

B10-2634 Genecon V3

Hand-turning electricity generator for elementary school

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Thank you for buying the NaRiKa Genecon V3 (manual electricity generator for elementary school)

Please pay attention to the following precautions when conducting the experiments.

【 Precautions 】

- Do not expose the product to open flame or fire. Do not spill water on the product.
- Do not store the product in high-temperature and/or high-humidity environments.
- Do not drop the product. The impact may damage the product.
- Be careful of electrical shock. The experiment in which several Genecon V3 units are connected generates very high voltage, posing the danger of electrical shock.
- Do not conduct an experiment when several Genecon V3 units are connected to the condenser.
- Do not use the product for other purposes than the experiment in science class. (e.g. charging a cell phone)
- Turning the handle suddenly in the short circuit condition or with a small resistance attached may damage the product. Be careful.
- The polarity changes depending on the direction that the handle is turned. Be sure to confirm the polarity before connecting to something that has polarity like LEDs or condensers.
- If the inner gear breaks, use the [Repair gear set for the Genecon DUE].



● Contents of the set: Genecon V3, dedicated output cord (red/black)

How to use the Genecon V3

How to insert the cord

Inlet for the dedicated output cord



Inlet for the dedicated output cord



Insert the connector part of the dedicated output cord into the inlet for the dedicated output cord of the body until a “click” sound is heard. In doing so, confirm the seal attached to the connector part of the output cord.

For right-handed persons, insert the right-handed seal into the upper side.
For left-handed persons, insert the left-handed seal into the upper side.

How to generate electricity

Hold the Genecon V3 in one hand and turn the handle in either the right-handed or left-handed direction shown by the arrow to generate electricity. Connect the plastic covered clip of the dedicated output cord to the experiment devices.

<Caution on the pole>

With the Genecon V3, the polarity changes depending on the direction that the handle is turned.

- With the right-handed seal of the connector upside, when the handle is turned in the direction of the right-handed arrow (right turn), the red plastic covered clip becomes the plus pole and the black plastic covered clip becomes the minus pole.
- With the left-handed seal of the connector upside, when the handle is turned in the direction of the left-handed arrow (left turn), the red plastic covered clip becomes the plus pole and the black plastic covered clip becomes the minus pole.
- When the handle is turned in the opposite direction, the polarities change as well.

* The dedicated adapter can be used for the Genecon V3.

Introduction of the relevant parts

By inserting the Genecon V3 dedicated adapter, a small lamp or LED can be lit directly.

B10-2634-01 Adapter for the Genecon V3 (LED)

B10-2634-02 Adapter for the Genecon V3 (small lamp)



* Variations of the relevant products will be expanded.

Experimental devices that use the Genecon V3 and examples of experiments

Experiment to generate electricity

The use of the dedicated output cord allows the Genecon V3 to be used as a substitute for a battery.

- Small lamp, LED

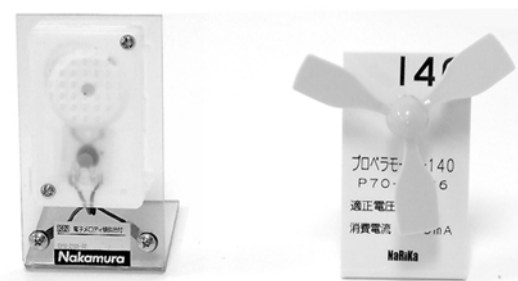


Relevant goods

P70-0392 Small lamp socket with lead wire

P30-0596-01 / 02 / 03 LED with protection (with constant current diode)

- Electronic melody, propeller motor



Relevant goods

B10-2101-02 Electronic melody (with a slanted stand)

