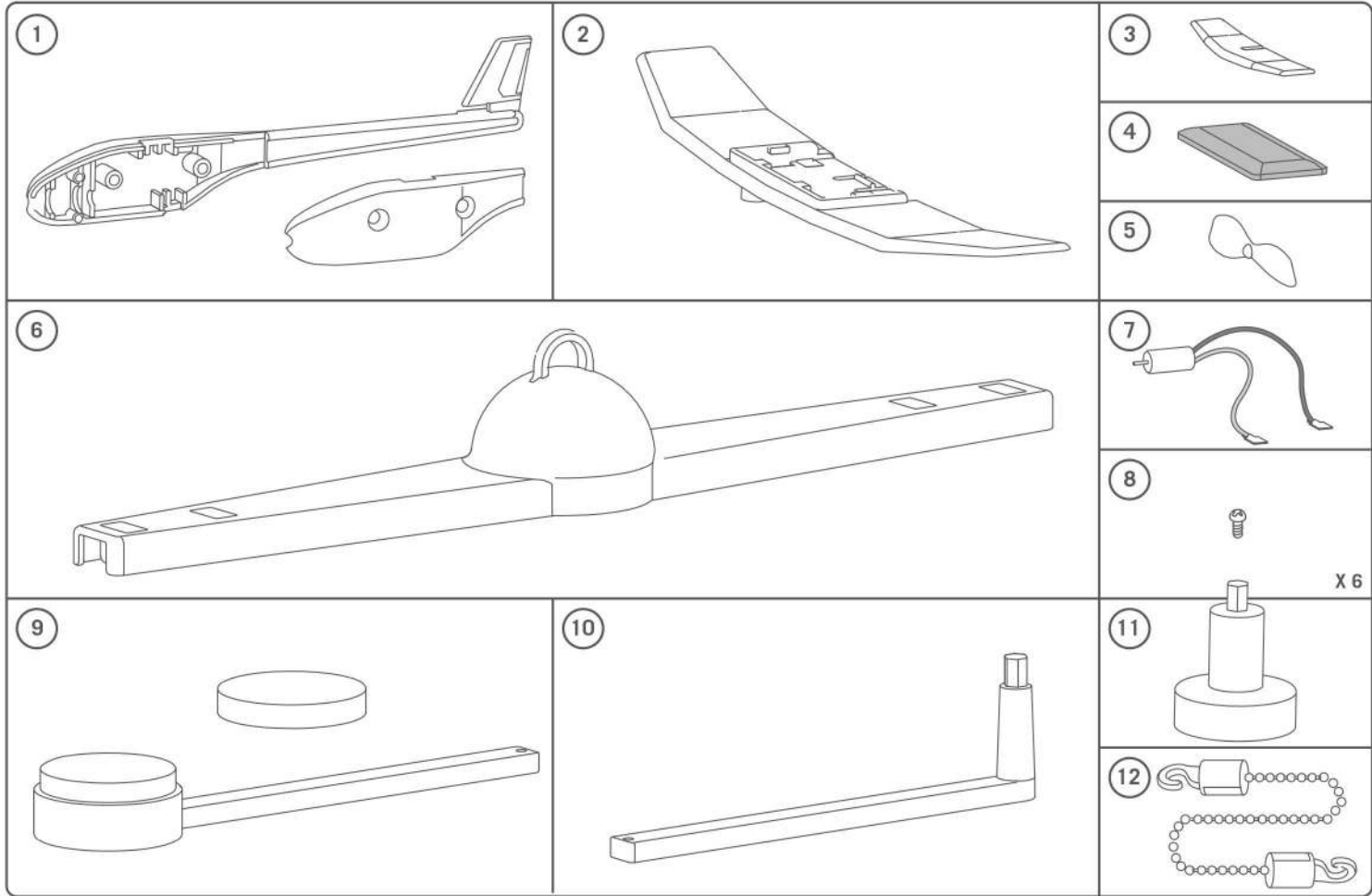


Solar Plane Mobile

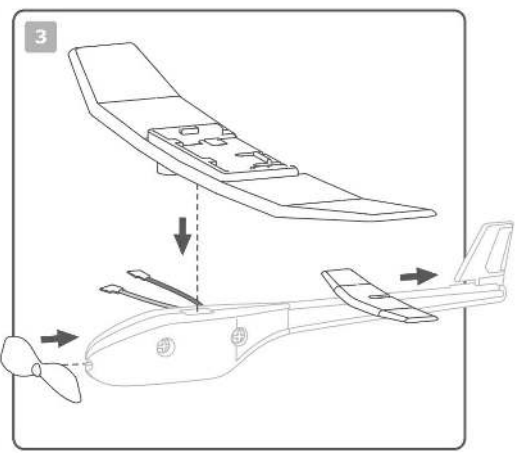
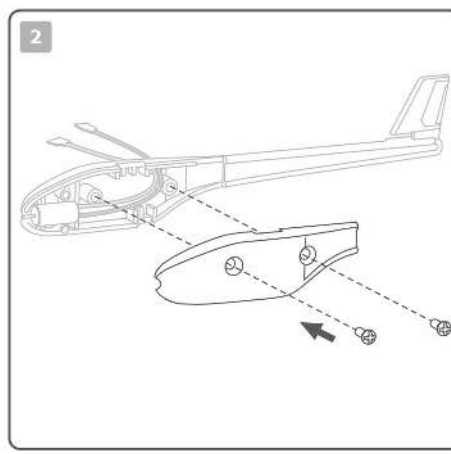
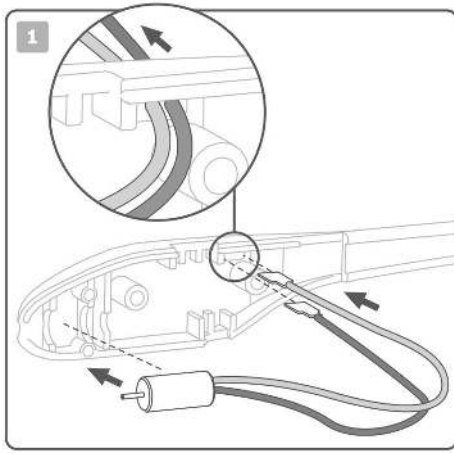
A. SAFETY MESSAGES:

- 1. Please read through these instructions before you start.
- 2. Intended for children of ages over 8.
- 3. Adult assistance and supervision are recommended.
- 4. This kit and its finished product contain small parts which may cause choking if misused. Keep away from children under 3 years old.
