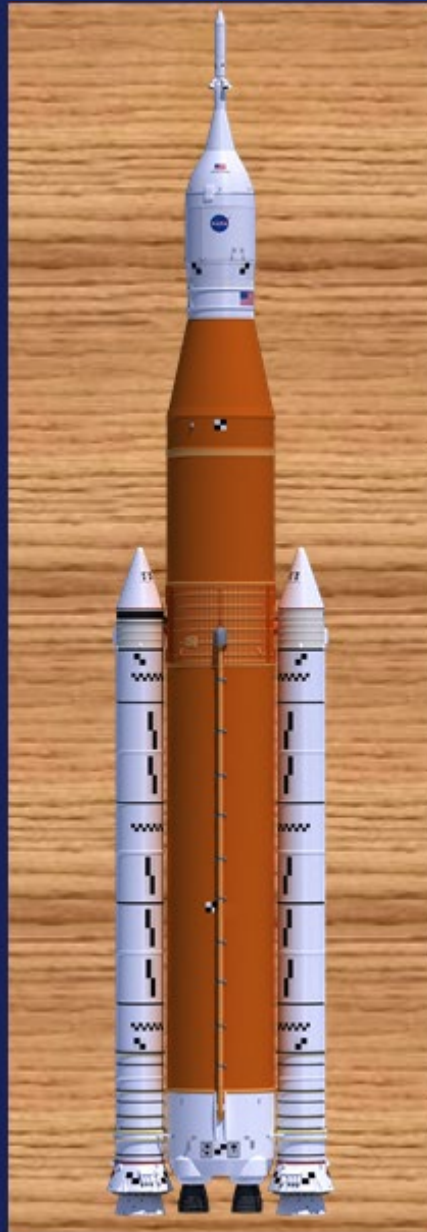


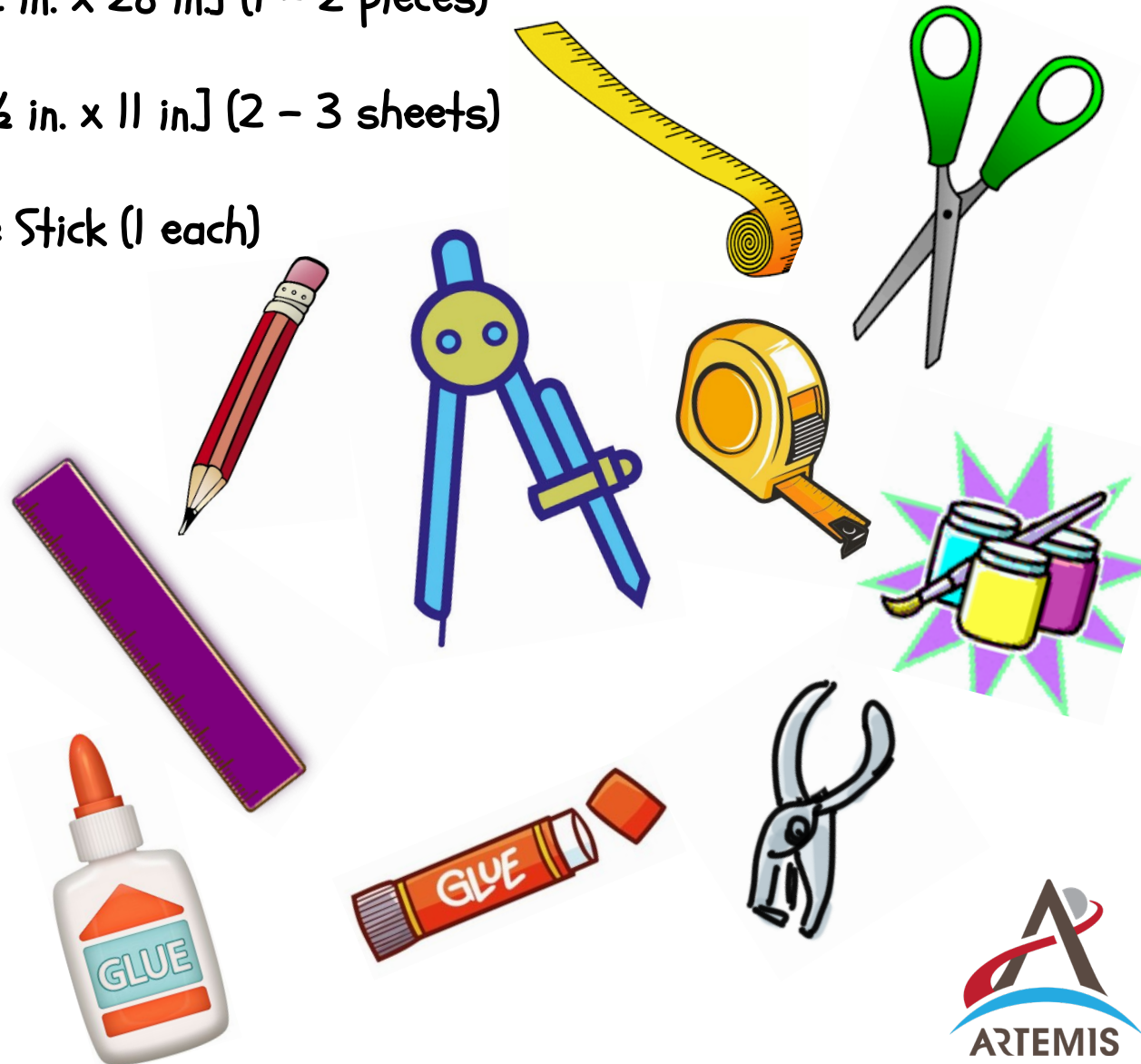
Build Your Own Space Launch System (SLS) Block 1



