NaRiKa; Electrifying Science in Japan and the World

NaRiKa's Borderless Eye, Global Heart: Genecon

All Japanese children, (and probably their mothers and fathers too!), know about NaRiKa's flagship product, Genecon. In the same way that Genecon became a bestselling appliance for science lessons on electricity and energy in Japan, it has now become an indispensable power generator for NaRiKa's expansion out into the world.

Children are our dream.

It is our ideal that everyone can pursue their own individual dreams within society. Many of the things that fascinate adults come from the experiences that captivated them when they were young children. We at NaRiKa are contributing to those childhood experiences in new and exciting ways.
Children's eyes sparkle with excitement, showing their genuine fascination with society, life and themselves. Their eyes sparkle even more when their natural desire to learn is gratified through their daily experiences.
NARIKA Corporation specialize in planning, importing and marketing a variety of experimental apparatus for science education, from elementary school to university level. We have been supplying educational equipment to schools for over 90 years.
The school laboratory is a very important place for children, where they can learn about the wonders and workings of life. We want to make sure that this laboratory educates as many children as possible for their future. We contribute to school education with our unique experimental apparatus, designed to educate and delight children and to make their eyes sparkle with excitement.

NaRiKa's Strategy

We are passionate about the services and products we offer to our customers. Our company's policy is always to focus on the education field, and to listen to the voices of our users. We have daily contact with teachers and children and their frank opinions and constructive comments are always very welcome. We use this feedback to develop new products that are ideally suited to the school market. In this way NaRiKa plans to become a world-class provider of educational equipment. We want to help to create exciting, enriching and enjoyable surroundings for school children and pupils studying science in class, wherever they may be.
We also have close business connections with overseas suppliers in U.S.A., Germany, England, Holland, Denmark, Korea, Taiwan, China, etc.

In addition to the school market, we are extending our business activities to the pre-school market (nursery home and kindergarten) in Japan. Our clients are school children, teachers and more than 500 of exclusive agents throughout Japan. We pride ourselves on the levels of service and communication we offer to our customers. Our main ambition is to make the teacher the 'star' of the classroom, and to make the student's eyes sparkle with wonder.

NaRiKa
SCIENCE IS JUST THERE

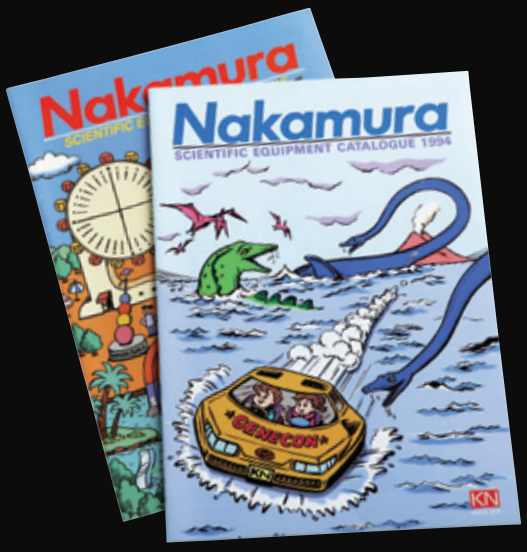
International Exchange Started through **Genecon's NaRiKa**

Genecon, The Dynamo that Introduced NaRiKa to America

In Boston in 1984 the NSTA (National Science Teachers Association.) hosted a big international event in which manufacturers from all over the world exhibited a wide range of educational equipment. , One product alone attracted the attention of both teachers and students alike. The name of the product was Genecon, the company ; Nakamura Science from Tokyo (later to be known as NaRiKa). A manufacturer nobody had ever heard of presented a product nobody had ever seen and caused a huge sensation.

Genecon was first sold in Japan in 1981. It enjoyed overnight success as an educational tool that made power generation and electricity easy to understand. At that time, the president of Nakamura Science, Paul Nakamura, was passionate in his eagerness to visit all the science-related events and public seminars throughout the world. At the same time the U.S. government had budgeted funds for promoting science education. This strengthened Paul's confidence and provided the perfect opportunity, encouraging him to take the Genecon to NSTA.

