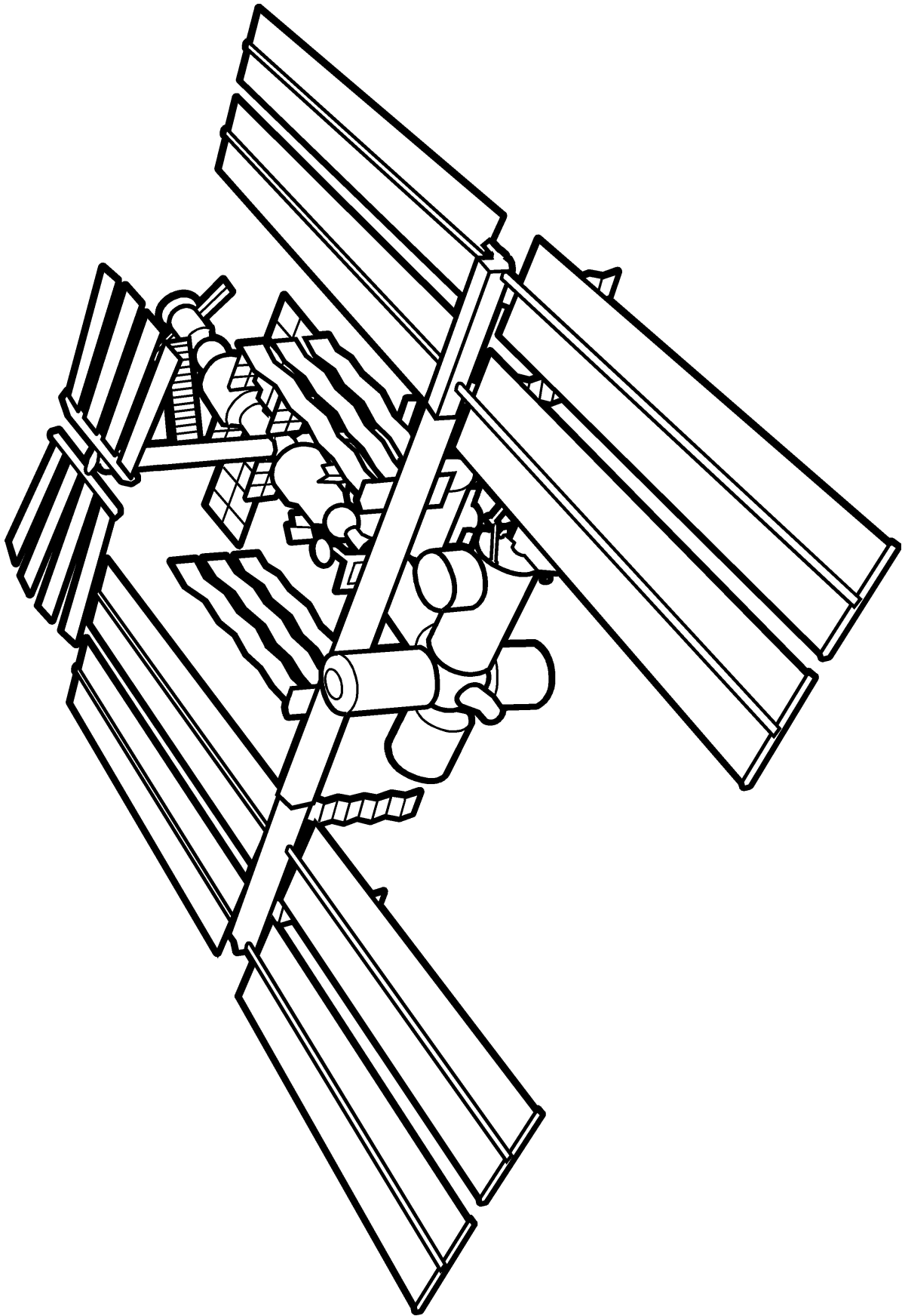
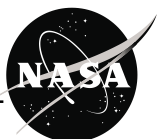


Figure 1. International Space Station (ISS)



