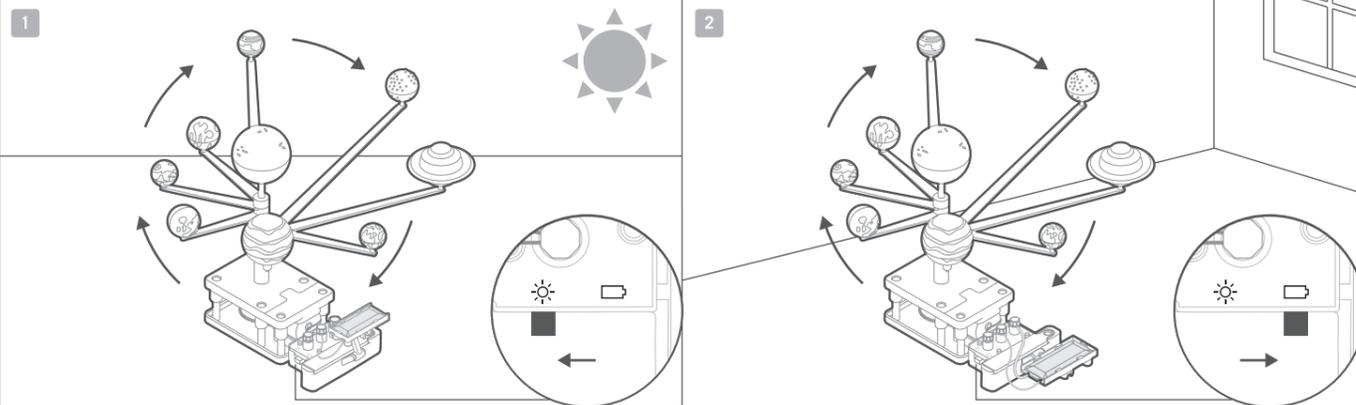


G. OPERATION



This is a Hybrid Solar-Powered Solar System. It can be powered by solar energy or battery.

1. When there is sunlight, place your Hybrid Solar-Powered Solar System in the sunshine and move the switch to the “sun ☀️” sign to make the planets turn using solar power. Twist and tilt the solar panel so that the panel faces the sun, allowing the panel to collect as much sunlight as possible. The planets will turn using power from the solar panel.

2. When there is not enough sunlight, slide the switch to the “battery 🔋” sign to switch on the motor. Your Hybrid Solar-Powered Solar System is now ready for use without sunlight! When the planetarium is not in use, move the switch to the “sun ☀️” sign to switch it off.

H. HOW IT WORKS

- Sunlight is a form of energy. When sunlight falls on the solar panel, the solar cells in the panel convert some of this light energy into electricity. Electric current flows from the cells to the motor, making the motor turn. Switching to battery power allows electricity from the battery to flow to the motor.
- The gears on the gearbox reduce the speed of the motor to a slower speed. This reduces the speed of the spindle that turns the planets around the sun.

I. TROUBLESHOOTING

If the planetarium does not move in solar-power mode or battery mode:

- Check that you have made the correct connections on the terminal blocks (see section E, step 5).
- Check that the bare metal on all the wires is in contact with the metal terminals.

If the motor does not run in solar-powered mode:

- The sunlight may not be strong enough. Adjust the angle of the panel so that it directly faces the sun.
- Check that the gears are lubricated. Friction between the gear wheels will affect the performance of the motor.
- Try giving the Hybrid Solar-Powered Solar System a gentle push to get it started.

If the motor does not run in battery mode:

- Check that you have a fresh battery and that the battery is inserted into the battery holder the correct way round.
- Check that the gears are lubricated. Friction between the gear wheels will affect the performance of the motor.
- Try giving the Hybrid Solar-Powered Solar System a gentle push to get it started.

J. FUN FACTS

- The word ‘hybrid’ means a mixture of two different things. The Hybrid Solar-Powered Solar System uses a hybrid power system that mixes solar power and battery power.
- Hybrid solar / battery power systems are used in many small devices, such as calculators, radios and watches.
- The solar-powered plane Solar Impulse flies using solar power during the day and rechargeable batteries at night. It can stay in the air for days at a time.
- Solar Planetarium is an example of an orrery. An orrery is a model of the Solar System. The word comes from the Earl of Orrery, who had a clockwork orrery built more than 300 years ago.
- All the planets in the solar planetarium complete their orbits of the Sun at the same time. In reality, the planets move at different speeds – the closer to the sun they are, the faster they go.