The Genecon, is a power generator operated with a simple handle. It can be used to explain the interaction of resistance and electric current, etc., in experiments. It became the center of attention in America, then considered to be the pioneer of science educational equipment. Nakamura Science, however, still lacked a sales route into America, and did not have the ability to supply the Genecon to those teachers who showered the company in inquiries. But, the response it had generated meant that well-known American sales representatives began to turn their attention to the Genecon, and soon a supply route was established. The huge success the Genecon had enjoyed in Japan was repeated in the US. The name of Nakamura Science became well-known, and sales expanded. In addition to being the first product that NaRiKa marketed overseas, the Genecon also became a dynamo for generating international exchange.



NaRika has been Generating Interest in Science Throughout the World for More Than 20 Years

America was the first overseas nation that NaRiKa became involved with, and Genecon was its first bestselling product abroad. In addition to becoming a long-seller in the United States, Genecon was also favorably received in Asia and Europe and became an indispensable item for science lessons. The Genecon proved that there are no borders when it comes to learning and enjoying science. It became NaRiKa's flagship product, having given us the confidence to believe that our ideals were correct. In addition, the Genecon's success established Nakamura Science's international reputation as a manufacturer of high quality educational equipment, and helped us create firm links with sales agencies and commercial companies abroad. Even now, twenty years after our debut on the world's stage, all we have to do by way of introduction at exhibitions and workshops is to show the teachers and salesmen the Genecon. The merits of being the 'manufacturer of the Genecon' alone are sufficient to generate a sense of trust., Following the same route cultivated through the success of the Genecon, has enabled us to introduce to the world a large number of other educational products, such as the Recording Timer, the Magnetic Field Observer, Static Experiment Kit and the BeeSpi, which are now firmly established on an international scale. The path that the Genecon created for us has allowed the world to become familiar with science education in Japan, as well as introducing the world's science to Japan. We will continue to follow this path into the future to provide the children of the world with a new sense of enjoyment and excitement via their science lessons.

The Story Behind the **Genecon.**

NaRiKa's Borderless Eye, Global Heart: Genecon

Turning the white handle attached to the red body lights miniature bulbs and operates scale-model cars. Twenty-five years since its first appearance, The fun it has produced in Japan and in the rest of the world has turned the Genecon into a constant best-seller.

This is the original Genecon, an epoch-making educational instrument that makes learning about electricity and resistance fun.

Genecon is now a standard item throughout the classrooms of the world. The reason for its continued popularity is that it transcends the differences inherent in language and culture. Genecon first went on sale as a NaRiKa brand in 1981.
The conception of the Genecon, which has now become a superstar in the field of science, did not start with NaRiKa, but with the Mabuchi Motor Co., Ltd., which is well-known for its Mabuchi Motor. It became an especially popular toy amongst young boys at the time, owing to its ability to illuminate miniature light bulbs and power scale-model cars. But, this Genecon-as-toy boom soon came to an end. This left an outstanding stock of Genecon and molds amounting to thirty-thousand units in the warehouse, with nobody imagining in their wildest dreams that it would once again enjoy huge popularity in a completely different field.
While children were happily turning the handle of the Genecon, there were also adults who were turning the gears of their minds. These adults were Mr. Hashimoto and Mr. Osumi of the Kyoto Municipal Science Center for Youths. These two gentlemen were, at the time, lamenting the fact that there was no educational apparatus available for teaching the mechanisms of electrical power generation. It was then that they first came into contact with the Genecon, and they immediately began to use it in their experiments.
The fun of generating power just by turning a handle; the easily-comprehensible knowledge that increasing the speed of the handle increases the brightness of the light bulbs; the realization that the higher the resistance, the more difficult it gets to move the handle - all these made the Genecon the perfect educational toy. The children who used the Genecon in their lessons immediately fell in love with it.. But, sales of the Mabuchi Motor had already been suspended, and there was nowhere to get hold of the Genecon. This was when NaRiKa came to the rescue. We contacted the Mabuchi Motor Co., Ltd., discovered that production had ceased, and bought up their entire remaining stock. This sold out within three years. We therefore acquired the molds and began to manufacturer them in-house. Before we knew it, Genicon had become a bestseller not only in Japan, but also in the rest of the world. Science was suddenly fun again! It had taught us the importance of viewing products without prefixed conceptions. The Genecon, which started off life as a child's toy, had now evolved into an important educational instrument that features in school textbooks.