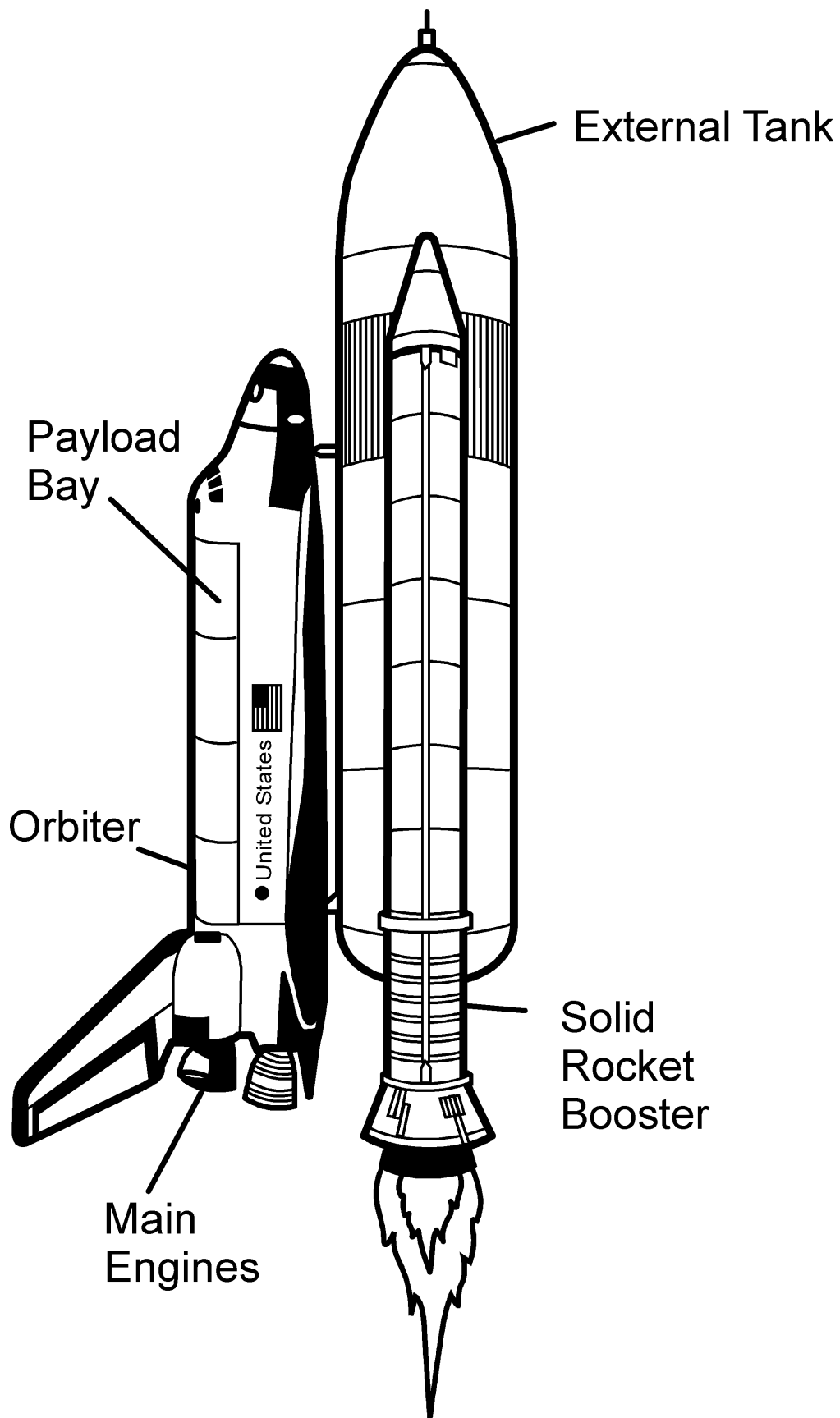


Figure 2. Side View of Space Shuttle



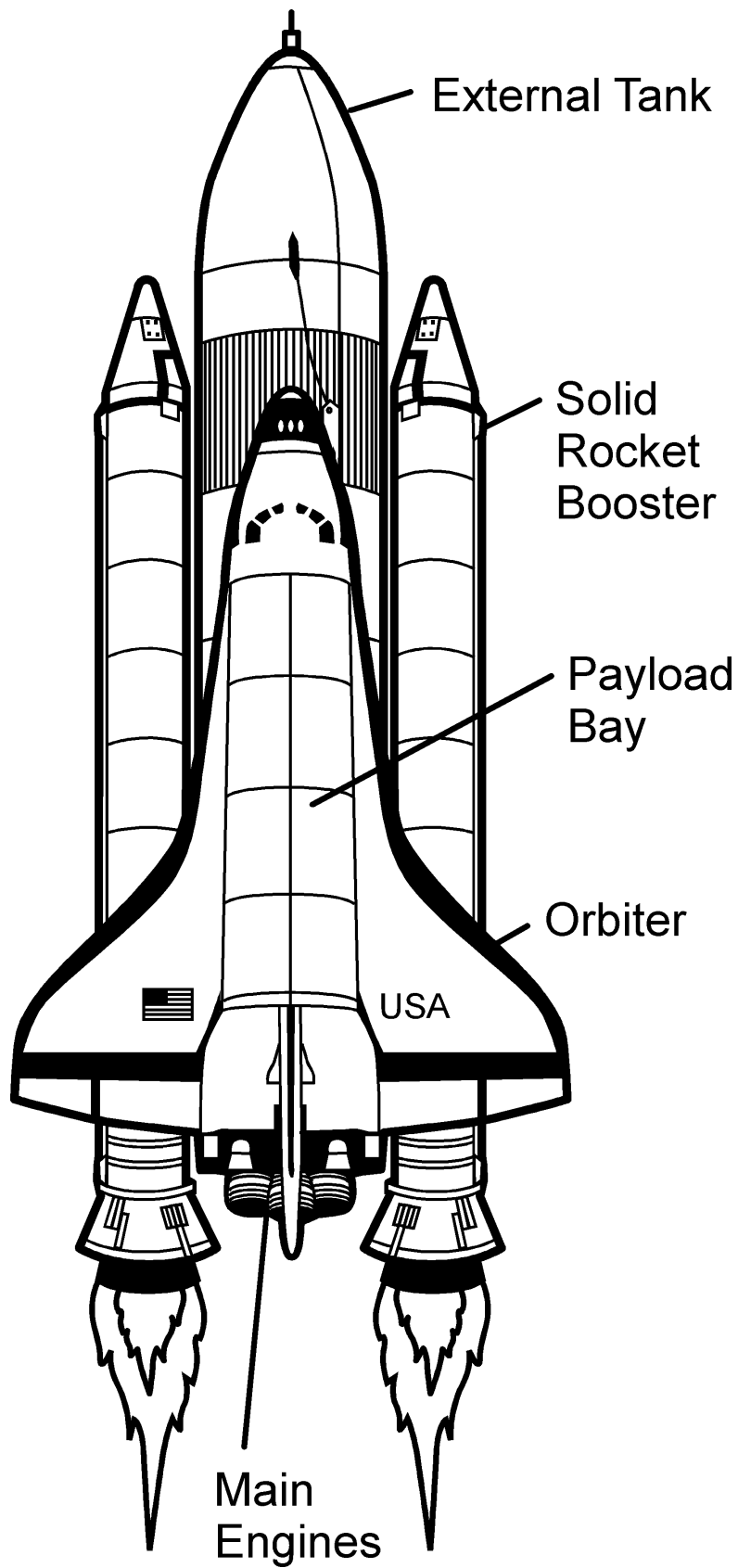


Figure 3. Parts of the Space Shuttle