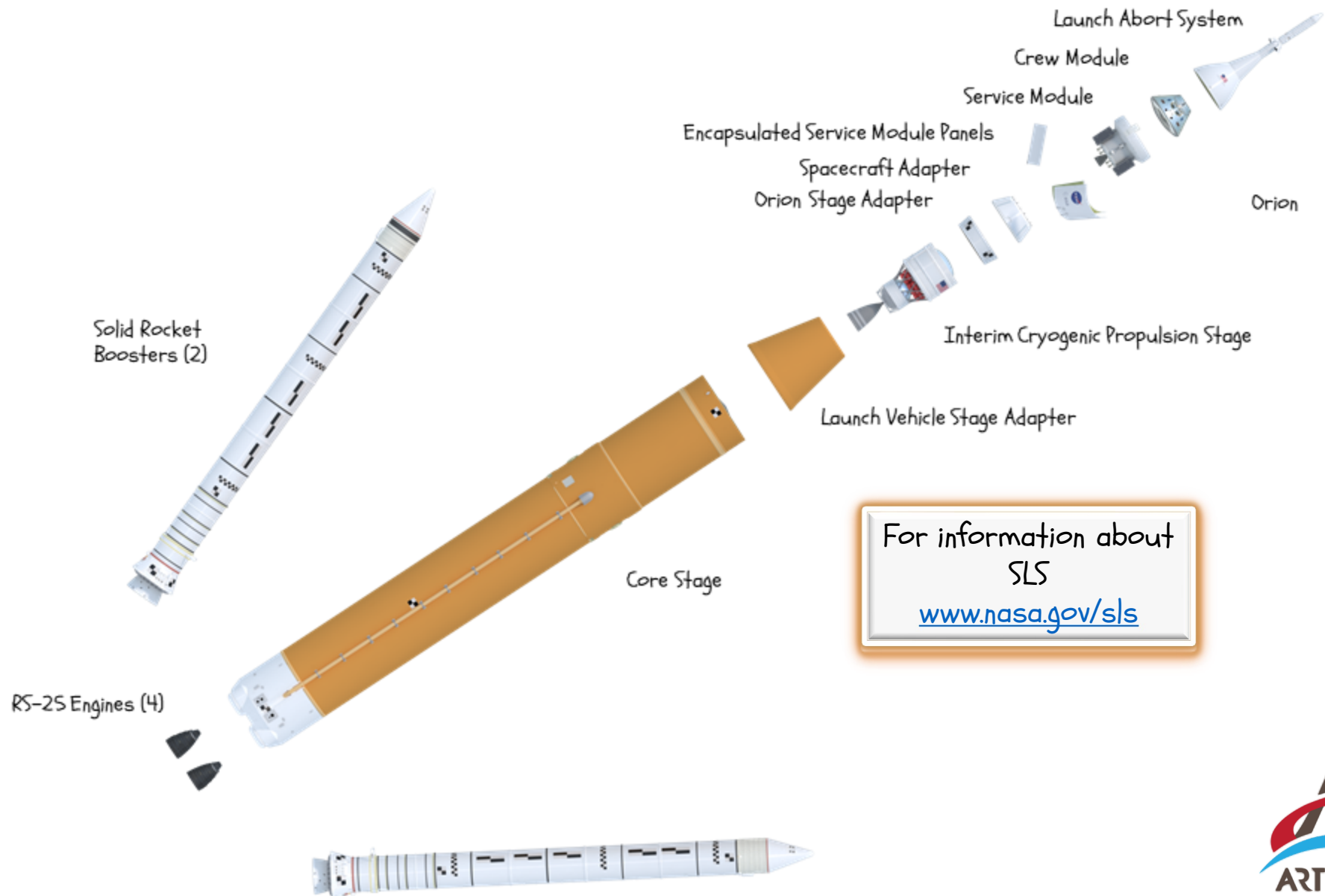
Materials



- White Poster Board [22 in. x 28 in.] (1 - 2 pieces)
- White Copier Paper [8 ½ in. x 11 in.] (2 - 3 sheets)
- All Purpose Glue & Glue Stick (1 each)
- Scissors
- Ruler or Tape Measure
- Tape (Paintable)
- Compass
- Hole Punch (single hole)
- Pencil
- Craft Paint & Brush