Genecon DUE
(manual power generator)

Making its World Debut in 2006. The New Genecon Mode

Genecon has evolved over time. The original 1981 body was bright red, but this was changed to a blue skeleton frame in 1984. This was to ensure that the electricity-generating mechanism can be clearly seen in operation.
Nowadays, it has evolved even further and now sports a clear skeleton.
Based on the fact that the Genecon, as a toy, can also be used as an educational instrument, we have also continued to develop other similar products,such as the BeeSpi, which measures speed and acceleration, and the Daruma-Otoshi, which provides lessons in inertia, and we now have a complete line-up of products that teach the principles of science while through play.

In 2006, we introduced the Electrostatic High-Voltage Genecon to the Genecon family. This unit generates more than 10,000 volts simply by turning the handle gently. Being both inexpensive and compact, this enables static electricity experiments to be carried out much more simply than with the expensive Van Der Graaf generators that were used up until now.
Actually placing this in the hands of children allows them to learn about electricity first-hand and helps them understand the principles of science while they are enjoying themselves. This is a perfect successor of the concept that NaRiKa incorporated in the Genecon. It proved a great success both in Japan and overseas immediately after it was released. It is our sincerest hope at NaRiKa that within a few years the Electrostatic High-Voltage Genecon will also be delighting children in classrooms throughout the world.

Electrostatic High-Voltage Genecon

Introducing Elementary School Students to the Excitement of Power Generation. New Models 28 Years After the First Genecon

Ever since the Genecon was placed on the market in 1981 by NaRiKa it has been a firm favorite in Japan and throughout the world as an educational instrument that allows children to have fun while learning about the mechanisms of electric power generation. So far it has sold more than forty-thousand units. The new V3 model is designed especially for elementary school children. Easier to use by younger pupils, it supports the enjoyment of science in elementary schools in the way that only the Genecon is capable of.

NaRiKa Genecon V3

Cat. No. B10-2634
B10-2634-10 (set of 10)

(manual electricity power generator for elementary schools)

Adapter variations available in addition to cables.

The size of the jack on the V3 is different to that of the Genecon DUE, which uses a different voltage, to avoid mistakes during use. Attaching various adapters allows lots of different experiments to be carried out. Two different types of adapter that are easy and fun to use are currently available. We also intend to add further varieties in the future.

Simple specifications that are easy to use for elementary school students and teachers alike.

A safe and easy-to-use 3V (approximately) generation voltage.

Cords color-coded for positive and negative so that even elementary school students can recognize them at a glance.

LED adapter

Miniature light bulb adapter

Toughened gears for prolonged use.

Specifications

Output: Approximately 3V DC
Material: Polycarbonate
Special Cord: Length 1m socket type with clips
Size and Weight:115 x 140 x 43mm, approximately 120g

Accessories

B10-2634-50	Replacement Code for Genecon V3
B10-2632-49	Replacement Gear 1ea/set for Genecon V3 and Due
B10-2634-01	LED light bulb adapter
B10-2634-02	Miniature light bulb adapter

Safe , Simple ,
Easy to Use.
The arrival of the
Genecon V3
designed for early
learners.

500,000
units sold
since 1981

Enduring and fun electricity experiments for science classrooms.

NaRiKa Genecon DUE

Cat. No. B10-2632
B10-2632-10 (set of 10)

(manual electricity power generator)

- **The world's best-seller that has changed the image of science experiments and introduces children to the fun of actually generating electricity.**

  Turning the handle causes the motor to operate, which generates electricity. The Genecon DUE is an educational instrument perfectly suited to experiments that explain the mechanism of power generation in an easy and fun way. The clear body allows the mechanism to be seen while in use. The unit is equipped with a special high-quality Genecon motor. A wide range of modules are also available to broaden the scope of possible experiments.