HYBRID SOLAR-POWERED SOLAR SYSTEM

PLEASE SCAN THE QR CODE FOR VIEWING MULTI-LANGUAGE INSTRUCTIONS.



FR. Veuillez scanner le code QR pour afficher les instructions multilingues pour ce kit. DE. Bitte scannen den QR-Code, um die mehrsprachige Anleitung für dieses Set anzusehen. NL. Scan de QR-code om de instructies voor deze set in verschillende talen te bekijken. IT. Scansiona il codice QR per visualizzare le istruzioni multi-lingua per questo kit. ES. Escanee el código QR para ver instrucciones en varios idiomas para este kit. JA. QRコードをスキャンして、本キットの多言語説明書をご覧ください。

WARNING:

CHOKING HAZARD - Toy contains small parts and small balls. Not for Children under 3 years.

TO PARENTS: PLEASE READ THROUGH THESE INSTRUCTIONS BEFORE GIVING GUIDANCE TO YOUR CHILDREN.

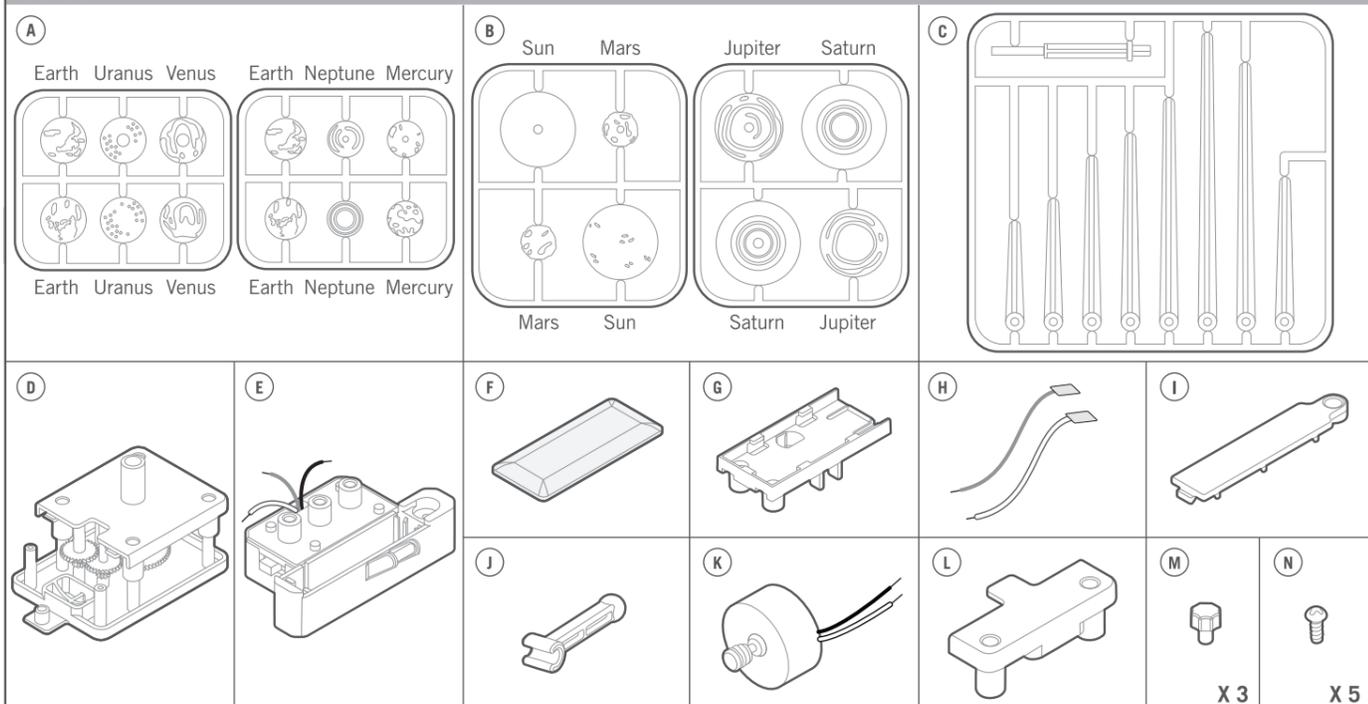
A. SAFETY MESSAGES

1. Adult supervision and assistance are required at all times.
2. This kit is intended for children over 5 years of age.
3. This kit and its finished product contain small parts and small balls which may cause choking if misused. Keep away from children under 3 years old.
4. Do not attempt to take the solar panel apart.
5. To prevent a short circuit, never touch the contacts inside the battery case with metal objects.
6. Only install batteries after you have assembled the product. Adult supervision is required.