SLS Block I Expanded View

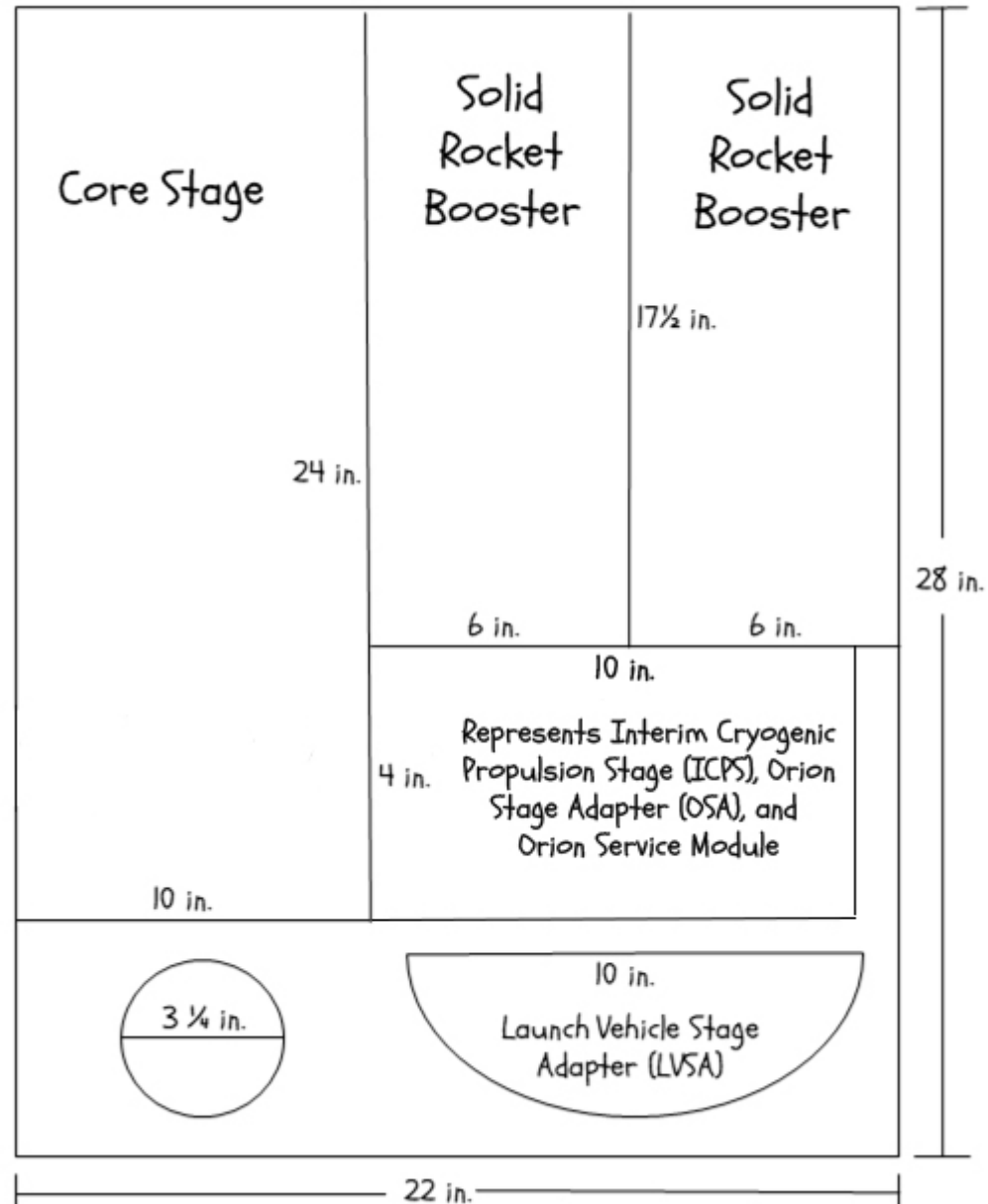


For information about SLS
www.nasa.gov/sls



Poster Board Cuts

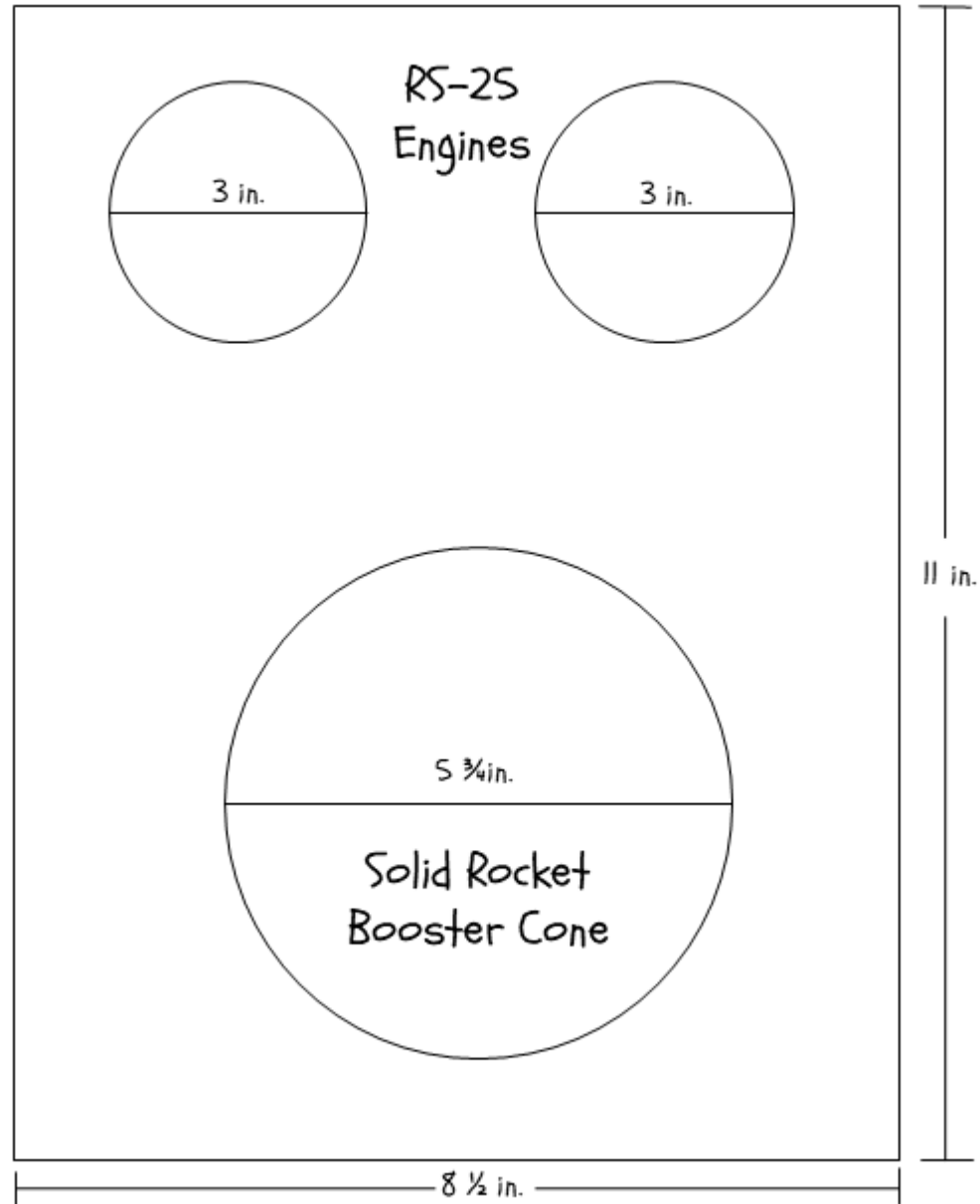
- ❑ 1 - 24 in. x 10 in. Rectangle
- ❑ 2 - 17½ in. x 6 in. Rectangles
- ❑ 1 - 10 in. x 4 in. Rectangle
- ❑ 10 in. Semicircle (Diameter)
- ❑ 1 - 3¼ in. Circle (Diameter)



NOTE: Drawings are not to scale.