- **A clear body makes the mechanism obvious at a glance.**

*** Genecon is the registered trademark of NaRiKa Corporation.**

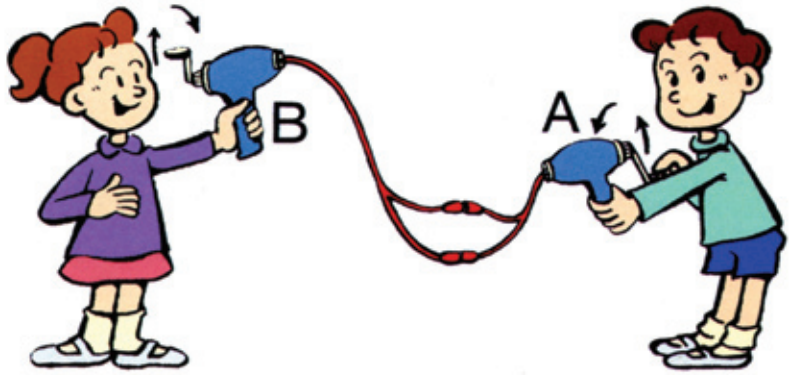
Specifications

Output: Maximum of approximately 12V DC
Material: Polycarbonate
Special Cord: Length 1m socket type with clips
Size and Weight: 115 x 140 x 43mm, approximately 120g

Accessories

B10-2632-50	Replacement Code for Genecon Due
B10-2632-49	Replacement Gear 1ea/set for Genecon V3 and Due

Generator or Motor?

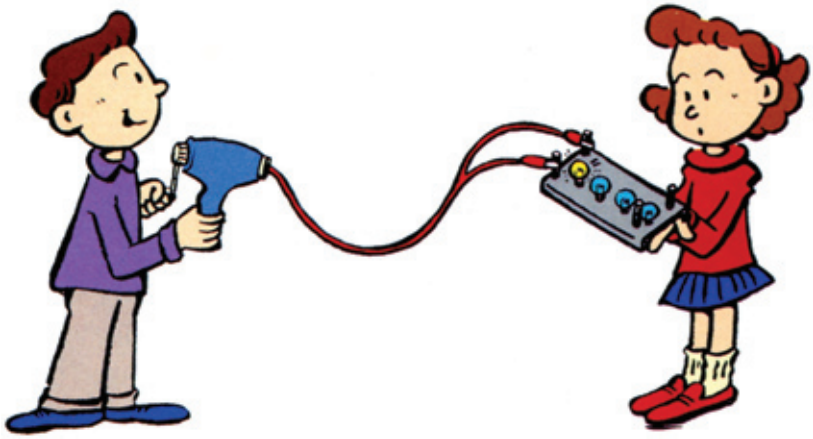


Materials : 2 GENECON with output cords

Procedure:

1. Label one GENECON “A” and the other “B”. Attach the Leads of “A” directly to the leads of “B”. Have one student turn the handle of GENECON “A” while another student holds “B” by the grip only. Most students will be surprised by the result: the handle of “B” is turning: Is it clockwise or counterclockwise?
2. What happens to “B” when the student operating GENECON “A” reverses its direction of rotation?
3. What happens when GENECON “B” is operated while “A” is held passively by the handle? Which one is the “motor” GENECON now?

Bulbs in Parallel

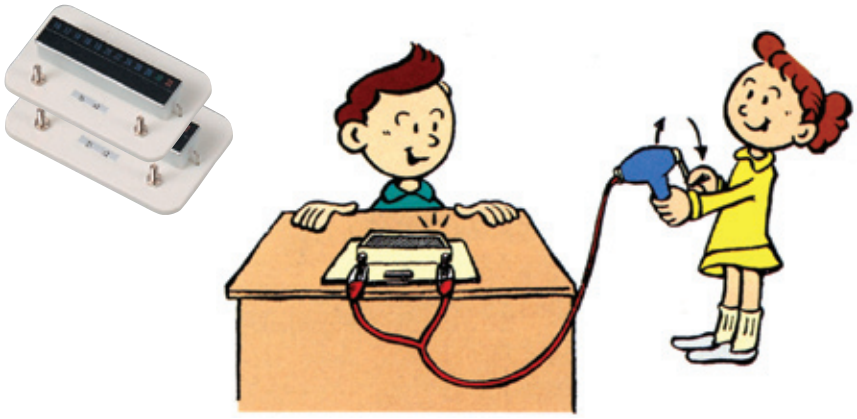


Materials : GENECON with output cords
Parallel Bulb Base : B10-2631-02
4 bulbs (3.8V, 3A)