B. USE OF BATTERY

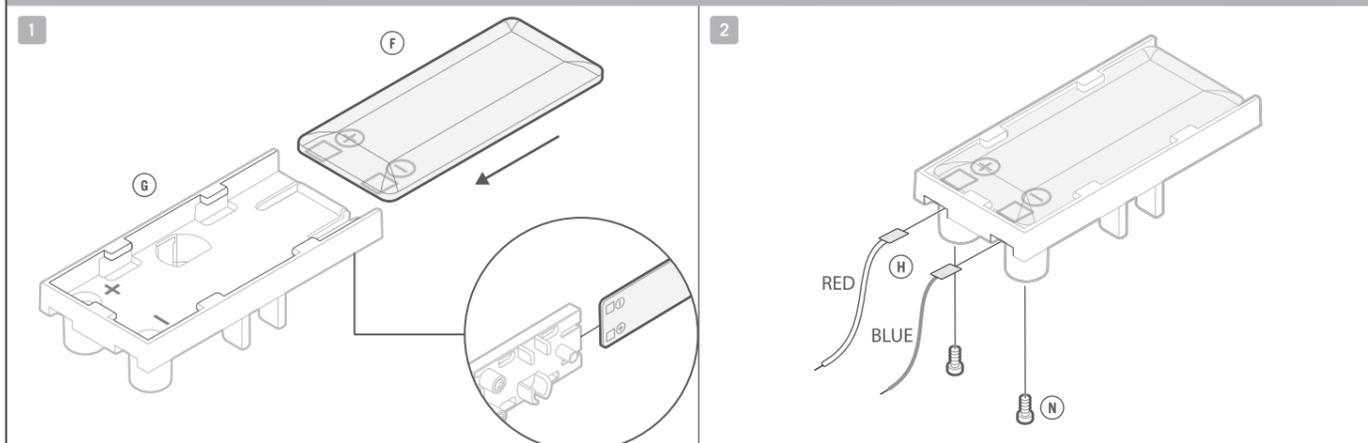
1. Requires one 1.5 V AAA battery (not included).
2. For best results, always use a fresh battery.
3. Make sure you insert the battery in the correct polarity.
4. Remove the battery from the kit when not in use.
5. When the battery is exhausted, replace it immediately to avoid possible damage to the kit.
6. The rechargeable battery must be removed from the kit before recharging.
7. The rechargeable battery must be recharged under adult supervision.
8. Do not short circuit the supply terminals in the battery case.
9. Do not attempt to recharge non-rechargeable batteries.

C. CONTENTS

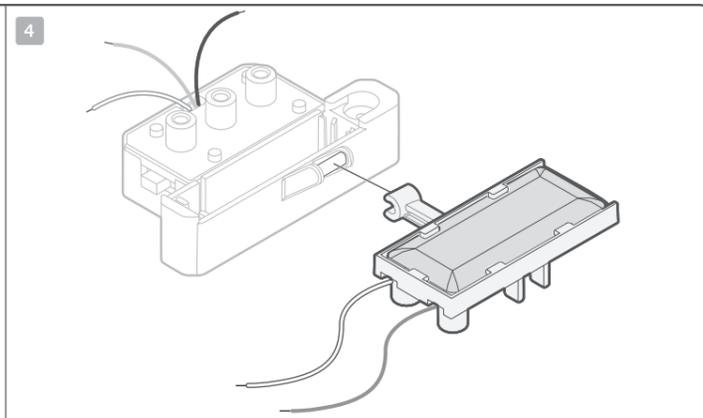
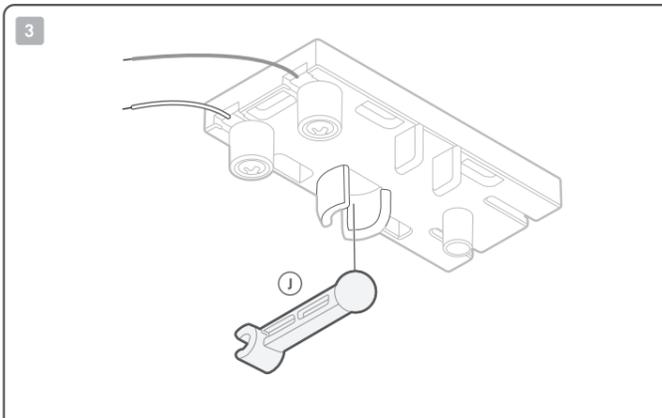


