

# Space Shuttle Action Theater










Every Space Shuttle mission involves hundreds of factors and thousands of people on Earth, all working together to help the astronauts with a successful mission.

The purpose of this activity is to increase your child's awareness of the variety of people on the ground that are involved in a Space Shuttle mission, and that many decisions are made during each mission that will affect its outcome.




In this activity, your child will re-enact a Space Shuttle mission, from launch to landing.









## What You Need to Prepare:

-  2 or 3 (or more!) square cardboard boxes
-  Packing tape
-  White contact paper
-  Markers
-  Names of different mission support staff (see Background Information)
-  5 bright color poster boards
-  Scotch tape
-  6 sheets of cardstock per poster with a mission support staff printed on each sheet
-  4 Shuttle Mission Report sheets



## What You Need to Play:

-  One of several large dice with the names of different mission support staff on it
-  One of four different Shuttle Mission Report sheets
-  5 different mission posters: Launch, Activity 1, Activity 2, EVA, and Landing

## What to Do to Prepare:

-  Tape the cardboard boxes closed and cover with white contact paper.
-  With a marker, write the name of a mission support staff on each side.
-  Label the 5 poster boards Launch, Activity 1, Activity 2, EVA and Landing.
-  Using the wording for each of the posters below, increase the font size and adhere statements to poster boards according to the name of the poster.
-  Cover each of the statements with the cardstock labeled with the mission support staff name (i.e., cover the Flight Director action with a flap that says "Flight Director")
-  Print several of the Shuttle Mission Reports on different color paper.

## What to Do to Play:

-  Pick up a Shuttle mission report sheet with your child, and read about the mission.
-  At each of the steps, help your child to go to the identified poster and roll a die. Depending on which mission support staff person the die selects, lift the corresponding flap on the poster and follow the directions underneath. Those directions may be to go on to the next step on the sheet, to end the mission and start a new one, to go to a different poster, or to roll again.

### Background on the mission support staff on the posters:

**Flight director (FD)** leads the flight control team and is responsible for the overall Space Shuttle mission and payload operations and all decisions regarding safe, expedient flight.

**Space communicator (CAPCOM)** serves as primary communicator between flight control and astronauts.

**Flight activities officer (FAO)** plans and supports crew activities, checklists, procedures and schedules.

**Flight surgeon (Surgeon)** monitors crew activities, coordinates the medical operations flight control team, provides crew consultation, and advises flight director of the crew's health status.

**Ground control (GC)** directs maintenance and operation activities affecting Mission Control hardware, software and support facilities; coordinates space flight tracking and data network and Tracking and Data Relay Satellite system with Goddard Space Flight Center.

**Public affairs officer (PAO)** provides mission commentary to supplement and explain air-to-ground transmissions and flight control operations to the news media and the public.

# Information for Posters

## Launch Poster

### Flight Director flap:

The weather is too stormy; the flight director has determined that you need to abort this mission before lift-off. Turn in your sheet and start with a new mission.

### Space Communicator flap:

The launch weather officer has advised that weather is currently "green" for launch. Time to launch your mission!

### Flight Activities Officer:

All systems check out and you're ready to go.  
Time to launch your mission!

### Life Support flap:

The flight surgeon has determined that you have a cold and cannot go on this mission; you need to turn in your mission card and start over with a new one.

### Ground Control flap:

Ground Control reports that the communication system is malfunctioning. You need to abort this mission; turn in your sheet and start with a new mission.

### Public Affairs flap:

The President of the United States is watching your launch! Say something to the reporters about your mission, then it's time for your successful launch!

# Activity 1 Poster

## Flight Director flap:

The payload is caught inside the Space Shuttle. You need to plan an EVA (a spacewalk) to free it— go to the EVA poster and roll one of the dice.

## Space Communicator flap:

A solar flare will increase the amount of radiation in the next few hours; you need to end the mission immediately as incomplete. Turn in your sheet and start with a new mission.

## Flight Activities officer:

You and your team have successfully deployed your payload!  
Activity is complete, go to the next step on your mission report.

## Life Support flap:

Another astronaut is having physical difficulties as he deploys the payload; you need to plan an EVA (a spacewalk) to assist him. Go to the EVA poster and roll one of the dice.

## Ground Control flap:

Ground Control reports that the payload has been successfully deployed from the Space Shuttle! Activity is complete; go to the next step on your mission report.

## Public Affairs flap:

Classroom students would like to speak with you about your current task; describe your activities then roll again for Activity 1 to see whether you are successful at deploying the payload.

# EVA Poster

## Flight Director flap:

Your EVA (spacewalk) and activity were successful! Go to the next step on your mission report.

## Space Communicator flap:

Reports from scientists on the ground indicate that your EVA spacewalk activity was successful! Congratulations; continue onto the next step on your Mission Report.

## Flight Activities flap:

You're having difficulties with guide wires, which are snagging during your EVA. It is time to take a break, and then try again. Roll one of the dice again to see if your second EVA is successful.

## Flight Surgeon flap:

The temperatures inside your spacesuit are becoming too high; you need to stop and roll one of the dice again to see if your EVA is complete.

## Ground Control flap:

The computer system on the Space Shuttle is experiencing technical difficulties; the Shuttle needs to return to Earth immediately. This mission is ended as incomplete; turn in your mission sheet and start over with a new one.

## Public Affairs flap:

Reporters are calling to talk with you about your successful EVA!! Continue with the next step on your mission report.

## Activity 2 Poster

### Flight Director flap:

Your activity will require an EVA in order to be successful. Go to the EVA poster and roll one of the dice.

### Space Communicator flap:

Reports from the science specialist indicate that your activity was a huge success! Congratulations! Continue with the next step on your Mission Report.

### Flight Activities:

The scientists on the ground report your activity was a complete success! Congratulations! Continue with the next step on your Mission Report.

### Flight Surgeon:

Not only was your activity successful, but the flight surgeon reports that your health is excellent! Continue with the next step on your Mission Report.

### Ground Control flap:

As you were conducting your activity, the Space Shuttle experienced some technical difficulties. You will need to conduct an EVA in order to finish your activity; go to the EVA poster and roll one of the dice.

### Public Affairs:

There are reports of an unsuccessful terrorist attack; NASA would like you to stop your activity and return to Earth immediately. Turn in your Mission Report as incomplete; you may begin a new one if you would like.

# Landing Poster

## Flight Director flap:

You had a successful landing! Congratulations on a successful mission!

## Space Communicator flap:

The radio on the Space Shuttle was experiencing temporary difficulties; you will have to orbit the Earth one more time before landing. Roll one of the dice and try to land again.

## Flight Activities:

Weather is poor at both landing sites; you will have to orbit one more time. Roll one of the dice to try again.

## Flight Surgeon:

All the crew are in excellent health, and you have made a successful landing!  
Congratulations!

## Ground Control flap:

Weather is poor at Kennedy Space Center in Florida; you make an emergency landing at Edwards Air Force Base in California instead. Congratulations on a successful mission!

## Public Affairs:

You have one last task before you land; you need to make a report from orbit, so you will need to orbit the Earth one more time before landing. Roll one of the dice and try to land again.