

## EDUCATOR'S GUIDE

# Design a Space Capsule

## Preparation

### Overview and Objectives

This lesson is geared toward students in grades K–5.

Participants will learn about the variety of jobs available on board the *USS Intrepid*. Sailors aboard *Intrepid* carrying out these different jobs in different departments around the ship built a sense of community by creating crew patches that highlighted their experience serving on *Intrepid*.

Participants will create a list of jobs they might imagine being on a ship like *Intrepid* and create “crew patches” of their own to signify the job they would want if they lived and worked on *Intrepid*.

At the end of this lesson participants will be able to explain what a NASA engineer has to consider when designing a space capsule, explain *Intrepid*'s connection to space capsules and design a space capsule that sustains and protects three astronauts.

This lesson includes a [slideshow](#) in which an instructor can lead participants through various crew patches as they interpret which department created each individual crew patch.

### Instructional Modalities

This activity was designed for both synchronous or asynchronous instruction.

For **synchronous instruction**, we recommend a platform that allows both for whole class discussion and for students to interact in small groups.

For **asynchronous adaptations**, we provide suggestions for teachers to provide additional support for the activities and for students to share their work with each other.

### Standards

Next Generation  
Science Standards

K-2 ETS1-2

National Core Arts  
Standards

VA:Cr1.1.4a

## Materials

- [Design a Space Capsule Slideshow](#)
- [Three Astronauts Worksheet](#)
- [Design a Space Capsule Visual Instructions](#)
- [Reflection Worksheet](#)
- Assorted Craft Materials such as: cardstock, foam stickers, twistable wire, clear plastic, tape, markers, cardboard shapes, plastic cups, tin foil
- Recycled Materials such as: cardboard, bottles etc.
- Markers
- Glue sticks
- Scissors

## Lesson

### 1. Introductory Activity

- While going through slides 3-9 participants will answer these three questions:
  - **What is a space capsule?**
  - **How did *Intrepid* retrieve space capsules?**
  - **What do designers and engineers think about while designing a space capsule?**
- Ask participants what types of things they would want in their space capsule if they were an astronaut.

### 2. Core Activity

- Go through slides 9-15 to learn about different types of space capsules that have been built and put in use
- Ask participants the following questions:
  - **What do all of these space capsules have in common?**
  - **What are some differences between these space capsules?**
  - **Which space capsule would you like to travel to space in? Why?**
- Read slide 16 and ask the following questions:
  - **Can you design a space capsule for three astronauts?**
  - **How will you make your three astronauts comfortable?**
  - **How will you feed your astronauts?**
  - **How will you protect your astronauts from the extreme heat and cold of space travel?**

- Follow slides 17-19 and the [visual instructions](#) to have participants create their own space capsule
- After completing your space capsule fill out this [reflection worksheet](#).

## Asynchronous Adaptation

Have participants go through the [slideshow](#) on their own and create their own space capsule using the [visual instructions](#).

Participants challenge is to design a space capsule that can hold three astronauts. The space capsule must be comfortable, feed all three astronauts and protect the astronauts from the extreme heat and cold of space travel.

Participants can use recycled materials or the craft supplies outlined in the visual instructions. Print the [astronaut worksheet](#) and cut the astronauts out to be used for your space capsule. Astronauts can be colored in if you wish.

Slide 17 has some examples of space capsules that others have designed for this project. Be as creative as you like, astro-scientists are always coming up with brand new ideas.

## Additional Resources/ References

Visit the links on slide 20 to learn more from Intrepid Museum's collection

### **Background Information on Gemini III and Mercury-Atlas 7 space missions**

#### Mercury-Atlas 7

Mercury missions were the United State's first space missions, therefore they were named "Mercury" after the first planet closest to the Sun. Mercury capsules only held one astronaut. In 1962 *Intrepid* retrieved Scott Carpenter from the ocean after his Mercury-Atlas 7 mission. Because of a malfunction in the capsule Scott Carpenter had to take control of the spacecraft manually and over shot his target destination by 250 miles. For this reason it took *Intrepid* a few hours to reach him.

#### Gemini III

Gemini capsules were named after the Gemini constellation that depicted two brothers because Gemini capsules held two astronauts. In 1965 *Intrepid* retrieved the Gemini III capsule and its crew. “Gus” Grissom and John Young. On this mission Grissom defied orders by sneaking a corned beef sandwich onto the mission in his space suit. The astronauts only took two bites of the sandwich before realizing that crumbs had begun to float around and could cause issues in the capsule.

**The Museum is deeply grateful to the funders that make our education programs possible:**



*This project was made possible in part by the  
Institute of Museum and Library Services, Award ID:  
CAGML-247144-OMLS-20*