EUROPA CLIPPER
Spacecraft

Paper Model (Advanced Level)

Age level: 12+
Degree of difficulty: Advanced
Estimated time to build as an individual: 4.5 – 5 hrs
Finished model size: 22 inches long
NASA’s Europa Clipper spacecraft will conduct a detailed survey of Jupiter’s moon Europa to determine whether the icy moon could harbor conditions suitable for life. The spacecraft, in orbit around Jupiter, will make about 40 to 50 close passes over Europa, shifting its flight path for each flyby to soar over a different location so that it eventually scans nearly the entire moon.

After each flyby, the spacecraft will send its haul of data back to Earth. The time between flybys will also give scientists time to study the data and consider adjusting the timing and trajectory of future flybys if they find regions that spark curiosity and need more study.

An artist’s rendering of Europa and Jupiter based on images sent by visiting spacecraft.

Credit: NASA/JPL-Caltech

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**Completed Europa Clipper Model**

- **16 a** PIMS
- **9** Gravity/Radio Science
- **Gravity/Radio Science** (Paper Straw)
- **2** Pressurant
- **15** EIS
- **E-THEMIS**
- **12** MISE
- **3** MASPEX
- **6** Europa-UVS
- **14** REASON HF (x2)
- **17** Solar Array 1
- **13** REASON VHF (x4)
- **4** SUDA
- **1** Spacecraft Main Bus
- **2** Pressurant
- **8** PIMS
- **18** Solar Array 2
- **7** Payload
- **11** E-THEMIS
- **16 b, c**
- **16 b, c**

**Required Materials**

- Five sheets of white cardstock (*recommended 65 lb weight*)
- Glue stick (*Liquid glue is not recommended*)
- Scissors
- X-acto knife
- Ruler
- Pen or pencil
- One paper straw
- One wooden barbecue skewer or equivalent (*at least 10 inches [~25 centimeters] long*)
Print pages 4–8 of this instructional PDF in color on white cardstock. Use an X-acto knife (gently press to avoid cutting through) to score along all the dashed lines. Next, cut out all the parts, fold where indicated, and glue the dark-gray areas first; glue the light-gray areas afterwards. Make sure to follow this instructional sequence to assemble. Also, follow the build sequence on photos 9, 15, 16, 18, 19, 20 to assemble these parts. Use color print for desired results.

For small parts, use a wooden skewer to apply pressure to areas being glued. Use a pen to form the paper into a cylinder. Use skewer to widen the hole to make an appropriate size. Glue flaps and push the cylinder all the way into Payload. Glue both inside edge and gray flaps for good bonding. Glue both inside edge and gray flaps for good bonding. Glue, align precisely, and apply pressure to make a cone. Insert straw before gluing the Pressurant to the Spacecraft Main Bus. All the parts are installed except the Solar Array assembly. Two sizes are provided — use the one that fits best.

You may use skewer to apply pressure to secure the glued flaps inside. Do not glue the blue flaps. Leave four blue flaps outside of the cylinder to prevent the cone from slipping into the cone. Cut the blue flaps off after bonding is complete.
INSTRUCTIONS (Part 2 – Solar Array Assembly)

Glue REASON VHF b and REASON HF b to the inside of the Solar Array 1 before you fold and glue the Solar Array as in photo 4. Use wooden skewer to assemble the solar array as indicated. After Solar Array 1 is completed as shown in photo 5, insert the pointy skewer into the holes on the Spacecraft Main Bus as in photo 6. Repeat the same process to complete Solar Array 2 as in photo 7. Glue REASON VHF and REASON HF and attach them as shown in photo 8.
7 Payload
Score along all the dashed lines

Cut on red lines

Glue the dark gray areas first

8 Spacecraft Bus (front part)
Cut on red lines

9 Gravity/Radio Science

10 Attach to Payload
Solar Array 2
Score along the dashed line
Locations to place REASON-VHF
Locations to place REASON-HF