Copier Paper Cuts

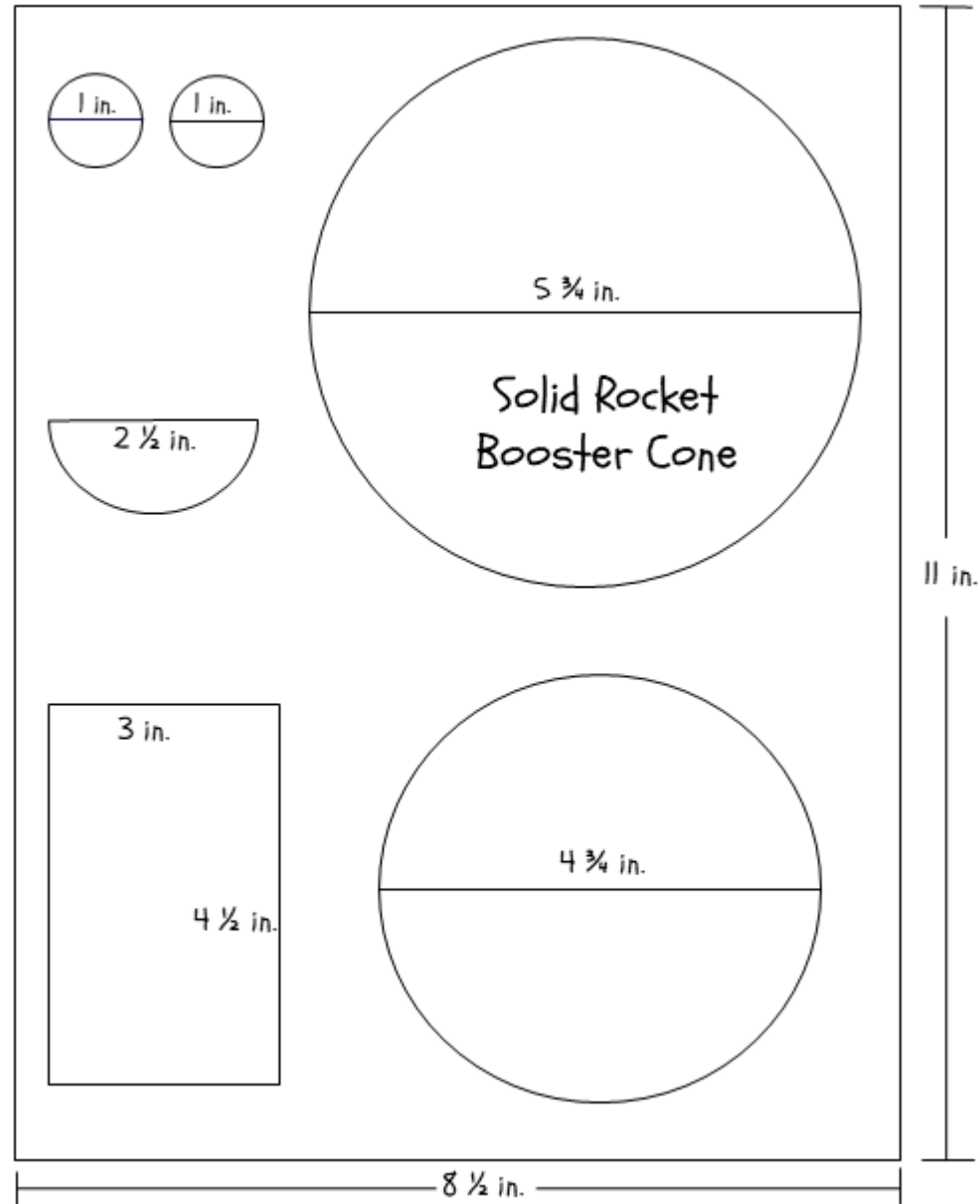
- ❑ 2 - 3 in. Circles
(Diameter)
- ❑ 1 - $5\frac{3}{4}$ in. Circle
(Diameter)



NOTE: Drawings are not to scale.

Copier Paper Cuts

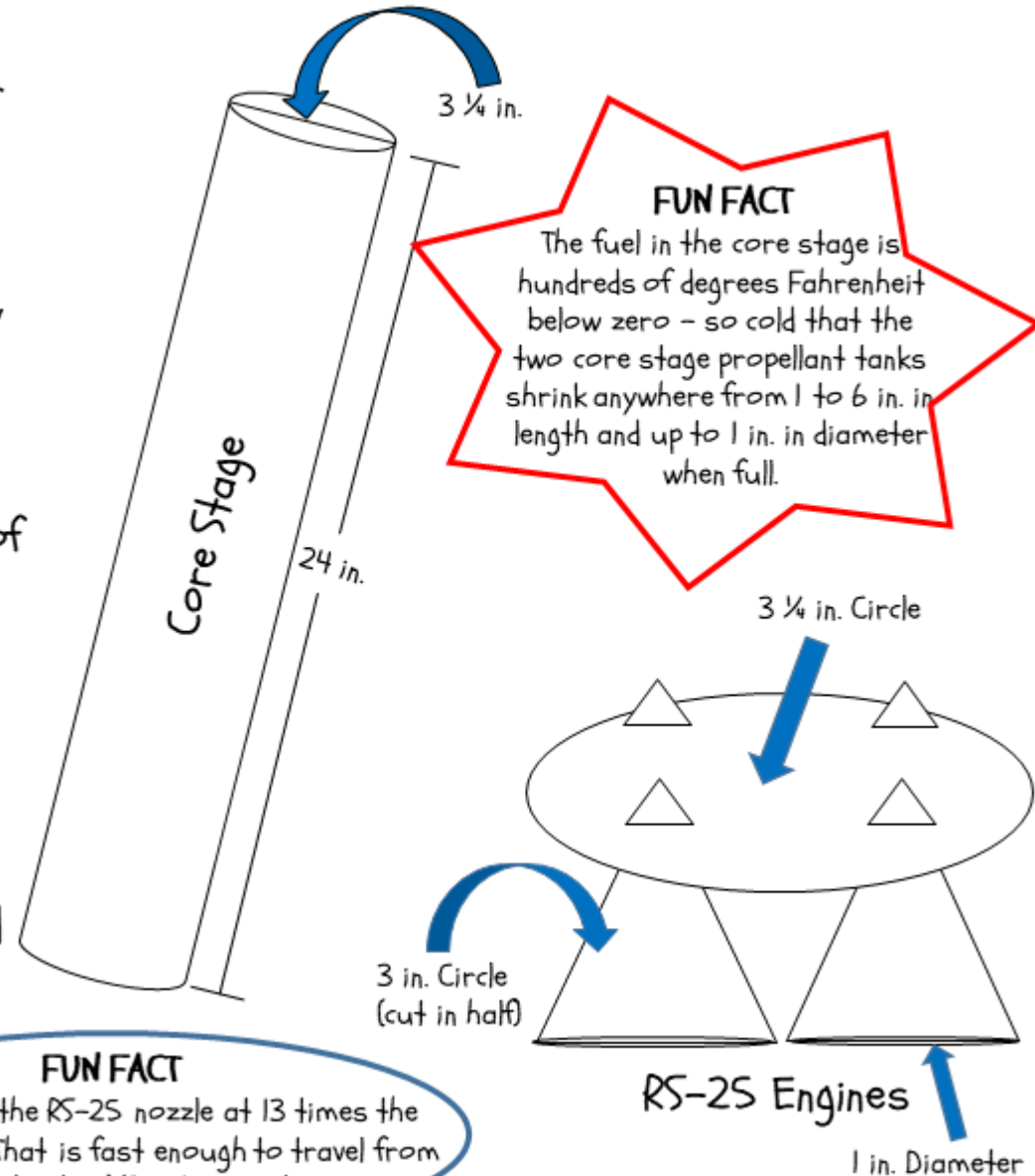
- ❑ 1 - 5 $\frac{3}{4}$ in. Circle
(Diameter)
- ❑ 1 - 4 $\frac{3}{4}$ in. Circles
(Diameter)
- ❑ 2 - 1 in. Circles
(Diameter)
- ❑ 1 - 2 $\frac{1}{2}$ in. Semicircle
(Diameter)
- ❑ 1 - 3 x 4 $\frac{1}{2}$ in. Rectangle



