EUROPEAN SERVICE MODULE ORION’s EUROPEAN SERVICE MODULE protects the SPACECRAFT FROM extreme hot & cold temperatures, Generates power, Supplies air & water to crew, propels ORION hundreds of thousands of miles beyond Earth.

CREW MODULE
HABITABLE SPACE AND SUPPLIES FOR FOUR CREW MEMBERS PROTECTS THE CREW FROM THE HARSH ENVIRONMENT OF SPACE AND THE HEAT OF REENTRY.

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NASA’S ORION SPACECRAFT

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National Aeronautics and Space Administration

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With the Artemis program, NASA will land the first woman and next man on the Moon by 2024, using innovative technologies to explore more of the lunar surface than ever before.

Learn more: nasa.gov/artemis

**WE ARE GOING!**
LET’S DRAW THE ORION SPACECRAFT

ORION CAN BE DRAWN USING SIMPLE SHAPES. THE CREW MODULE IS A CONE AND THE SERVICE MODULE IS A SET OF TUBES. USING THE PENCIL, DRAW A HORIZONTAL LINE AND A SERIES OF OVALS THAT YOU WILL USE TO CREATE THE BASIC SHAPE OF THE SPACECRAFT.

1. DRAW THINGS USING A PENCIL.

DRAW CREW AND SERVICE MODULES

DRAW THE OUTLINE OF THE FIRST OVAL AND DRAW LINES (A) TO THE INSIDE OF THE SECOND OVAL. THIS CREATES THE SHAPE FOR THE CREW MODULE. DRAW TWO MORE OVALS (B) IN THE FRONT. THIS IS THE FORWARD HATCH.

OUTLINE THE MARKED PARTS OF THE SECOND AND THIRD OVALS AND CONNECT THEM WITH LINES (C). THIS IS THE CREW MODULE ADAPTER. LEAVE A SPACE (D) FOR THE UMBILICAL COVER.

OUTLINE THE MARKED PART OF THE FOURTH OVAL AND CONNECT LINES (E). THIS IS THE EUROPEAN SERVICE MODULE.

OUTLINE THE MARKED PART OF THE FIFTH OVAL (F) AND CONNECT IT TO THE FOURTH OVAL. THIS IS ORION’S MAIN ENGINE.

SUPPLY LIST

PENCIL WITH ERASER
BLACK PEN OR MARKER
SHEET OF PAPER

THIS ACTIVITY REQUIRE A PENCIL AND A BLACK PEN OR A MARKER. YOU WILL USE THE PENCIL TO DRAW THE GUIDELINES AND THE MARKER TO DRAW THE FINAL SHAPES. FOR EVERY STEP, THE CURRENT SHAPES TO BE DRAWN ARE SHOWN IN RED.

DRAW THESE SHAPES USING A BLACK PEN.
3. **Draw Guidelines for Crew Module Details**

Draw four more ovals on the crew module. You'll use these as guides to line up the windows and the backshell panels.

4. **Draw Windows and Backshell Panels**

Draw over the marked parts of the first and fourth ovals in black ink (A) and add the lines separating the ovals into individual backshell panels (B).

Draw the umbilical cover (C).

Using the second and third oval as a guide, draw four windows (D).

Draw the partitions separating the service module radiator panels (E).

**Fun Fact:**
- The radiators and heat exchangers keep the astronauts and equipment at a comfortable temperature.
- The forward bay cover protects Orion's parachutes during flight. The parachutes will bring the crew to a gentle landing at the end of the mission.
- The umbilical cover hides the air, water, and command interface connections between the crew module and service module.
5. **DRAW GUIDELINES FOR SOLAR WINGS**

Find a spot toward the center of the crew module. Draw four lines radiating out from that point and intersecting the service module toward the bottom.

6. **DRAW SOLAR WINGS AND PANELS**

Orion has four solar wings. Each wing has three sections. Draw only two sections on the rear wing since one is hidden by the service module.

- **FUN FACT**
  - Orion solar wings are 7 meters long with each panel measuring 2 meters x 2 meters.

- **FUN FACT**
  - Each solar wing panel has 1250 solar cells. Orion has a total of 15,000 solar cells to convert sunlight into electricity.
7. ERASE THE PENCIL GUIDELINES. ONLY THE INK DRAWING SHOULD REMAIN. YOU'RE NOW READY TO ADD SHADING.

8. SHARE YOUR MASTERPIECE!

MAKE IT YOUR OWN! ADD EXCITING COLORS. DRAW STARS AND PLANETS.

DON'T FORGET TO SHARE YOUR MASTERPIECE ON SOCIAL MEDIA!

#DRAWARTEMIS