

Renewable Energy Kit

SE-7611

What's included

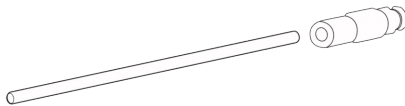
- 6× Blade, 6"



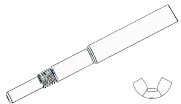
- 6× Blade, 8"



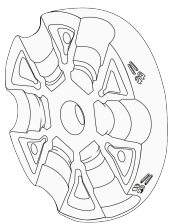
- 6× STEM blade adapter and dowel



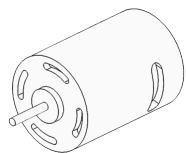
- Shaft with wing nut



- 2× Hub



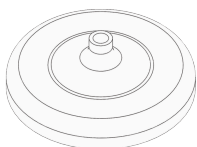
- DC motor



- Nose cone



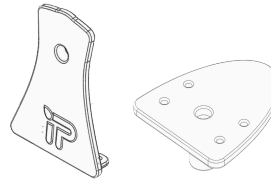
- Base



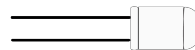
- DC motor stand (with 2× screws and 2× nuts)



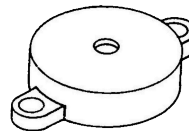
- Nacelle, front and base (with 4× screws and 4× nuts)



- LED



- Buzzer



- Resistor, 30 Ω , 1/4 W



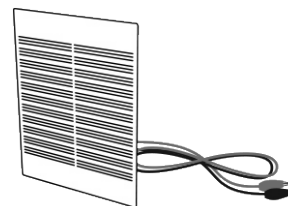
- Tower, tall



- Tower, short

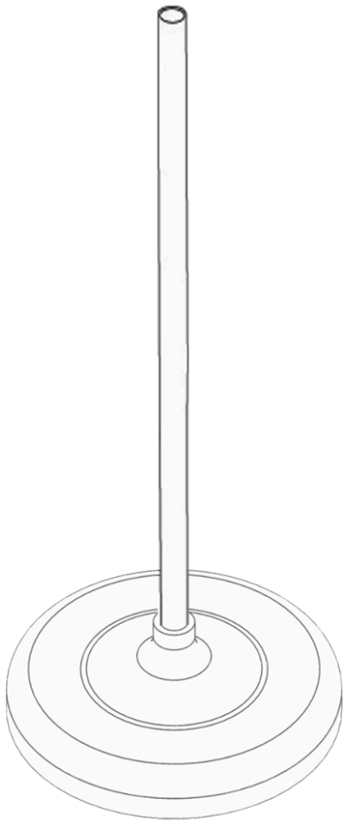


- Solar panel, 2 W



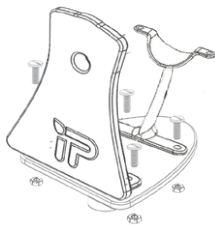
Assembly instructions

Step 1: Assemble the base



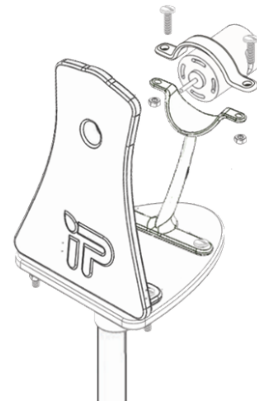
Insert the tower into the base. The deeper it is the less chance of wobble when the blades rotate at high RPMs. Wobbling may occur, especially with the larger blades, but will settle down after a few seconds.

Step 2: Assemble the nacelle



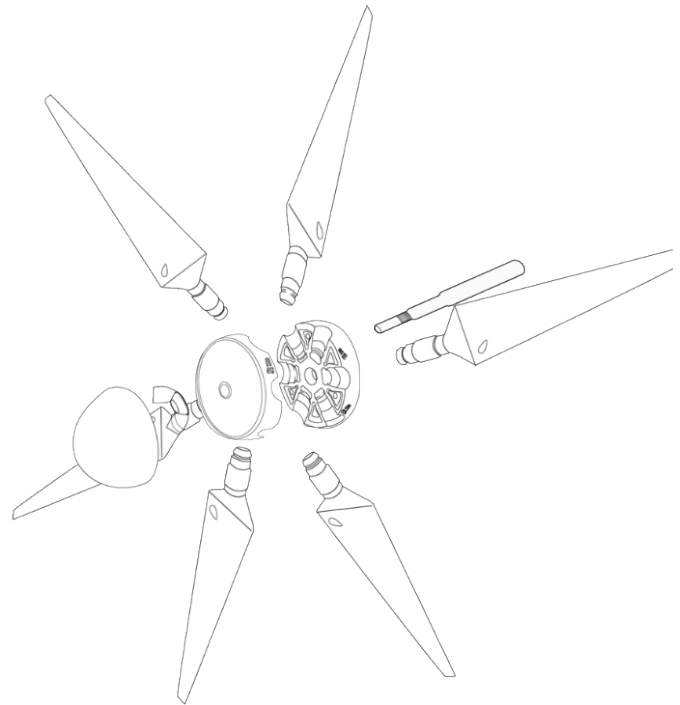
1. Connect the nacelle front into the nacelle base using the long screws and nuts.
2. Connect the DC Motor Stand to the nacelle base.