NOTE: Drawings are not to scale.

Core Stage

- ❑ Roll the 24 in. x 10 in. rectangle into a tube that is 24 in. tall & has a diameter of $3\frac{1}{4}$ in. Use glue or tape to hold in place.
- ❑ Using the hole punch, put 4 holes (evenly dispersed) in the $3\frac{1}{4}$ in. circle.
- ❑ Cut the 3 in. paper circles in half. Roll each into a cone with a base diameter of 1 in. Use glue or tape to hold in place.
- ❑ Place a cone in each of the 4 holes punched into the $3\frac{1}{4}$ in. circle. Glue into place.
- ❑ Glue or tape the circle with the inserted cones onto either end of the tube with the cone tips inside the tube.

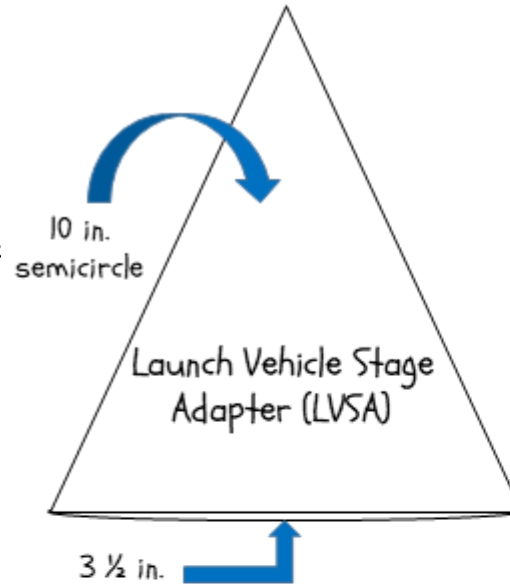


NOTE: Drawings are not to scale.

LVSA, Interim Cryogenic Propulsion Stage (ICPS), Orion Stage Adapter (OSA), & Orion Service Module



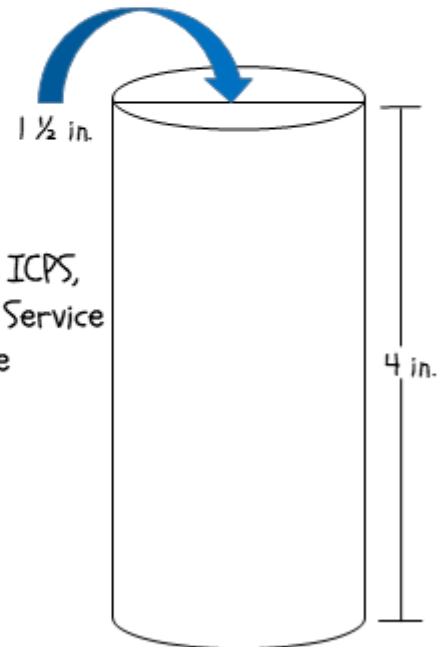
- ❑ Roll the 10 in. semicircle into a cone with a base diameter of 3 ½ in. Glue or tape this to the end of the tube opposite the RS-25 engines.



FUN FACT
The LVSA makes it possible for the SLS to go from a diameter of 27 ½ ft. (the diameter of the core stage) to a diameter of 16 2/5 ft. (the diameter of the ICPS).

- ❑ Roll the 6 in. x 4 in. rectangle into a tube that is 4 in. tall & has a diameter of 1 ½ in. Use glue or tape to hold in place.

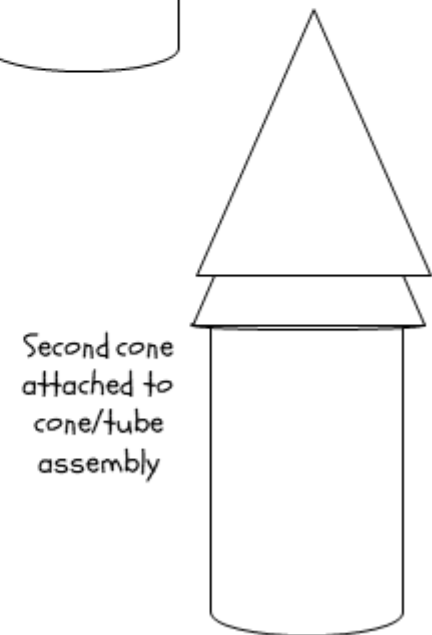
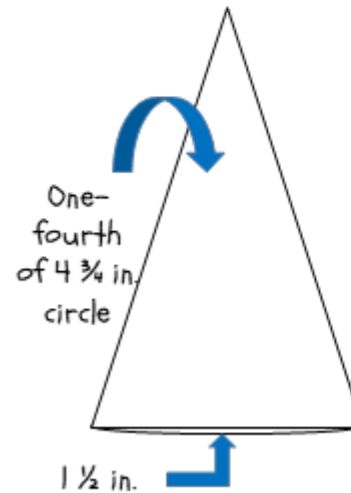
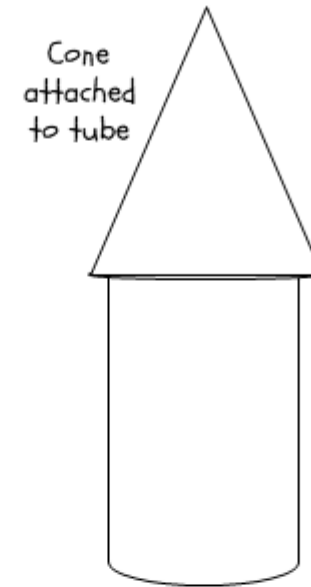
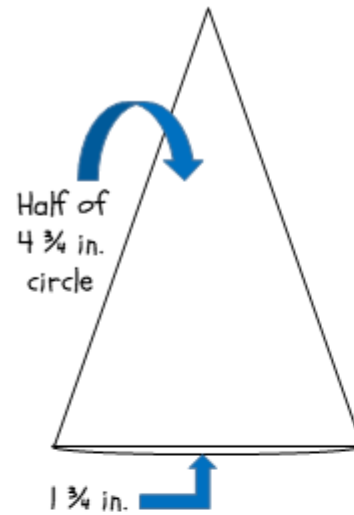
Represents ICPS,
OSA, & Orion Service
Module



