PREPARE FOR LAUNCH

Challenger CENTER

Next Giant Leap: Prepare for Launch

Objective:
Students build a model of the Orion Spacecraft and balance the Launch Abort Vehicle.

Materials Needed:

- ✓ Orion Spacecraft
  - ✓ 8 oz White Paper Cup (1/student)
  - ✓ Aluminum Foil (1 sheet/student)
  - ✓ Markers
  - ✓ Tape
- ✓ Launch Abort Vehicle
  - ✓ Pipe Cleaners (1/student)
  - ✓ Popsicle Sticks (1/student)
  - ✓ Paper Clips (4/student)

Summary of Student Action:
Students learn about the vehicle that is slated to take astronauts back to the moon by using a plastic cup to build a model of the Orion Spacecraft complete with a heat shield made from aluminum foil. Students then create a model of the AA-2 Launch Abort Vehicle that will be used onboard the SLS rocket. Students use this model to investigate how to find the center of gravity and balance their model using paper clips to mimic ballast blocks that are used on the Launch Abort Vehicle.

Setup Instructions:

- Lay out all assembly materials:
  - cups
  - aluminum foil
  - markers
  - tape
  - pipe cleaners
  - popsicle sticks
  - paper clips
- Lay out instruction sheets for student reference.

Additional Notes:
Students should be shown the included picture of the Orion before they begin to build.
Students should use markers to color their Orion in resemblance to

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Activity 1: Orion Spacecraft Build

Your task: Build the Orion Spacecraft that will take you to the Moon and further deep space missions.

You will need:

- ✓ White Paper Cup
- ✓ Aluminum Foil Sheet
- ✓ Markers
- ✓ Tape

Procedures:

1. Use the picture of the Orion Spacecraft and color your Orion Spacecraft using markers.

2. Be sure to draw windows and a door for the astronauts to use.

3. Tape a sheet of aluminum foil to the opening of the cup to make the heat shield.

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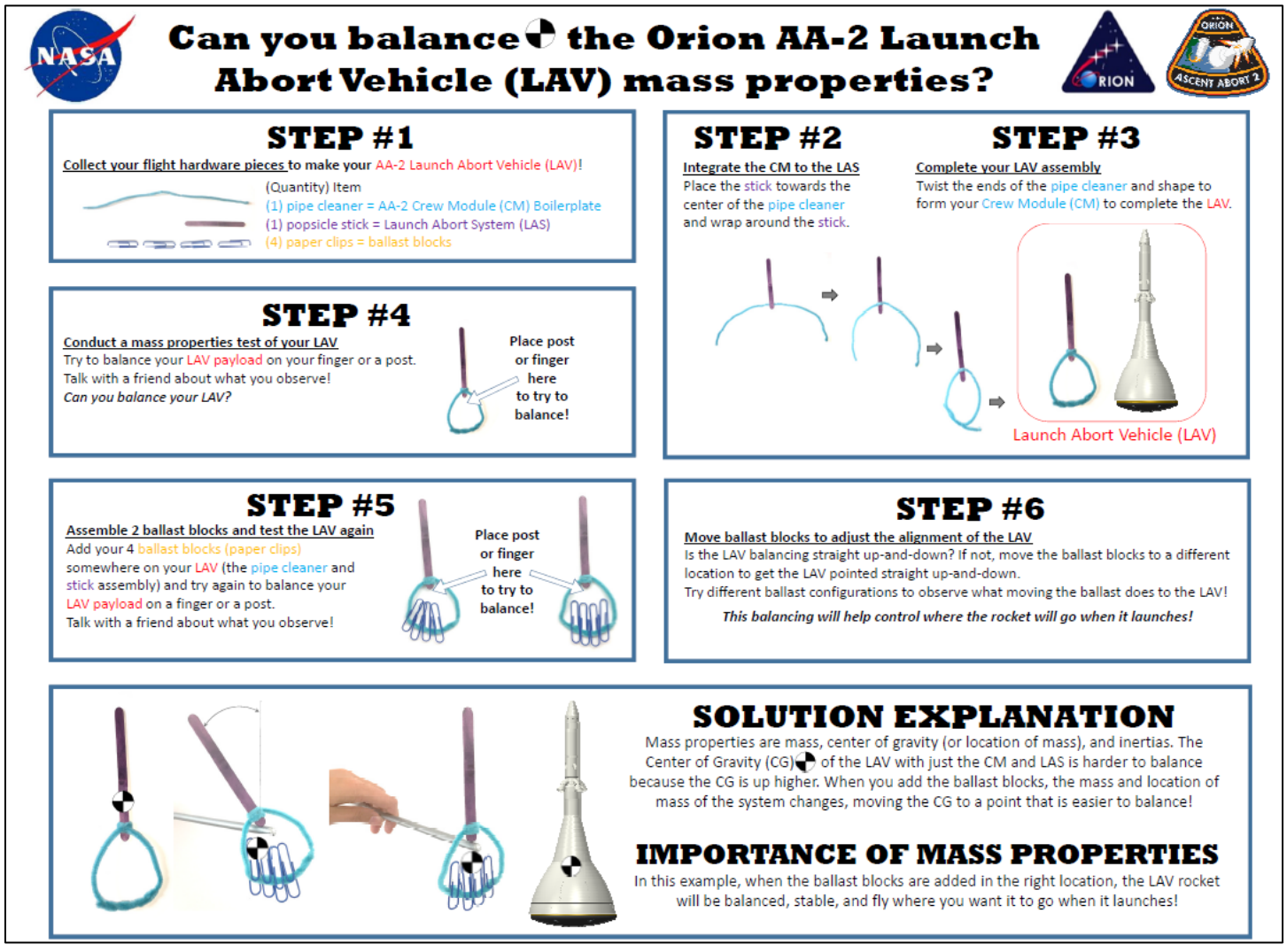
Activity 2: Balance the Launch Abort Vehicle

Your task: Build and balance the Launch Abort Vehicle that is outfitted on the Orion Spacecraft and used in case of an emergency during the launch.

You will need:

- ✓ 1 Pipe Cleaner
- ✓ 1 Popsicle Stick
- ✓ 4 Paperclips

Procedures:



Source: https://www.nasa.gov/specials/m2m-toolkit/

Orion Spacecraft

Launch Abort Vehicle