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Activities

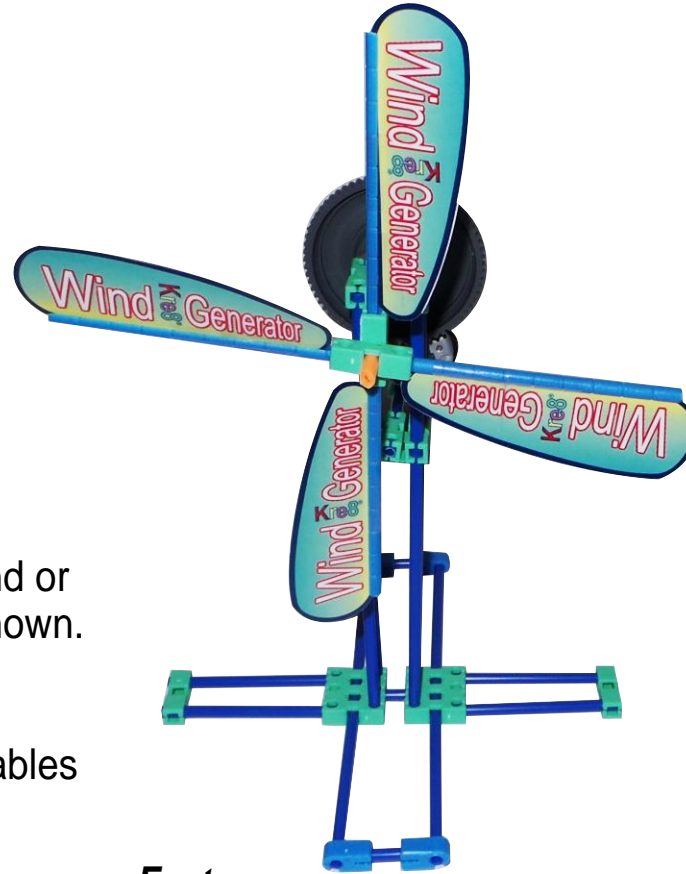
Make the LED glow using a good wind or by use a large electric fan like that shown.

TIP - Look at video first

- 1) Assemble model then
- 2) Experiment with the following variables
 - a) wind speed
 - b) angle of blades
 - c) shape of blades. (can make own)

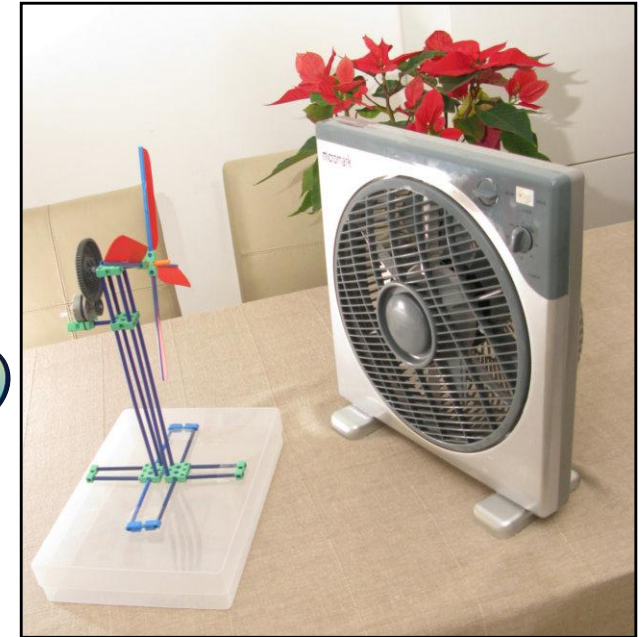
Key Words

Energy, energy conversion, force, balance, pitch, gearing up stability, testing, solar motor, efficiency, power, solar motor LED, voltage and electric current.



Features

33cm high - renewable energy source, adjustable parts for experimentation, geared up solar motor. Can power LEDs and can be tested without wind by spinning the axle at the front using fingers. (easier when with blades removed)



Use a fan like this when no wind.
Tape model to a box to stop it being blown over.

Safety

Stability - If very windy you may need to hold base down.

Use **goggles** when testing in case blades fly out. Blades need to be fixed in the blue snap rods using clear tape. Test in a safe area.

TEST by hand first to ensure it spins freely and blades are balanced and fixed properly.