Step 3: Assemble the generator



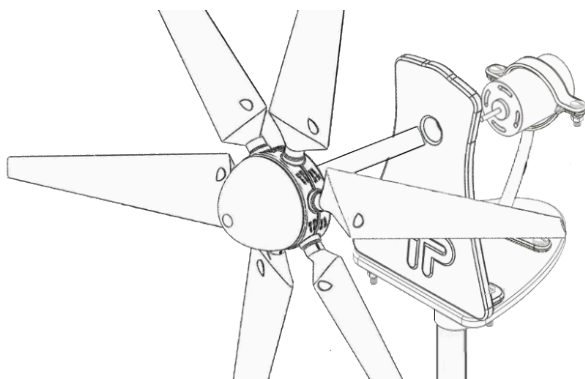
1. Connect the nacelle to the tower.
2. Using the small screws and nuts, connect the DC motor using the motor clip to the motor stand.

Step 4: Assemble the blades



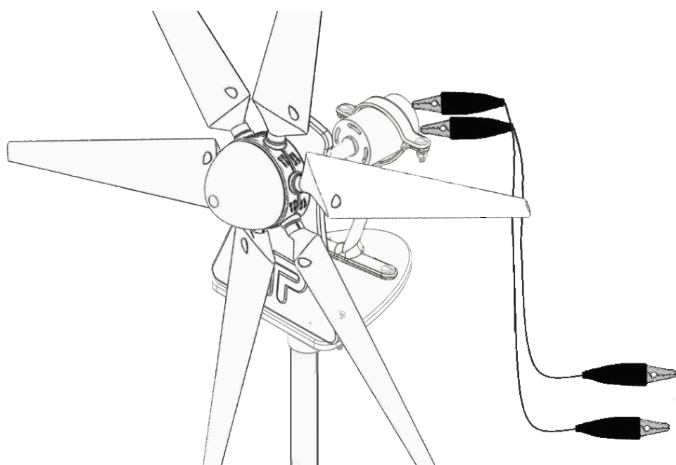
1. Place the blades in the hub with the blade leaf facing forward and sandwich them together.
2. Compress the pieces together with your fingers and insert the shaft.
3. Use the wing nut to compress the blade assembly.
4. Connect the nose cone.

Step 5: Assemble the rotor



1. Connect the blade assembly shaft to the motor shaft.
2. Adjust the blades to the desired pitch angle.

Step 6: Set up the power



1. Connect the alligator clips directly to the motor leads.
2. Connect the other end of the alligator clips to voltage sensor or a load (such as the LED, buzzer, or resistor).

💡 TIP

You can try to modify your tower height for stability. The shorter tower and smaller blades tend to keep the turbine well balanced.

Lab activities

The following lab activities are available as PDF and SPARKlab files at [pasco.com/renewable](https://www.pasco.com/renewable). They are free to download and use with SPARKvue.

- Energy Transformations
- What is Electricity?
- Solar Panel Performance
- Light and Solar Panels
- Load and Solar Panels
- Heat and Solar Panels
- Wind Power I: Distance and Speed
- Wind Power II: Blade Length, Number, and Pitch
- Power and Energy
- Power Curves
- Design an Efficient Turbine

Operation and tips

- A 20-inch box fan with three blades is recommended for operation with the wind turbine. These fans are widely available from department stores. Smaller fans may work but are not optimal for use with the large blades or student designed blades.
- The solar cell can be used with direct sunlight or a desk lamp. Ambient indoor lighting may not be sufficient to perform the lab experiments.
- Chipboard, cardboard, and balsa wood all make excellent materials for student designed blades using the STEM adapters.
- The LED turns red when the output voltage reaches 0.9 V and green at 1.2 V.

✓ NOTE

Do not exceed 3 V. This will burn out the LED.

- Smaller blades produce power at higher pitch angles (20°–30°) while larger blades can turn at lower pitch angles.

Software help

The SPARKvue and PASCO Capstone Help provide additional information on how to use this product with the software. You can access the help within the software or online.

SPARKvue

Software Main Menu  > Help

Online pasco.com/help/sparkvue

PASCO Capstone

Software Help > PASCO Capstone Help


Online pasco.com/help/capstone


Specifications and accessories

Visit the product page at pasco.com/product/SE-7611 to view the specifications and explore accessories. You can also download experiment files and support documents from the product page.

Technical Support

Need more help? Our knowledgeable and friendly Technical Support staff is ready to answer your questions or walk you through any issues.

 **Chat** pasco.com

 **Phone** 1-800-772-8700 x1004 (USA)
+1 916 462 8384 (outside USA)

 **Email** support@pasco.com

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Limited warranty

For a description of the product warranty, see the Warranty and Returns page at pasco.com/legal.

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Product end-of-life disposal



This electronic product is subject to disposal and recycling regulations that vary by country and region. It is your responsibility to recycle your electronic equipment per your local environmental laws and regulations to ensure that it will be recycled in a manner that protects human health and the environment. To find out where you can drop off your waste equipment for recycling, please contact your local waste recycle or disposal service, or the place where you purchased the product. The European Union WEEE (Waste Electronic and Electrical Equipment) symbol on the product or its packaging indicates that this product must not be disposed of in a standard waste container.

CE statement

This device has been tested and found to comply with the essential requirements and other relevant provisions of the applicable EU Directives.