Hey Kids!

There are bound to be more hot summer days coming at any point. Why not build your electric fun zone so you can enjoy the cool breeze? You will also be able to use its speedy propeller to perform some exciting experiments. You can learn how simple electric circuits work. And you’ll have fun getting a little dizzy as you watch the fan spin around and around! So let’s get to it!

Have fun!

Safety Information

NOTE: Not suitable for children under 6 years of age. There is a danger of choking due to small parts that may be swallowed or inhaled.

NOTE: Things for use by children & adults: elder instructions are included for parents or other supervising individuals. Please follow them. Leave the packaging and instructions. They contain important information.

BATTERIES
- Two AA batteries (1.5-volt, type AA/LR6/penlight) are required. They are not included in the kit due to their limited storage life.
- Be sure not to bring batteries into contact with coins, keys, or other metal objects.
- The batteries must be inserted with the correct orientation, pressing them gently into the battery compartment.
- Do not deform the batteries.
- The LED must be used with battery compartment propeller.
- Batteries are not to be mixed.
- Rechargeable (nickel-cadmium) batteries.
- The batteries to explode.
- Be sure that the slanted edges of the brackets are positioned on the sides where the wires leave the motor.
- The LED orientation, pressing them gently into the battery compartment.
- Do not mix alkaline, standard (carbon-zinc), or rechargeable (nickel-cadmium) batteries. 
- Exhausted batteries are to be removed from the toy before being charged.
- Be sure that the slanted edges of the brackets are positioned on the sides where the wires leave the motor.

Information about Environmental Protection

- Some of the electrical or electronic components in this kit should be disposed of in the regular household trash when you have finished using them. Instead, they must be delivered to a collection location for the recycling of electrical or electronic devices. This symbol on the product, instructions for use, or packaging indicates this. The materials are reusable in accordance with their designation. By reusing or recycling used devices, you are making an important contribution to the protection of the environment. Please consult your local authorities for the appropriate disposal location.

How to Assemble Your Fan

STEP 1
Press the two mounting brackets 1 and 2 into the gaps on the left and right sides of the motor.
Be sure that the slanted edges of the brackets are positioned on the sides where the wires leave the motor.

STEP 2
Insert the spring 3, the resistor 4 and the LED 5 into their positions. The LEDs should be mounted on deep as possible in the holes of the board.

By the way: “LED” is an abbreviation for “Light Emitting Diode.”

TIP: You could also place a small plus sign next to the LED so you know where the wire goes.

How to Use Your Electric Fan

1. Set the brackets together with the motor into the assembly board 6 and mount the propeller 7 on the motor shaft.
2. Insert the spring 3, the resistor 4 and the LED 5 into their positions. The LEDs should be mounted on deep as possible in the holes of the board.
3. By the way: “LED” is an abbreviation for “Light Emitting Diode.”

You will also need:
- Two AA batteries, 1.5-volt (type AA/LR6/penlight)
- Three thin books
- One thick book
- Small, fluffy feather
- Straight metal plate (for switch)
- Red light-emitting diode
- Resistors
- Battery metal plate with button (for switching)
- Small, fluffy feather
How to Assemble Your Fan

**STEP 1**

You will also need:
- Your electric fan, two thin books, one think book, a feather

**TIP!**

Your electric fan, the propeller is inside the battery compartment. Make sure to store the propeller safely.

1. Remove the two batteries! As soon as the fan gets up to speed, the LED will light up.

2. Reattach the metal plate upside down in the front, the propeller turns to the right.

3. Reinsert the batteries. The propeller will turn to the right.

**EXPERIMENT 4**

WHY DO YOU NEED RESISTORS?

**POWER SOURCES:**

- Batteries

**ELECTRICAL CONTACTS:**

- Resistor

**ELECTRICAL PATH:**

- Battery, resistor, electric fan

**WHY DO THE ROTOR BLADES “DISAPPEAR” BEHIND THE BARS?**

- The propeller blades are thin and flat, so they “disappear” behind the bars.

**WHAT CAN FANS DO?**

- They can blow air, cool, and dry things.

**AIR-CUSHION VEHICLES (HOVERCRAFT):**

- They can hover over water, land, and even air, providing a smooth ride on the water.

**WHAT IS AN ELECTRIC CIRCUIT?**

- An electric current flows through a circuit, allowing electrical components to function.

**WHY DO THE BLADES DISAPPEAR WHEN THEY SPIN?**

- The blades become so thin and flat that they “disappear” behind the bars.

**HOW DOES AN ELECTRIC FAN WORK?**

- Electric fans work by converting electrical energy into mechanical energy to move air.

**FEATHER-LIGHT FLIGHT**

**EXPERIMENT 2**

What will happen if you place a feather in front of the propeller?

1. Place the thin book in front of the propeller. Does the propeller turn to the right or the left?

2. Switch the two motor wires. Press the switch again, and the propeller will turn to the right.

**TIP!**

Always wear safety glasses when working with fans or propellers.

**WHY**

- When you switch the fan motor wires, you change the direction in which the current flows through the motor. As a result, the propeller rotates in the opposite direction too.

**What will happen if you place a feather in front of the propeller?**

1. Place the thin book in front of the propeller. Does the propeller turn to the right or the left?

2. Switch the two motor wires. Press the switch again, and the propeller will turn to the right.

**NOTE!**

- Place the thin book in front of the propeller. Does the propeller turn to the right or the left?

3. Reinsert the batteries. The propeller will turn to the right.

**EXPERIMENT 3**

WHY

- When you switch the fan motor wires, you change the direction in which the current flows through the motor. As a result, the propeller rotates in the opposite direction too.

**WHAT CAN FANS DO?**

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