FUN FACT
The ICPS is powered by one RL10 engine that generates 24,750 lbs. of thrust.

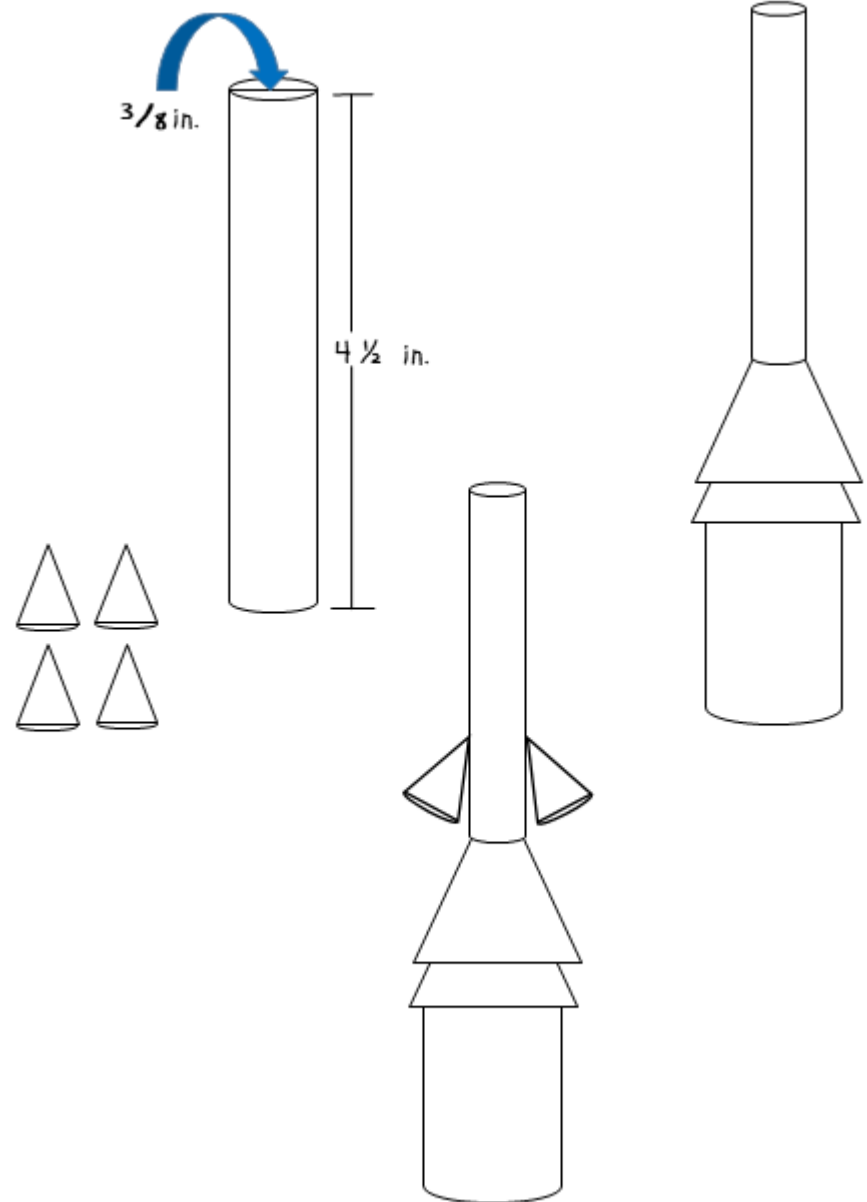
NOTE: Drawings are not to scale.

- ❑ Cut the $4\frac{3}{4}$ in. circle in half. With one half, make a cone with a base diameter of $1\frac{3}{4}$ in. Use glue or tape to attach this to the top of the tube just created (the one representing ICPS, OSA, & Orion Service Module).
- ❑ Cut the remaining half of the circle (a semicircle) in half again (along the radius). Use one of the quadrants to make a cone with a base diameter of $1\frac{1}{2}$ in. Use glue or tape to hold in place.
- ❑ Using glue or tape, attach this new cone to the top of the cone/tube assembly.



Orion (continued)

- ❑ Roll the 3 in. x 4 ½ in. rectangle into a tube that is 4 ½ in. tall & has a diameter of 3/8 in. Use glue or tape to hold in place.
- ❑ Using glue or tape, attach this new tube to the top of the cone/cone/tube assembly just created.
- ❑ Cut each 1 in. circle in half and roll each piece (4 pieces) into a small cone. Use glue or tape to hold in place.
- ❑ Using glue or tape, attach each of the 4 cones 1 ½ - 2 in. from the bottom of the tube placed on top of the cone/cone/tube assembly. These cones should be evenly dispersed around the tube.



NOTE: Drawings are not to scale.

Orion (continued)

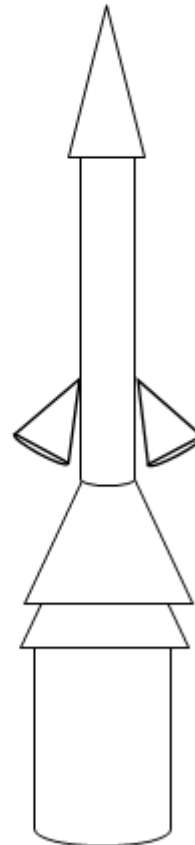
- Roll the 2 ½ in. semicircle into a cone with a diameter just slightly larger than the last tube, ¾ in.