Part A: Frame with 6 parts x 2, Part B: Frame with 4 parts x 2, Part C: Spindle and set of arms x 1, Part D: Gearbox x 1, Part E: Battery holder x 1, Part F: Solar panel x 1, Part G: Solar panel holder x 1, Part H: Pair of wires x 1, Part I: Battery cover x 1, Part J: Support arm x 1, Part K: Motor x 1, Part L: Motor cover x 1, Part M: Terminal caps x 3, Part N: Screws x 5. Also required but not included with this kit: Small crosshead screwdriver, one 1.5 V AAA battery.

D. ASSEMBLING THE HYBRID SOLAR-POWERED UNIT

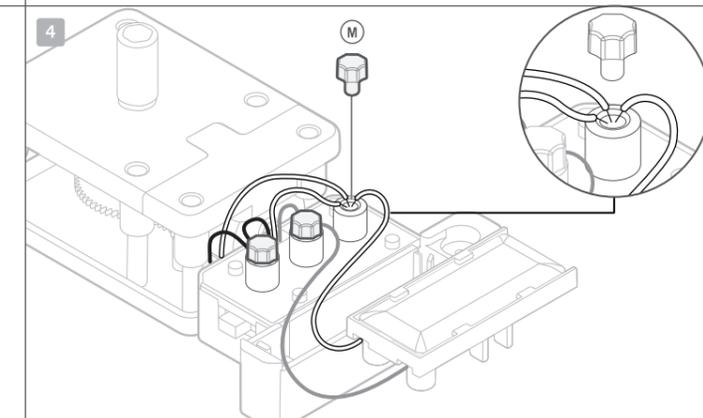
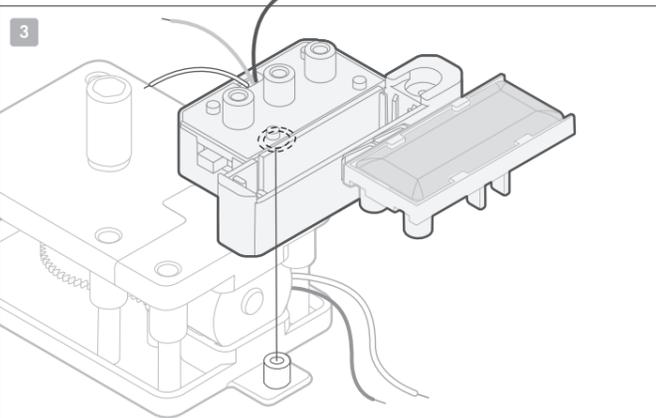
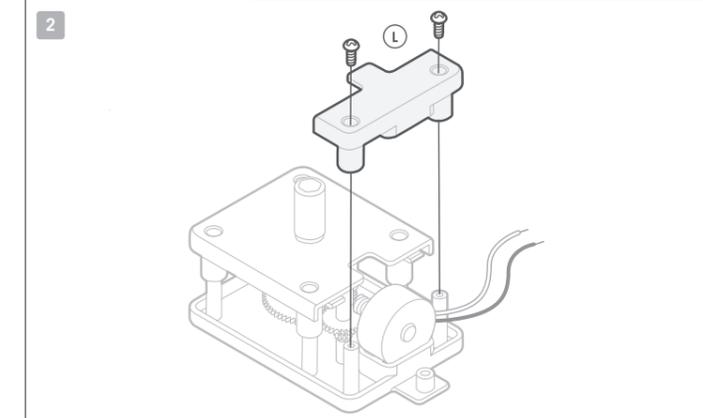
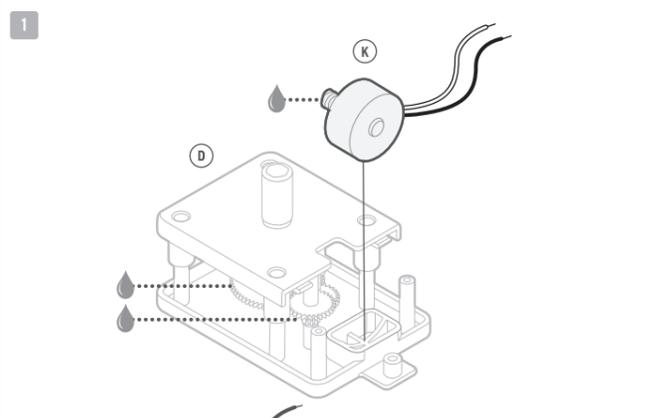