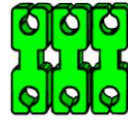


Blue clip connector
(strip of 4)

1 x Clip connectors



Can be cut up and used as single, double or triple as well



Green multiblock connector
(strip of 3)

7 x Multi-blocks



Can be cut up and used as single or double as well

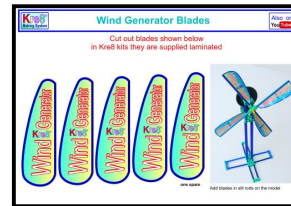
Packing paper insert (USA)



10 x Kre8 dark blue tubes x 20cm



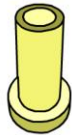
4 x Kre8 5mm snap rods



1 x blade sheet plastic laminated



1 x 3.9mm grey tube
(8 cm+ long)



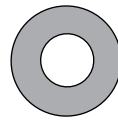
2 x 4 to 2mm converter
(color can be white)



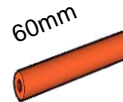
1 x 2mm steel dia. axle



1 x Bi-col LED (white)
two colors when working



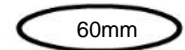
2 x 3mm washer



1 x Orange bendy tube 5mm dia.

Abrasive paper

1 x abrasive paper



1 x rubber band



1 x 70mm gear



1 x 20mm gear

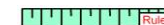


1 x 1metre of wire

Tools you are likely to use



Snips
(recommended)



Rule (metric)



1 x Solar motor

TO MAKE **METRIC SIZES**

Use these 'step-by-step instructions' as a guide and adapt as you want.

NOTES

- 1) **ONLY** cut up connectors as needed
- 2) Use metric ruler for measuring
- 3) For **EASY** assembly
Smooth and round the end of the rods with abrasive paper then **push and twist** the tubes into place.

BASE PART

1 Push blue tube into green connector

2 **3cm**
Cut blue tube 3cm long, round ends with abrasive paper then push in as shown.

3 **20cm**

4 **20**

5 **20**
X4

6 X2

TOWER

7 **20**
X2

8 **20**
X2

9 **20**
X2

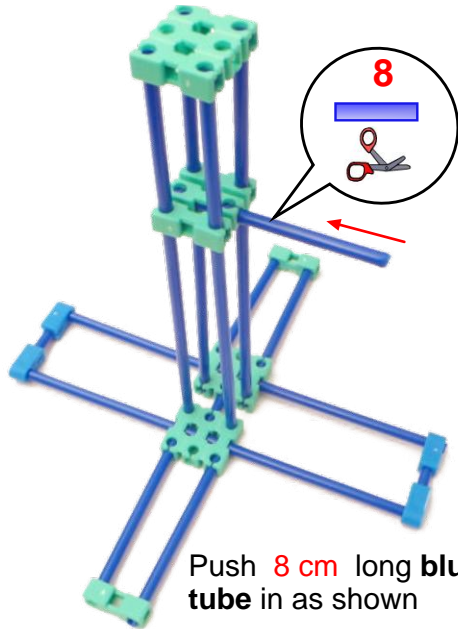
10 **60**
Join by pushing TOWER to BASE PART

