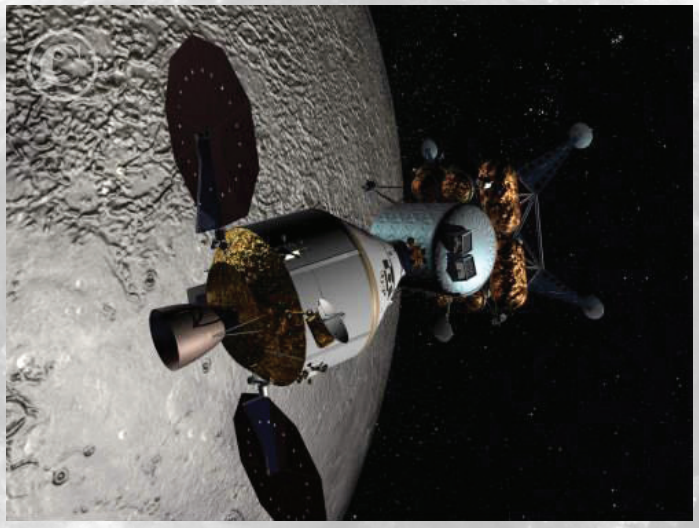
Taking humans back to the Moon...40 years later!



NASA needs a new vehicle to take astronauts to the Moon because the Space Shuttle was never designed to leave the Earth's orbit. NASA and its industry partners are working on a space vehicle that will take astronauts to the Moon, Mars, and beyond. This spacecraft is called the Crew Exploration Vehicle (CEV). The CEV is a vehicle to transport human crews beyond low-Earth orbit and back again. The CEV must be designed to serve multiple functions and operate in a variety of environments.

DESIGN challenge

To design and build a Crew Exploration Vehicle (CEV) that will carry two - 2 cm sized passengers safely and will fit within a certain volume (size limitation). The CEV will be launched in the next session.

THE CHALLENGE:

Each team must design and build a Crew Exploration Vehicle with the following constraints:

1. *The CEV must safely carry two "astronauts". You must design and build a secure seat for these astronauts, without gluing or taping them in place. The astronauts should stay in their seats during each drop test.*
2. *The CEV must **fit within the _____ (i.e. mailing tube, oatmeal canister)**. This item serves simply as a size constraint. The CEV is not to be stored in this or launched from this item.*
3. *The CEV must have one hatch that opens and closes and is a size that your "astronauts" can easily enter/exit from. The hatch should remain shut during all drop tests.*

Design a CEV
Student page

exploration

ASK IMAGINE &PLAN

What questions do you have about today's challenge?

Draw your Crew Exploration Vehicle (CEV).

Approved by: _____

Draw an inside of your CEV to show where the people sit.

DESIGN challenge

To design and build a Crew Exploration Vehicle (CEV) that will carry two - 2 cm sized passengers safely and will fit within a certain volume (size limitation). The CEV will be launched in the next session.

Approved by: _____

Review your team's design.
Answer the questions in the table.

Vehicle components	Use	Measurement or Calculation
Astronauts	Crew	How many?
CEV	Carries crew to Moon	Does it meet the size restrictions?
Hatch	Allows entry and exit	How many people wide? How many people tall?

Design a CEV
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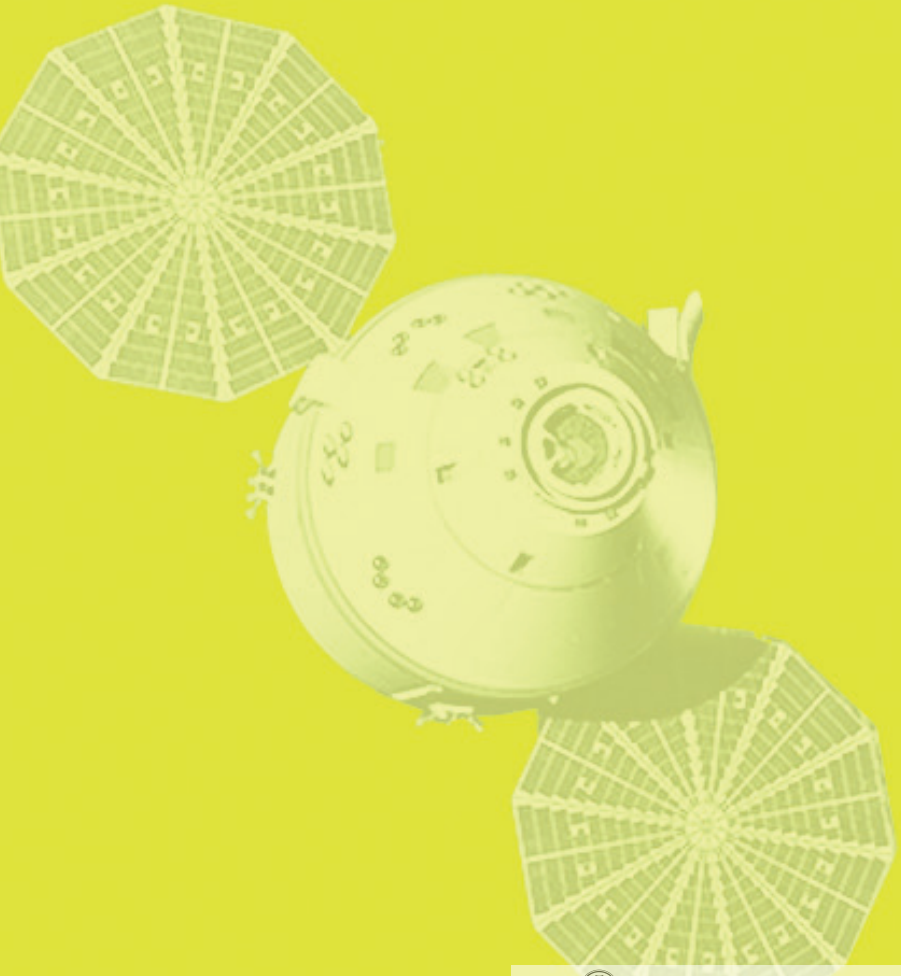
Experiment & Record



Drop your CEV from over your head.
Answer the questions in the table.

CEV Drop Test Data Table

Trial Number	Observations
1	Did the astronauts stay in their seats? YES or NO Did the door fly open? YES or NO
2	Did the astronauts stay in their seats? YES or NO Did the door fly open? YES or NO

Suggest some ways you could improve your design of your CEV:

_____

_____

_____

_____