1. Examine the solar panel. At one end of the bottom side (the flat side) you will find a “+” and “-” sign. With the “+” and “-” signs facing forwards, slide the panel into its holder until it clicks into place.
2. On the underside of the solar panel holder there are two connections for wires with screw holes. Refer to the position as shown, slide the tab on the blue wire into the right-hand connector. Secure it with one of the screws. Slide the tab on the red wire into the left-hand connector and secure it with a screw.



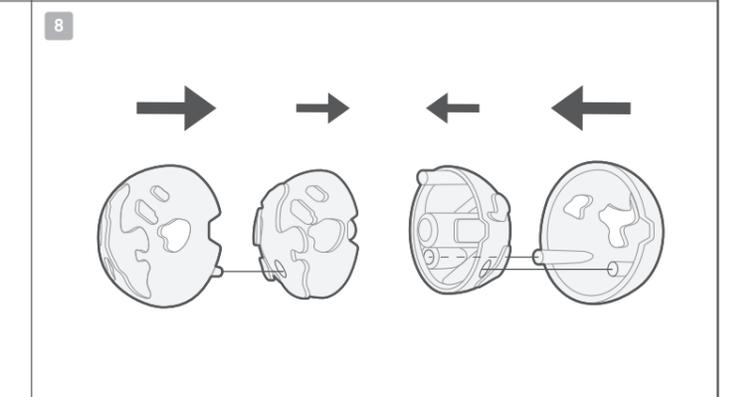
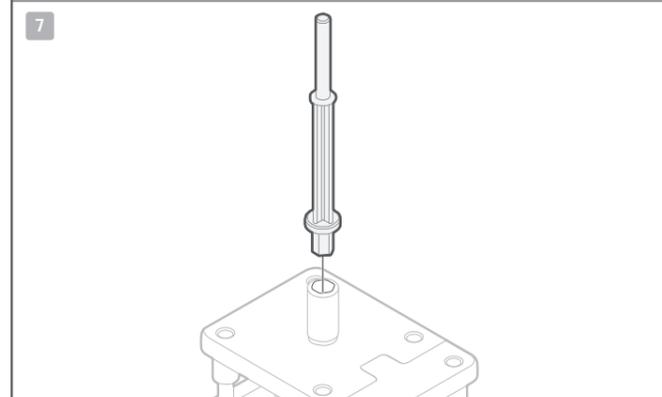
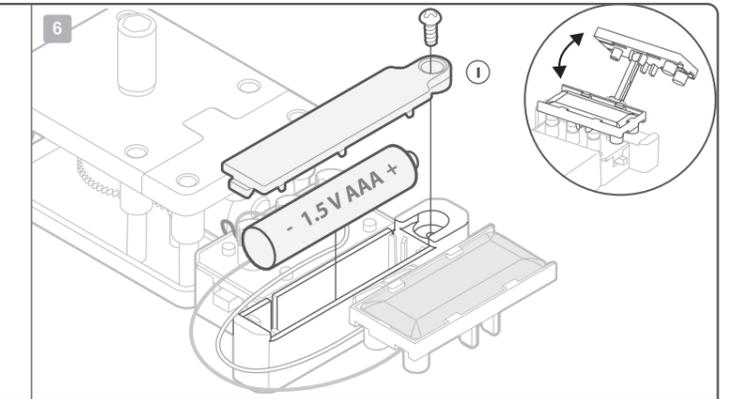
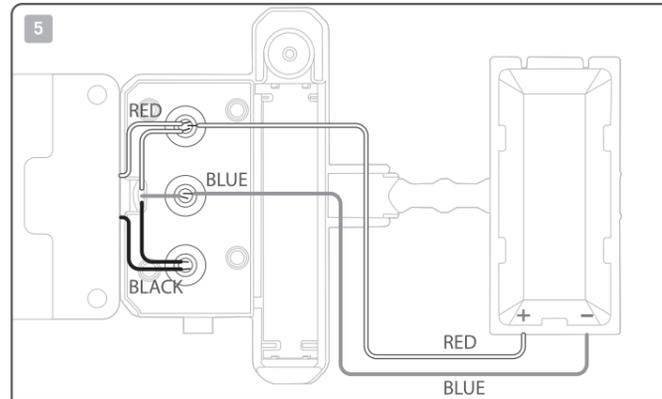
3. Clip the solar panel holder onto the top joint of the supporting arm.
4. Clip the solar panel holder onto the battery holder.