FUN FACT

Orion is designed to accommodate the height of 99% of the US population. This means astronauts can be anywhere from 4'10" to 6'5"!

- Using glue or tape, attach the cone to the top of the assembly just completed.



FUN FACT

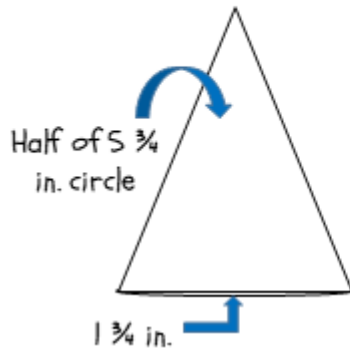
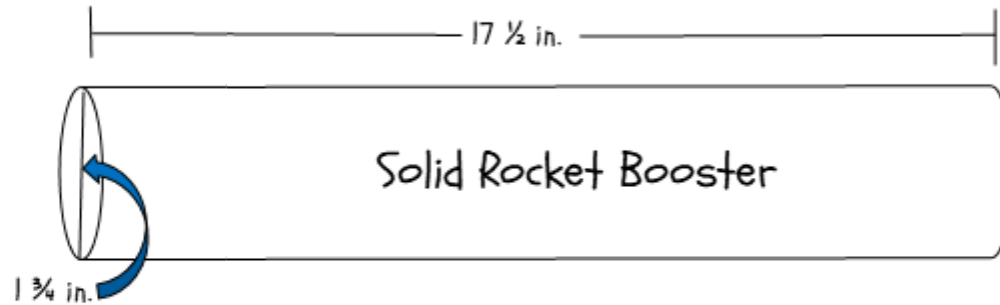
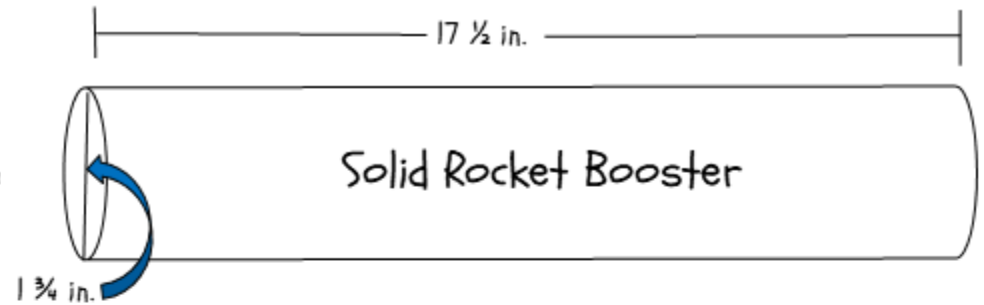
SLS & Orion will be stacked for launch in the Vehicle Assembly Building (VAB) at Kennedy Space Center. The VAB is so large it would take 250 billion ping pong balls to fill it.

FUN FACT

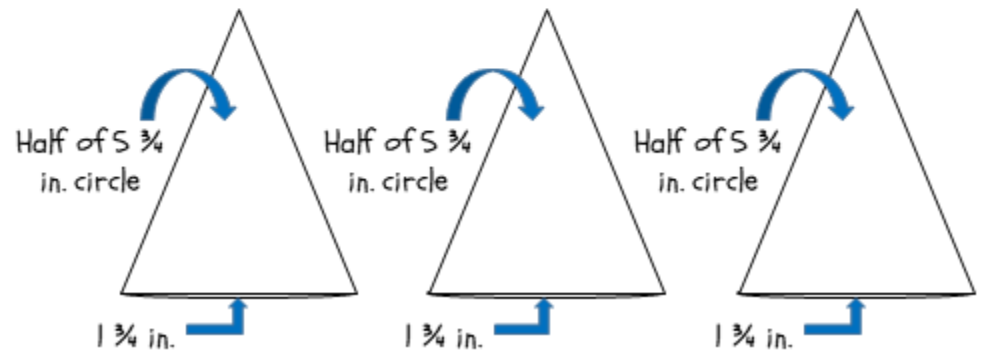
Orion will return from the Moon at 25,000 mph, 1 ½ times faster than the Space Shuttle and 43 times faster than a commercial airliner.

Solid Rocket Boosters

- Roll the two $17\frac{1}{2}$ in. x 6 in. rectangles into two tubes that are $17\frac{1}{2}$ in. tall & have a diameter of $1\frac{3}{4}$ in. Use glue or tape to hold in place.



- Cut the two $5\frac{3}{4}$ in. circles in half. Roll each half (4) into a cone with a base diameter of 2 in. Use glue or tape to hold in place.

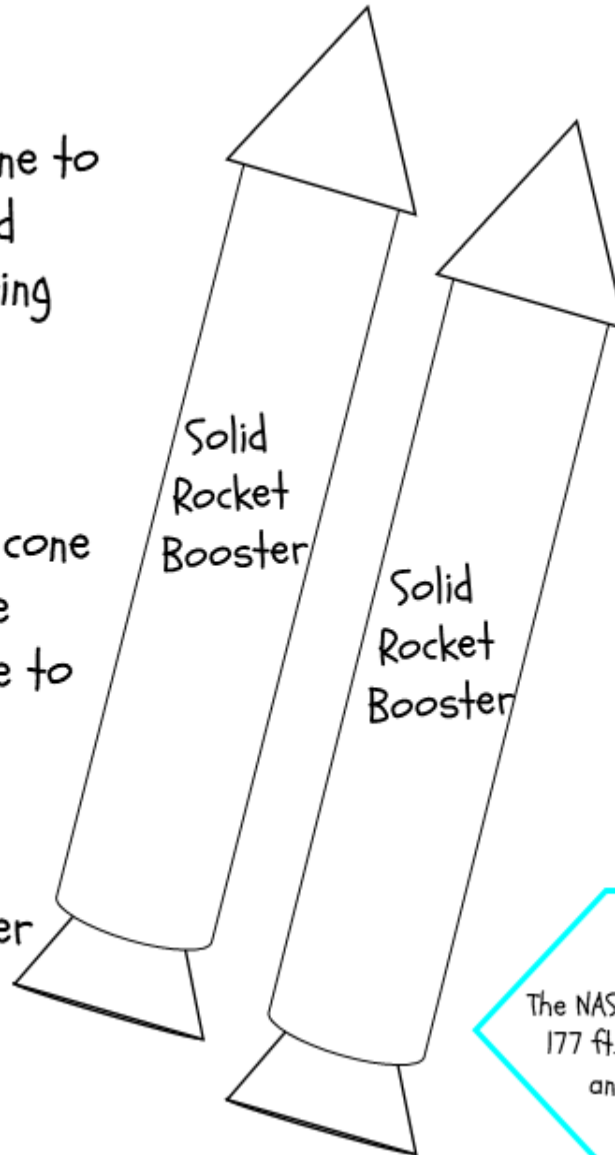


NOTE: Drawings are not to scale.