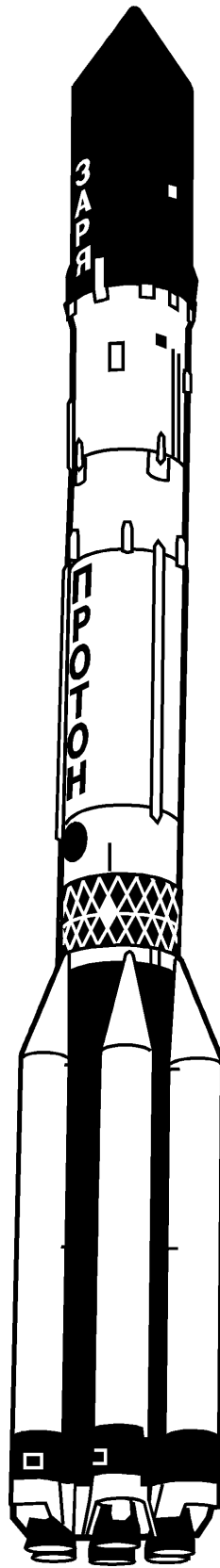
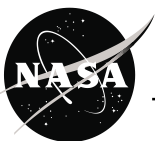


Figure 4. Proton Rocket



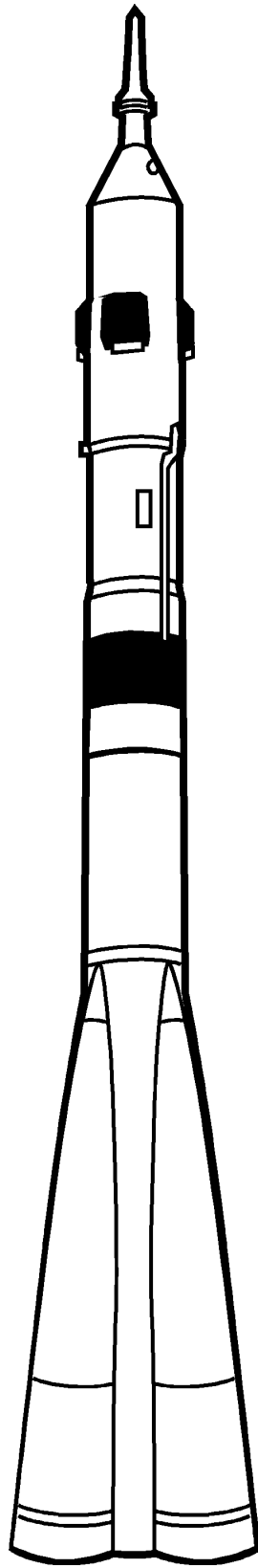


Figure 5. Soyuz Rocket