Procedure:

1. Connect the alligator clips on the output leads of GENECON to either pair of terminals on the Parallel Bulb Base as shown in the sketch below:
2. Put a bulb in the socket nearest the terminals being used. Light the bulb by rotating the handle of the GENECON briskly but not excessively.
3. Place bulbs loosely in each of the three remaining sockets. As one student continues to operate the GENECON at a constant speed, another student should screw in these bulbs ione at a time. As the bulbs light one after the other, what effect is felt by the GENECON operator?
4. This effect can be experienced again as each of the bulbs is taken out of the circuit one-by-one in the reverse other.

The Terminal Effect

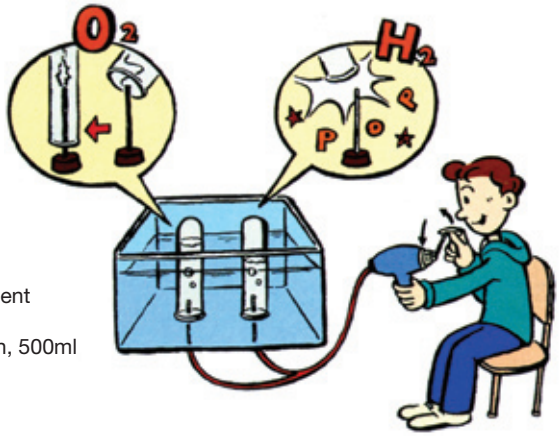


Materials : GENECON with output cords
Exoerigic Experiment Device 6/PK: B10-2631-01
Thermometer
Nichrome wire

Procedure:

1. Connect the leads of the GENECON to the Exoerigic Device (a resistor combined with a liquid crystal thermometer).
2. Note the temperature is the green number. If two numbers equally bright, the temperature is the odd number in between.
3. Rotate the handle of the GENECON at a steady rate for about 60 seconds. Read the temperature again.
4. For another simple variation of this activity, tightly wrap a 25cm length of nichrome wire around the bulb of a thermometer. Connect the leads of the GENECON to the ends of nichrome wire. Have a student record the initial temperature and then turn the handle of the GENECON briskly for about 30 seconds. Note the change in temperature.

Electrolysis of Water



Materials :
GENECON with output cords
Electrolysis Apparatus for student (6 umits set): F35-1305
*2% sodium hydroxide solution, 500ml
*matches
Wood splints
Safety goggles

Procedure:

1. Fill the tank with the sodium hydroxide solution which will serve as an electrolyte. Using the plastic test tube holder provided, fill the two test tubes which the solution and invert them over the electrodes. There should be no air in the tubes.
2. Connect the leads of the GENECON to the electrodes underneath the tank, as shown in the sketch below. The positively charged, colour-coded electrode will become the sire for the collection of oxygen gas. The hydrogen gas will collect at the negative electrode. Rotate the handle of the same tube, creating a potentially dangerous mixture.

Current Detector

Materials : GENECON with output cords
Parallel Bulu Base
Magnetic compass
4 bulbs (3.8V, 3A)
Enameled copper wire

Procedure:

1. Wrap a length of the copper wire around the magnetic compass. The rim of the case is grooved to facilitate wrapping of the wire. About 6 or 7 wraps should be adequate. Scrape the clear insulation off the ends of the wires before connecting them to the leads of the GENECON.
2. Move the compass so that the needle aligns itself in the same direction as the wraps of wire.
3. Have a student turn the handle of the GENECON slowly. Even the slightest rotation will cause the needle to be deflected from its resting position, indicating the presence of an electric current.
4. Now reverse the direction of rotation of the GENECON's handle. Result?

Gently turn the handle to generate more than 10,000V of high voltage static electricity! A wide range of static electricity experiments now possible without the use of a Van Der Graaf generator!

NaRiKa Electrostatic High-Voltage Genecon Cat. No. B10-1324

Gently turn the handle to generate more than 10,000V of high voltage static electricity!