- 5. Do not attempt to take the solar panel apart.
- 6. Never look directly at the Sun as you could damage your eyes.
- 7. If using a desk lamp as a source of light, be aware that this will be hot. Only use a desk lamp under adult supervision.



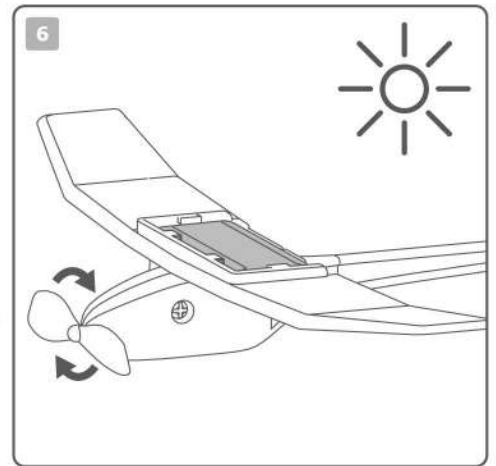
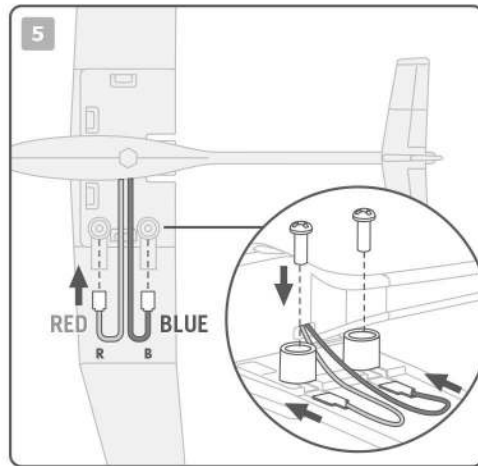
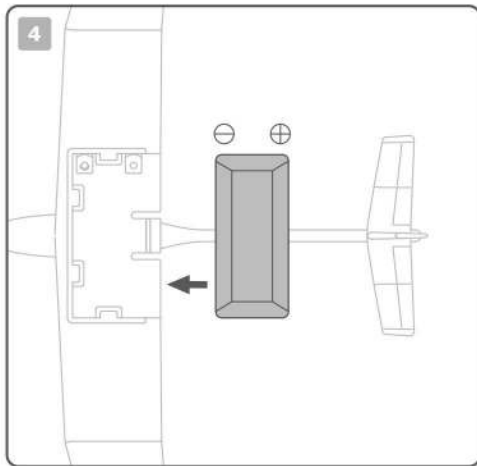
B. CONTENTS:

Part 1: Plane body halves, Part 2: Wing, Part 3: Horizontal stabiliser, Part 4: Solar panel, Part 5: Propeller, Part 6: Mobile structure, Part 7: Motor with wires, Part 8: Screws, Part 9: Weight holder with cover, Part 10: Plane holder, Part 11: Bottle cap, Part 12: Ball chain.
Also required but not provided: a used drinks bottle, coins and a crosshead screwdriver.

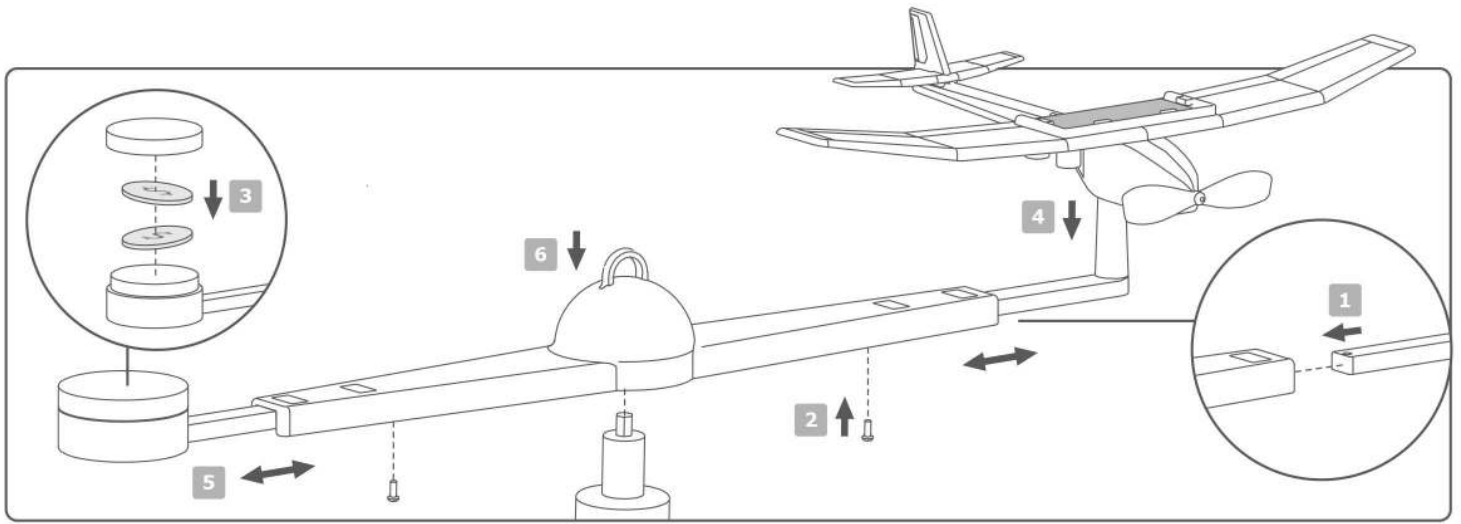


C. ASSEMBLING THE SOLAR PLANE:

1. Take the longer half of the plane body. Fit the motor into the recess in the nose of the plane. Thread the two wires from the motor through the hole in the centre of the plane body. Make sure that the wires do not cover the neighbouring pins.
2. Fit the other half of the plane body. Use two screws to secure the two halves.
3. Press the propeller onto the motor axle. Position the horizontal stabiliser slot against the vertical stabiliser of the rear body and slide it in. Next, locate the hole at the top of the plane body. Fit the pin on the underside of the wing into the hole.