E. ASSEMBLING THE BODY AND PLANETS



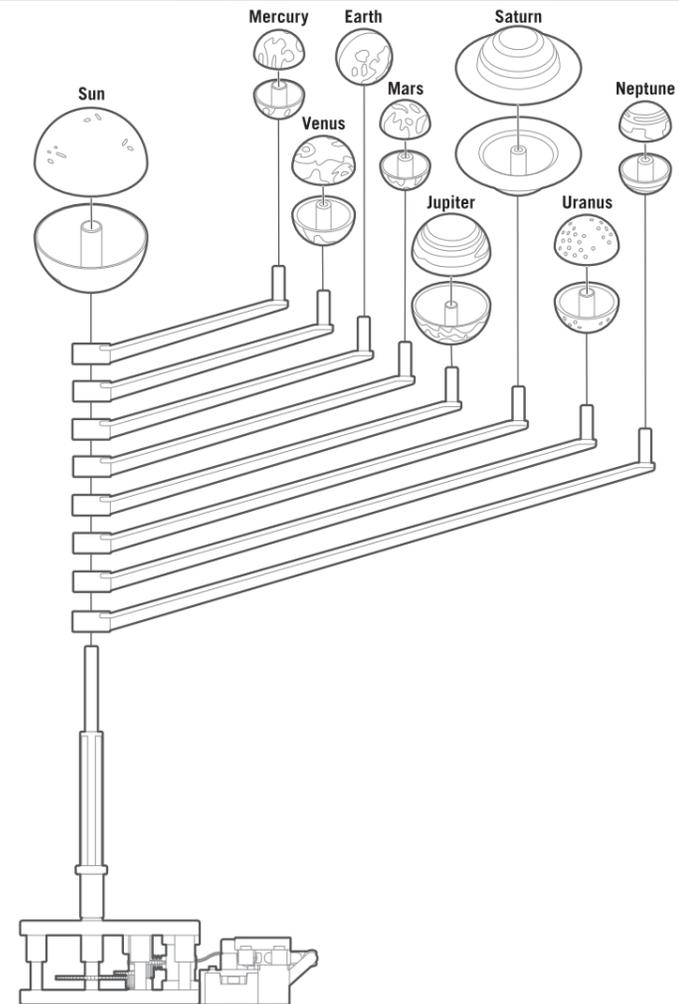
Remarks: It is recommended that you apply some lubricant to the joints or moving parts when assembling the product. This helps to reduce friction and enhance mechanical performance. You may use some cooking oil or lotion for this purpose. In the instructions, the "oil drop symbols" indicate the areas which may require lubrication. The names of the planets are also embossed on each planet and arm.

1. Place the motor into its slot in the gearbox.
2. Add the motor cover and secure it with two screws.
3. Fit the battery holder onto the end of the gearbox.
4. Find the three red wires (one from the Hybrid Solar-Powered Unit (assembled in section D), one from the solar panel, and one from the motor). Push the bare metal ends of these wires into one of the terminals and insert a terminal cap to keep them in place. Repeat with the two blue wires in the central terminal and the two black wires in the remaining terminal. Add two more terminal caps to keep the blue and black wires in place.



5. Follow the diagram to ensure the wires are connected correctly.
6. Insert a 1.5 V AAA battery into the battery compartment and secure the battery cover with a screw. You can pivot the solar panel out of the way if you need to.
7. Place the spindle into the gearbox.
8. For the Earth model, detach the four pieces from the frame and assemble as shown. For the other planets, detach the two hemispheres from the frame and snap the hemispheres up.

F. FINAL ASSEMBLY



Push each planet onto its corresponding arm and arrange the arms in order of length (longest arm first). Place the sun onto the top of the spindle.