A wide range of static electricity experiments now possible without the use of a Van Der Graaf generator!
Until now, high-voltage static electricity generators (Van Der Graaf Generators) were required to carry out electrical discharge experiments between the Hamilton flywheel, the Moore motor and metal collecting electrodes. The new, inexpensive Electrostatic High-Voltage Genecon now allows these experiments to be performed in the classroom with far greater ease and less cost.

- **Until now, high-voltage static electricity generators (Van Der Graaf Generators) were required to carry out electrical discharge experiments between the Hamilton flywheel, the Moore motor and metal collecting electrodes.**
- **The Electrostatic High-Voltage Genecon, which enables high-voltage static electricity experiments to be carried out without the need for expensive equipment.**
- **The inexpensive Electrostatic High-Voltage Genecon now allows experiments that were once only possible with a Van Der Graaf Generator.**

Specifications

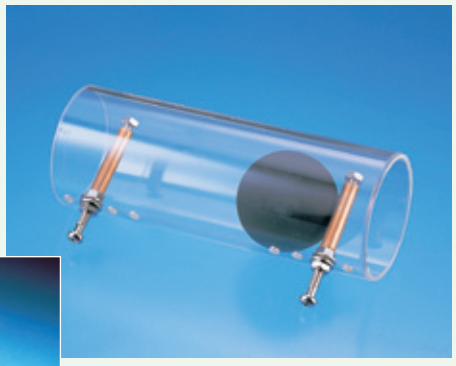
Power Generation Voltage: 10,000V or more
Size: 223 x 255mm, 75mm thickness
(generator roller area)
Weight: Approximately 400g

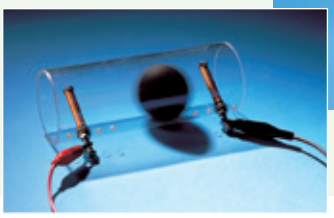
Cat. No.	Model
B10-1324	NaRiKa Electrostatic High-Voltage Genecon

*** Materials and specifications are subject to modification without prior notice.**

NaRiKa Electric Pendulum — Cat. No. B10-1324-01

An experimental component used with the Electrostatic High-Voltage Genecon. A black pendulum ball swings backward and forward between two electrodes electrically charged at high voltage.





Experiments in progress

Specifications

Outer Casing: ϕ50mm Acryl resin
Pendulum: Black conductive sphere
Weight: Approximately 2.7g
Electrodes: SilverSize: ϕ38mm

Cat. No.	Model
B10-1324-01	NaRiKa Electric Pendulum

NaRiKa Aluminum Collecting Electrode — Cat. No. B10-1324-03

Tape vinyl string leading to the collecting electrode in place. Applying high-voltage static electricity causes the string to stand out along the line of electrical force. Placing finely-cut tissue paper on the collecting electrode and then applying high-voltage static electricity causes the tissue to fly up into the air like a shower of petals. It is also possible to use two collecting electrodes to experiment with high-voltage discharges. These Aluminium Collecting Electrodes are indispensable for experiments in static electricity.

Specifications

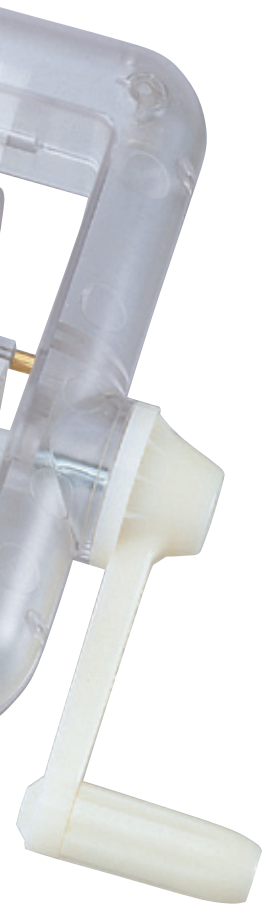
Collecting Electrode: Aluminum (ϕ50 x 2mm)
Base: Acryl (with rubber feet) 100 x 100 x 5mm
Post: Acrylresin (ϕ10 x 150mm)
Weight: Approximately 115g

Cat. No.	Model
B10-1324-03	NaRiKa Aluminum Collecting Electrode

Experiments in progress

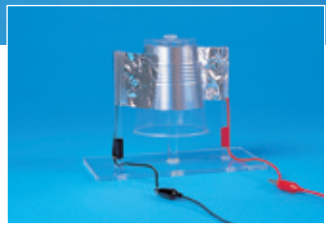
Observing the line of electrical force

High-voltage discharge experiment



NaRiKa Static Electricity Motor Assembly Kit — Cat. No. B10-1324-06

Create a Franklin Motor that is rotated with attraction and repelling forces.