TOWER complete

TOWER

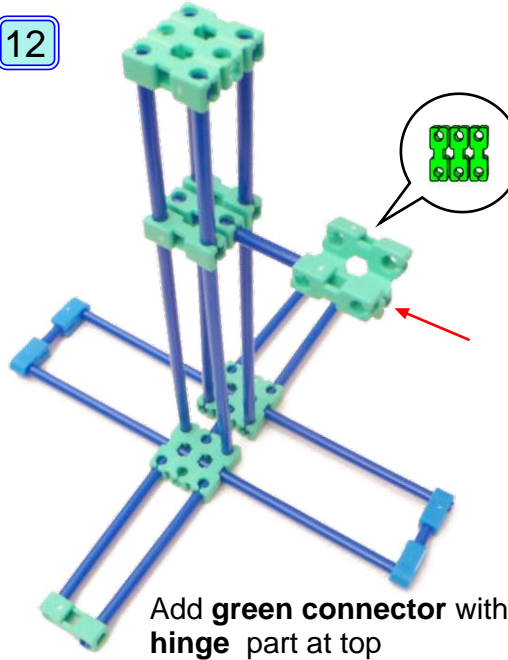
BASE PART

11



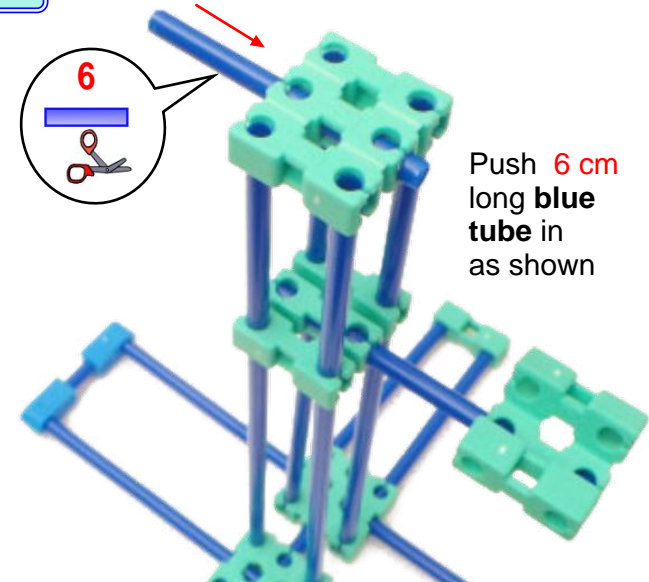
Push **8 cm** long **blue tube** in as shown

12



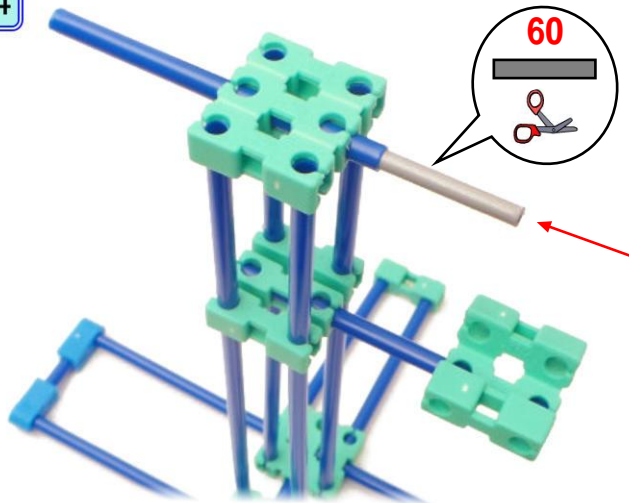
Add **green connector** with **hinge** part at top

13



Push **6 cm** long **blue tube** in as shown

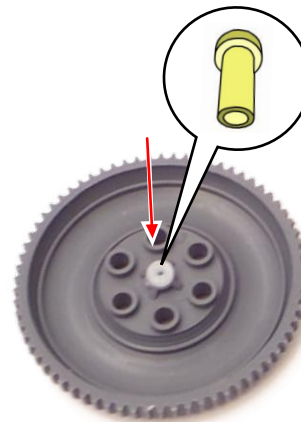
14



Push **grey tube** inside **blue tube**

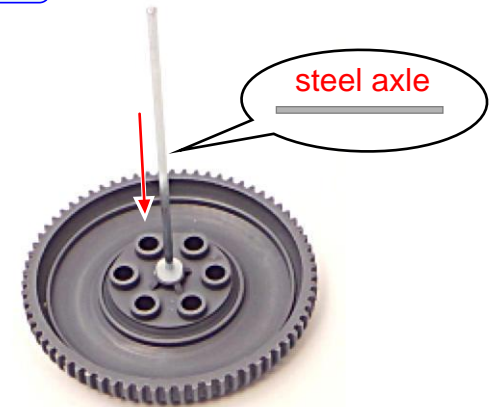
15

MOVING PARTS



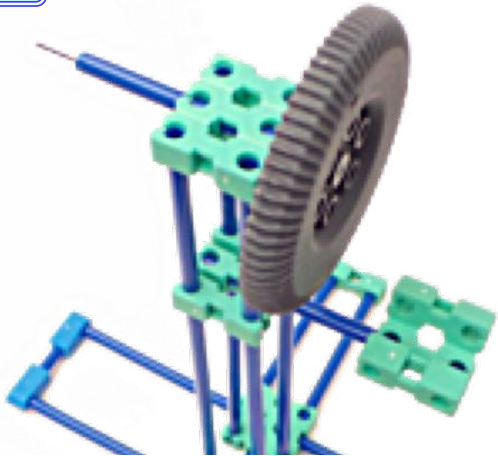
Push **converter** inside **large gear**