P70-3936 Propeller motor

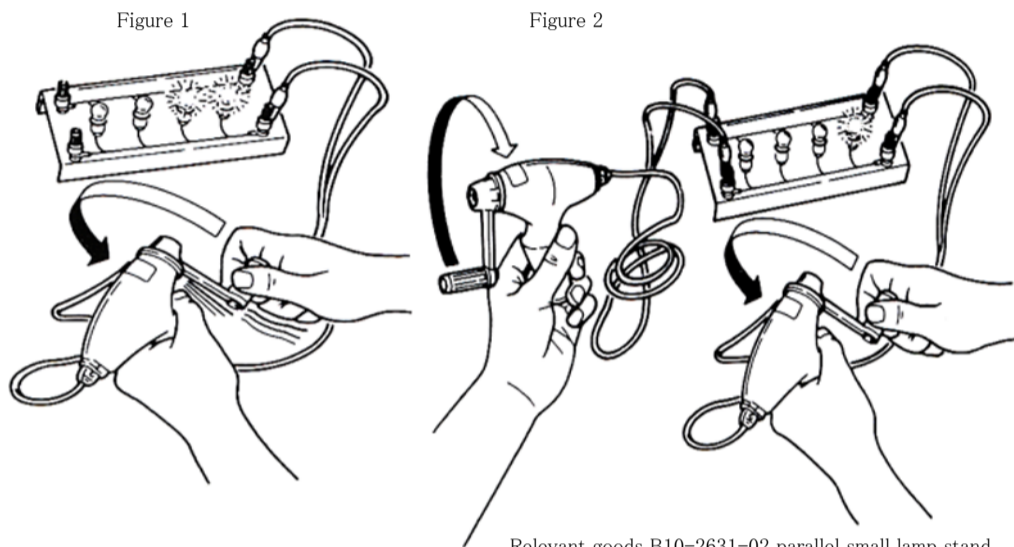
Experiment to generate electricity using the parallel small lamp stand

Figure 1 shows the parallel small lamp stand where four small lamps are attached in parallel. While one person turns the handle of the Genecon and the other person turns on the small lamps one by one, changes in the resistance of the handle can be felt.

Figure 2 shows two Genecon units connected to the above parallel small lamp stand.

Two persons each hold one Genecon. When one person turns the handle of one Genecon at a constant speed, the handle of the Genecon held by the other person will start to rotate at almost the same speed.

Then, as the person who holds only one Genecon turns on the small lamps one by one, the rotating speed of the handle slows gradually. This experiment is useful in understanding “generation and work” and “the loss of energy conversion”.

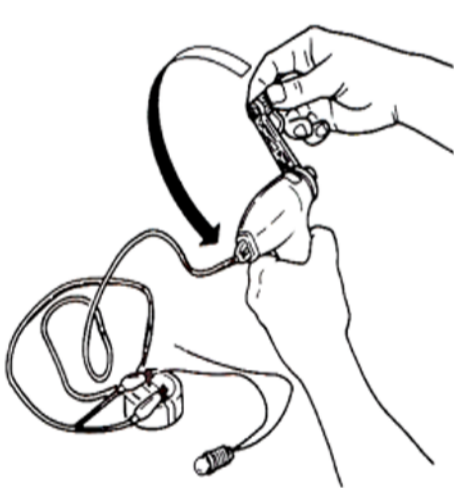


Relevant goods B10-2631-02 parallel small lamp stand

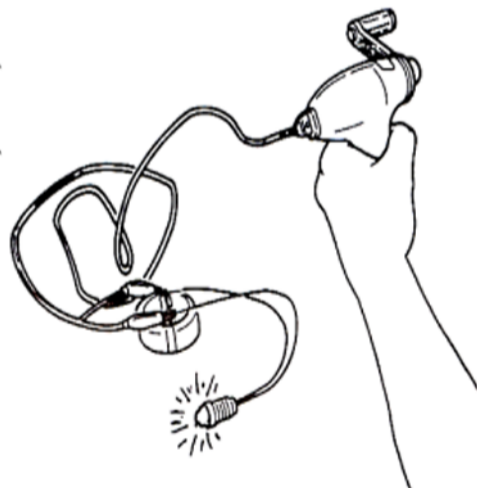
Experiment using large-capacity condenser

Charge the condenser using the Genecon V3. Then, when releasing the handle, the handle turns by itself and grinds to a halt after discharge. Also, when the Genecon is removed after the charge and a small lamp is connected, the lamp will glow and then dim after discharge. These experiments are considered energy conversion. The use of the condenser base for the Genecon V3 allows the more accurate experiment to be conducted.