Experiments in progress

Set Contents

One plastic cup
One acrylic motor base
One drawing pin
One aluminum box (for the electrode)
Aluminum tape
Two small clips (for the electrode)

Cat. No.	Model
B10-1324-06	NaRiKa Static Electricity Motor Assembly Kit

Dramatically Increase the Speed of Measurement. Improved BeeSpi Functions in Alignment with the Requirements of the Classroom.

A new [*v*] version of the BeeSpi, which measures speed from the difference in time required for an element to pass between two sensors, is now available. In addition to km/h, speeds can now be measured and displayed in units of m/s and cm/s. The results of up to five measurements can also be stored in the memory. Improved experiment efficiency in answer to the needs of science teachers.

NaRiKa BeeSpi *v*

Cat. No. S77-1321
S77-1321-10 (set of 10)

(Speed Measurement Gauge)

Speeds measured and displayed in three different units. Increased experiment speeds.

It is now possible to measure and display speed units in m/s and cm/s, in addition to the conventional km/s. This eliminates the need to convert the units, and consequently speeds up the time required for experiments.

Measurement result memory.Increased verification speed.

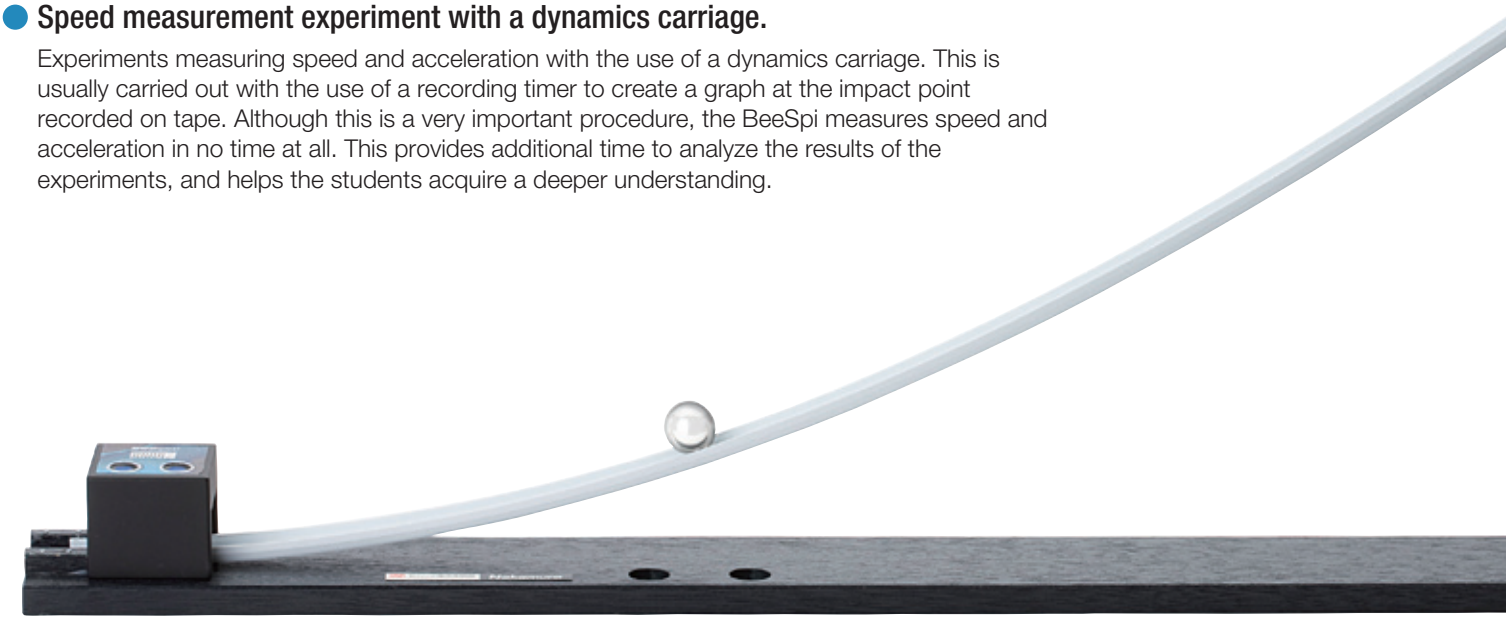
The new BeeSpi is equipped with a memory that can store up to five measurement results. This enables experiments in response measurements and re-measurements with amended positions, etc., to be carried out smoothly, thereby increasing the speed of lessons and student understanding.