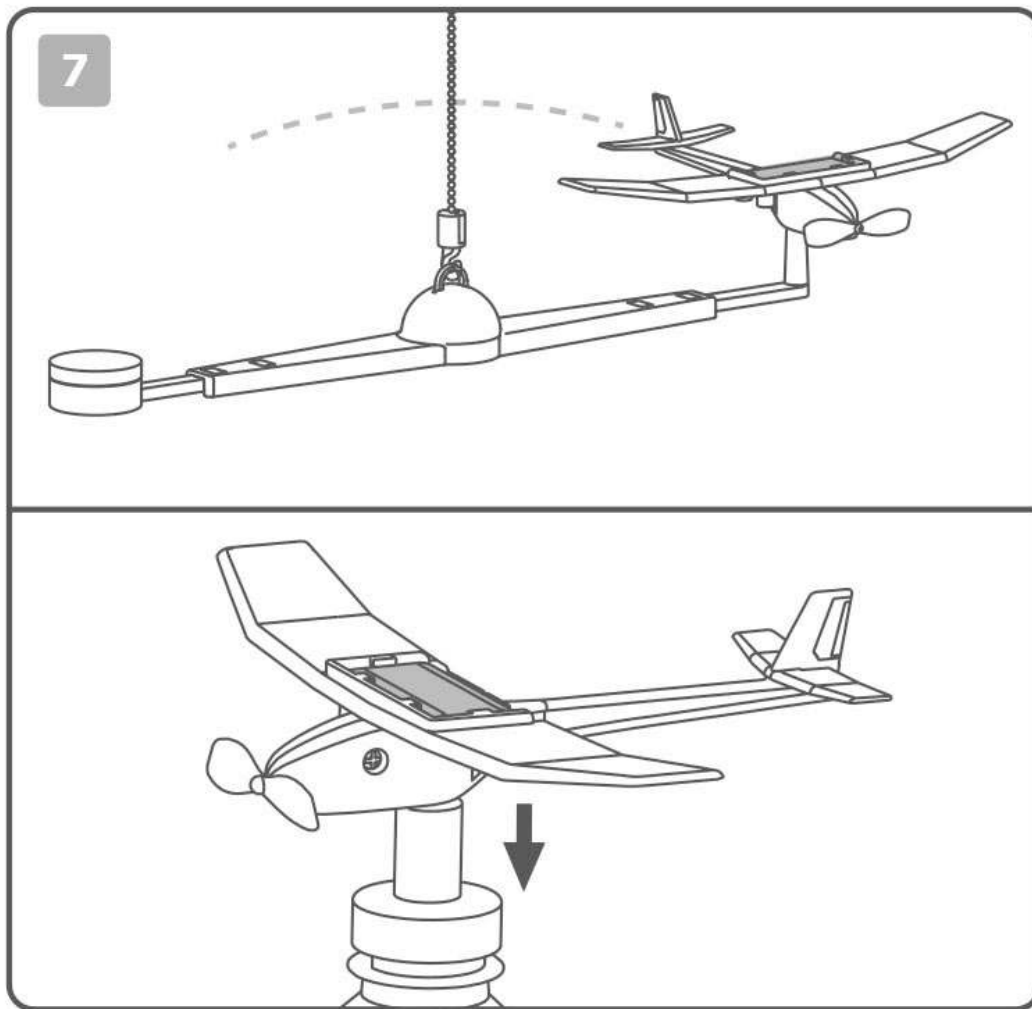


4. Take the solar panel and examine its flat underside, which is marked with positive and negative signs. Slide the panel onto the wing, with the negative sign at the front and the positive sign at the rear (as shown).
5. Flip over the plane. Gently insert the metal plate of the red wire into the slot closest to the front of the plane, and then the metal plate of the blue wire into the other slot. Tighten two screws to ensure that the plates are securely attached to the solar panel.
6. Your Solar Plane is done! Test your Solar Plane in the sunlight or under a desk lamp equipped with a 60-watt incandescent light bulb. You should be able to feel the wind blowing towards the back.