16



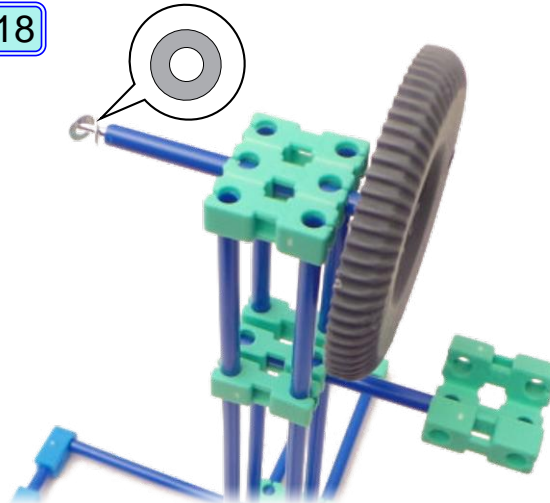
Place on table then push **steel rod** right into **converter**. Can tap in with hammer

17



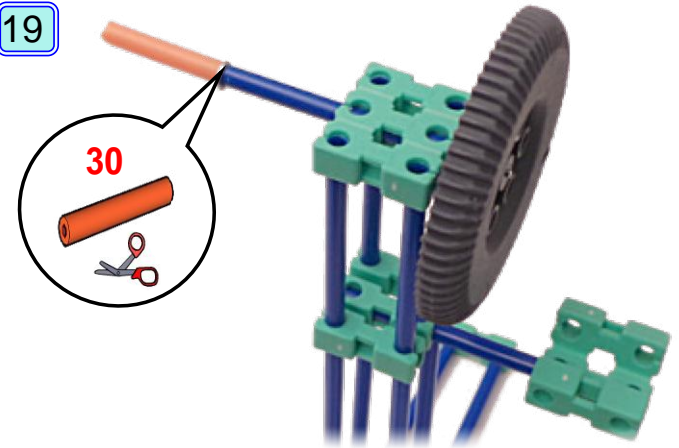
Insert **gear axle** through **top tube** in tower

18



Add steel **washer**

19

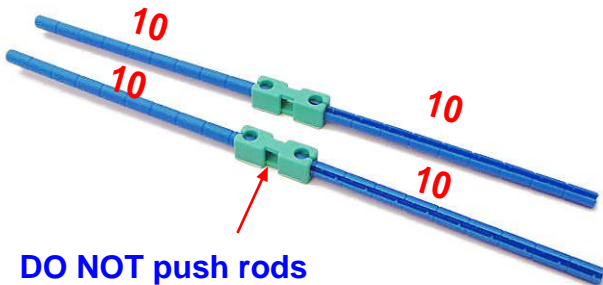


Cut **orange tube 30mm** long.
TIP - cut end of orange tube at 40 degree to make it easier to add **blade assembly** later on. (see below)

20

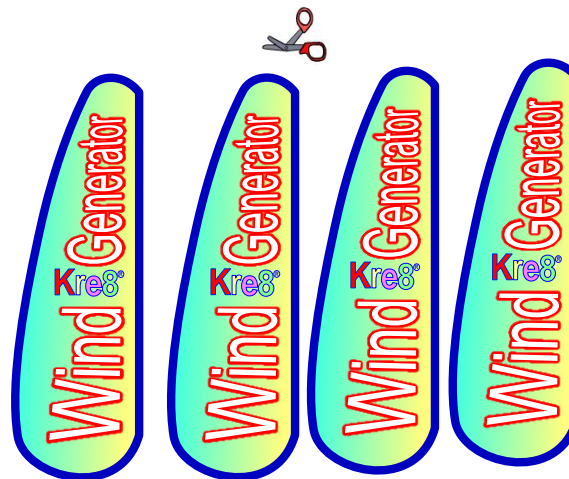


IMPORTANT - Find the **thick ends** (tightest fit) of the **4 snap rods** by pushing into **green connector** as shown then **snap off 10cm** from end. (the parts snapped off are not needed)