Solid Rocket Boosters (continued)



- ❑ Using glue or tap, attach one cone to one end of the tube just created with the point of the cone pointing up.
- ❑ Set the tube on top of another cone with the pointed end of the cone inside the tube. Use glue or tape to hold in place.
- ❑ Repeat these steps for the other tube.



FUN FACT
The NASA SLS solid rocket boosters are tested in the Utah desert. The exhaust from these tests is so hot it turns the desert sand into glass!

FUN FACT
The NASA SLS solid rocket boosters are 177 ft. long, have a diameter of 12 ft., and each weighs 1,600,000 lbs.

NOTE: Drawings are not to scale.

Paint Color - Core Stage & LVSA

L* a* b*, RGB and HLC Values

Choose Range:

Choose colour:

Reference: 159 C

Range: Pantone C



L	a	b
54.43	43.53	58.62
H	L	C
53	54	73

CMYK: 0; 55; 89; 18

sRGB: 209; 95; 22

Hex: #D15F16

LRV: Approx. 22
Light Reflectance Value

The core stage is covered with an orange spray-on foam to insulate the cryogenic (extremely low temperature) propellants in the tanks.

SLS Markings, NASA Insignia, & American Flag



- ❑ The checkboard markings on the rocket are photogrammetric markings. They serve as “targets” for cameras located on and around the rocket. They are used so cameras can more easily track the rocket’s position in space. Analysts use software to process the images to measure distances, such as the distance between the boosters and the core stage after they separate.

FUN FACT

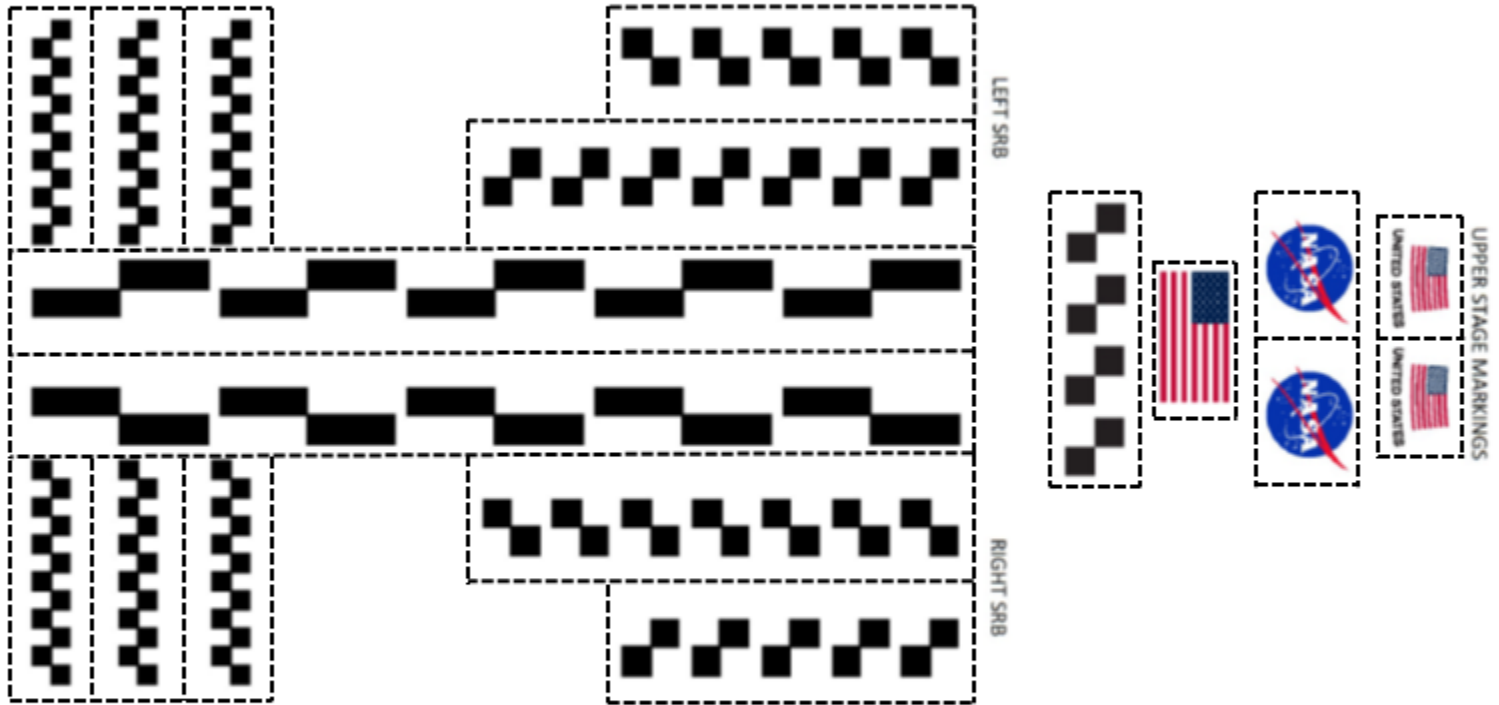
The round red, white, and blue NASA insignia is known as “the meatball.” The round shape of the insignia represents a planet; the stars represent space; the red v-shaped wing represents aeronautics; and the circular orbit around the agency’s name represents space travel.

FUN FACT

The flag of the United States of America is also known as “Old Glory.” The stripes represent the 13 original Colonies and the 50 stars represent the 50 states. The colors are also symbolic: red for hardiness and valor; white for purity and innocence; and blue for vigilance, perseverance, and justice.

- ❑ You can use a marker to put these markings on the rocket. Or, you can print the next chart, cut along the dotted lines, and attach them to your rocket with glue or tap.
- ❑ The NASA insignia, the meatball, and the American flags needed are also provided on the next page.

SLS Markings, NASA Insignia, & American Flag



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