D. CONSTRUCTING THE SOLAR PLANE MOBILE:

1. Affix the bottle cap to a clean drinks bottle. Pour some water into the bottle to ensure that it acts like a weighted stand. Take the mobile structure. Insert the plane holder (part 10) into one end of the structure. Slide the weight holder (part 9) into the other end of the structure.



2. Attach screws to the underside of the plane holder and the weight holder. Refrain from tightening the screws too tightly, as you will need to adjust the holder distance later to balance the mobile.
3. Insert 2 coins in the weight holder. Afterwards, place the weight cover on top.
4. Install the Solar Plane on the plane holder.
5. Slide both holders out to their maximum distance.
6. Carefully place the whole system onto the pin of the bottle cap. Make sure the pin inside the centre of the mobile structure sits on the pin of the bottle cap. Check if the system is balanced. (Note: With both holders spanning the maximum distance, the weight to balance the Solar Plane is around 19 g or 0.6 oz., which is about 3 coins of a total diameter of 26 mm.) If the system tilts to the plane side, slide the plane back towards the mobile centre a short distance or add a little weight to the weight holder. If it tilts towards the weight holder side, reduce the weight or slide the weight holder back a short distance towards the mobile centre. When the system is balanced, tighten the screws on the underside to firmly attach the holder positions.
7. Congratulations! The Solar Plane Mobile is done. Watch the plane move as the Sun powers it! You can also use the hexagonal pin to adjust the operating angle of the Solar Plane for more fun! Alternatively, attach the ball chain to the mobile structure and hang it from a clothesline, or slide the slot of the Solar Plane directly onto the pin of the bottle cap as a model display!

E. TROUBLESHOOTING:

If the propeller does not spin,

- Check if the solar panel is directly facing the light source (the Sun or desk lamp).
- Check if the wires from the motor are properly connected to the solar panel.

If the plane flies backwards, check if the wires have been connected in the proper order.

If the mobile is not balanced, try adjusting the weights and the extension length of the weight support.

F. FUN FACTS:

- Many solar planes are shaped like flying rulers, in order to take advantage of air currents that help them to glide and use only a minimal amount of power. NASA's Helios is an example. It has a wingspan of 75 metres, but is only 3.7 metres long.
- A solar plane, called Solar Impulse 2, attempted to fly around the globe. Its 17,000 solar panels gather energy generated during the day for night-time flying. It has super-wide wings with a 72-metre wingspan, exceeding that of a Boeing 747 jumbo jet. However it is very light and flies much slower than a jet plane.
- The solar panels are both the skin and heart of solar planes. Unlike the rigid and bulky solar panels that we usually see on satellites or solar houses, the solar panels used on these planes are thin and flexible enough to roll. They are also very efficient, and of course, expensive.
- The Sun is hot — very hot. On the surface, its temperature is 5,500°C. In the centre, its temperature is a blistering 15.6 million °C.
- The energy we receive from the Sun is called solar energy. Because the Sun shines constantly, it is a renewable form of energy.
- Most solar cells are made from a material called silicon. Most of the silicon used to make them comes from sand.
- The robot rovers that operate and drive across the surface of Mars use electricity generated by solar cells.
- It is predicted that by the year 2050, the dominant source of energy will be solar.

QUESTIONS & COMMENTS:

We treasure you as a customer and your satisfaction with this product is important to us. In case you have any comments or questions, or you find any parts of this kit missing or defective, please do not hesitate to contact our distributor in your country, whose address is printed on the package. You are also welcome to contact our marketing support team at Email: infodesk@4M-IND.com, Fax (852) 25911566, Tel (852) 28936241, Web site: WWW.4M-IND.COM