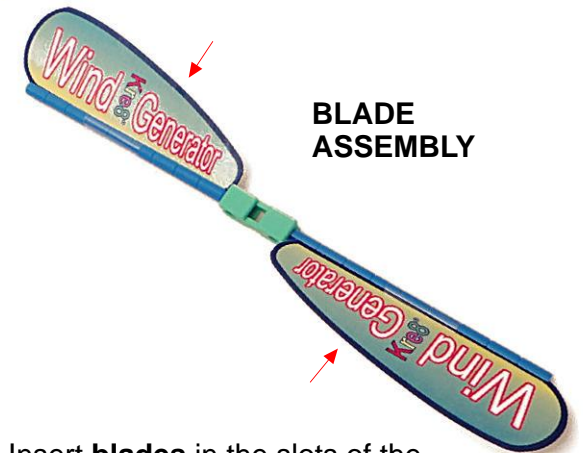
DO NOT push rods across the centre hole

21

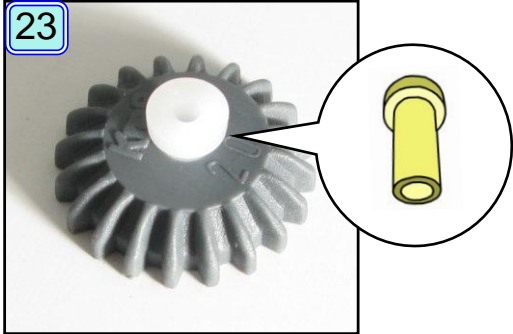


Cut out the **blade** shapes supplied from laminated sheet

22



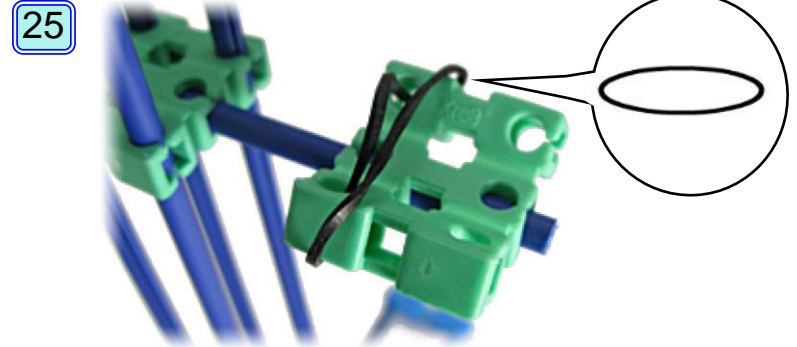
Insert **blades** in the slots of the **snap rods** then use **clear tape** to hold in place as shown
Note - position of hole in centre