Charge the 1F condenser.



Remove Genecon V3 from the charged condenser and connect a small lamp.



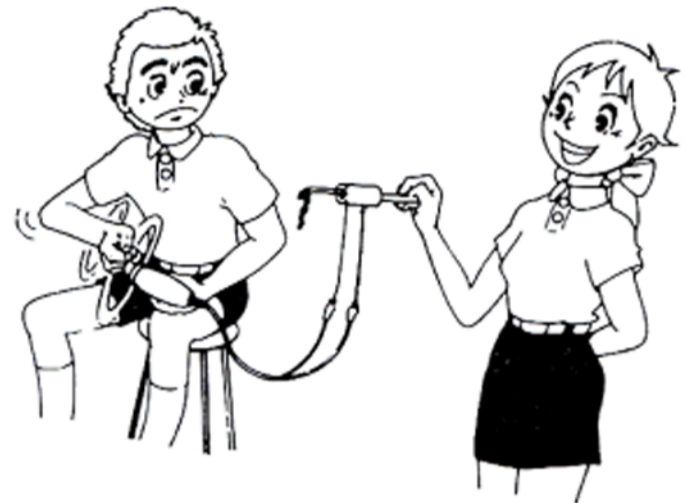
Relevant goods
 P70-0573-02 Large-capacity condenser with lead wire 2.3V 4.7F
 P70-0573-03 Large-capacity condenser with lead wire 2.3V 10F
 P70-0574 Large-capacity condenser with lead wire (DUE-5.5)
 B10-2651-10 Condenser base for the Genecon V3

Experiment of electric magnet

Let's conduct an experiment using an electric magnet with an iron coil

1. Wind the conducting wire around the small plastic bobbin to make a coil for the electric magnet.
2. Connect the Genecon to the terminal of the bobbin and turn the handle.
3. When you bring Gem clips, iron powder, or B10-3720 Mag chips close to one end of the iron coil, the objects will be drawn to the tip of the iron coil.

Relevant goods B10-2631-05 Coil for electric magnets

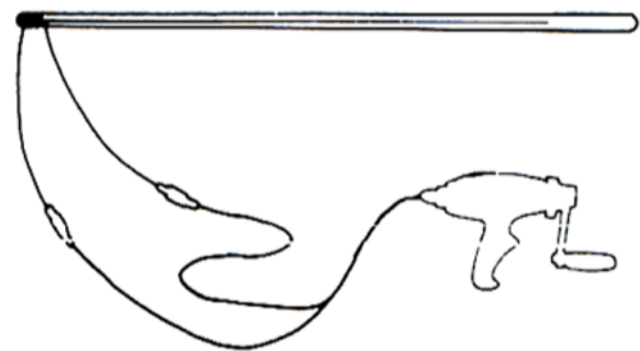


Experiment of energy conversion

Let's conduct an experiment as a pair after combining two Genecon units. The Genecon whose handle is turned will be the generator and the Genecon that rotates will be the motor.



Wind a nichrome wire (0.2 mm) 10-15 times around the heat sensing part of a thermometer (100° C) and connect both ends of the nichrome wire to the lead wire of the Genecon and then turn the handle of the Genecon.



Attach the Genecon to the resistance with a liquid crystal thermometer as shown in the figure and turn the handle to see the scale of the liquid crystal thermometer change.

Relevant goods B10-2631-01 Resistance with a liquid crystal thermometer