23 Push **converter** inside **small gear**

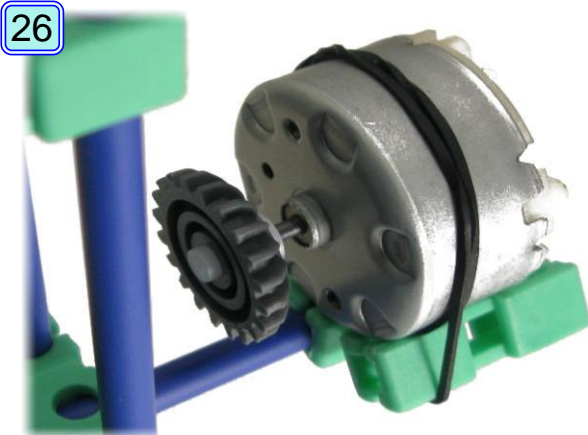


24 Push **small gear** on **solar motor axle**



25 Place **rubber band** in the end **two holes** as shown

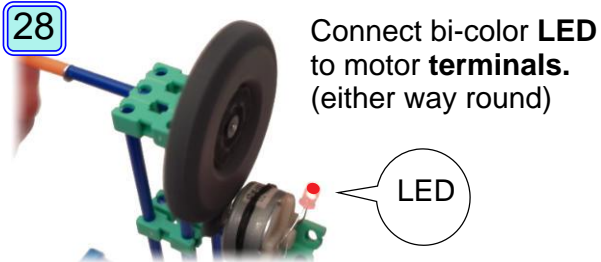
ADDING MOTOR



26 Stretch **rubber band** over **motor** as shown

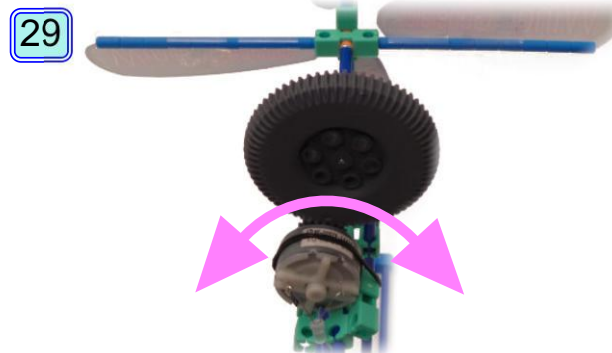


27 Add first **blade set** on **orange tube**
(use a **screw type action** to make it easier)



28 Connect **bi-color LED** to motor **terminals**.
(either way round)

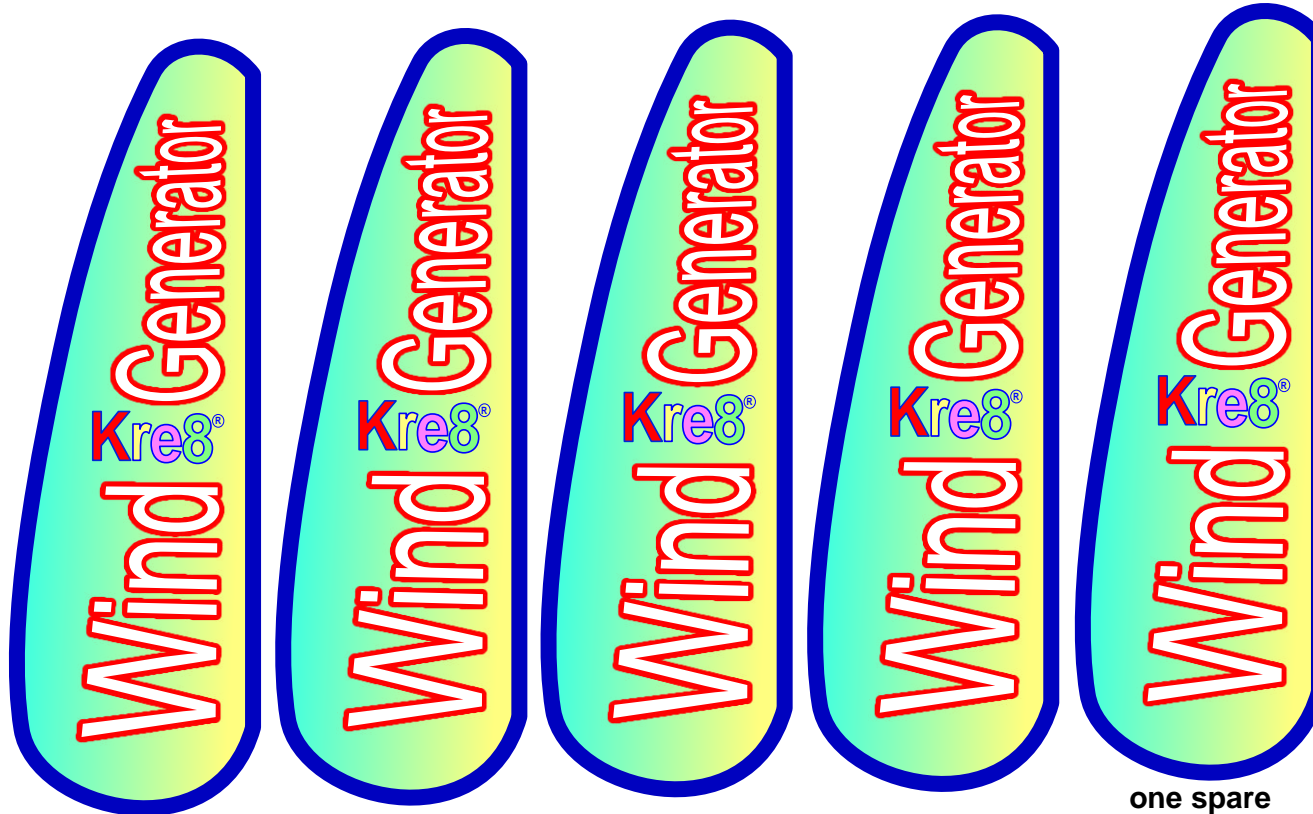
Note - You can spin **orange tube** using fingers to spin fast to see it work



29 Can adjust **gear** by moving **motor**



Cut out blades shown below
supplied laminated in kits



Add blades in use on model