Enjoyable horizontal projection experiments that conjure up the feeling of taking part in ski jump contests.

Horizontal projection experiments to discover how the projected distances of a ball differ when the height of the slope and the weight of the ball are changed. The BeeSpi enables the students to see the initial speed of the ball and the relationship between the initial speed and projected distance. An amazing device to stimulate the imagination.

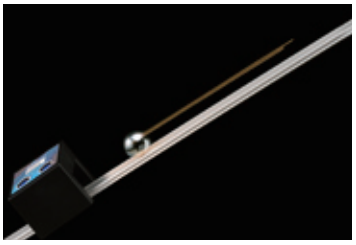
Speed measurement experiment with a dynamics carriage.

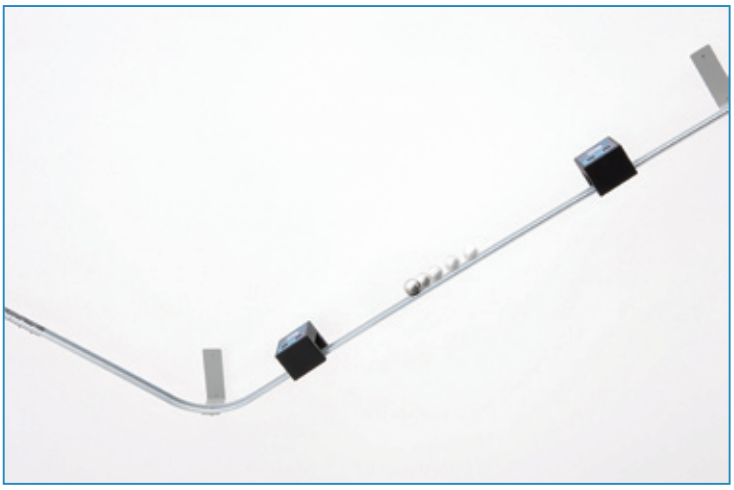
Experiments measuring speed and acceleration with the use of a dynamics carriage. This is usually carried out with the use of a recording timer to create a graph at the impact point recorded on tape. Although this is a very important procedure, the BeeSpi measures speed and acceleration in no time at all. This provides additional time to analyze the results of the experiments, and helps the students acquire a deeper understanding.



Save Speed, Acceleration and Energy, etc.

Enjoy a Wide Variety of Experiments with a Wide Range of Combinations.





What is the relationship between speed and height? Great for learning about speed and positional energy.

It appears that the speed of a ball rolled down a slope differs at its high and low points. But, understanding the principle of this is not easy when just reading about it in a textbook without actually performing an experiment. It is difficult to spare the time during busy lessons to take a measurement and then repeatedly change the height to take additional measurements. The BeeSpi provides the perfect solution for this. Placing several BeeSpi units on a slope means that a wide range of different principles can be understand from the results on just a single experiment.

Specifications

Speed: 0 to 999.9cm/s, 0 to 99.9m/s, 0 to 99.99km/h
Wrap Time: 0 to 99.99sec
Accumulated Wrap Time: 0 to 99.99sec
Power Source: Two size AAA batteries (sold separately)
Size: Approximately 60 x 60 x 50mm
Weight: Approximately 55g (excluding batteries)
Functions: Clock function, memory function

Observing Radiation Rays in a Cloud Chamber

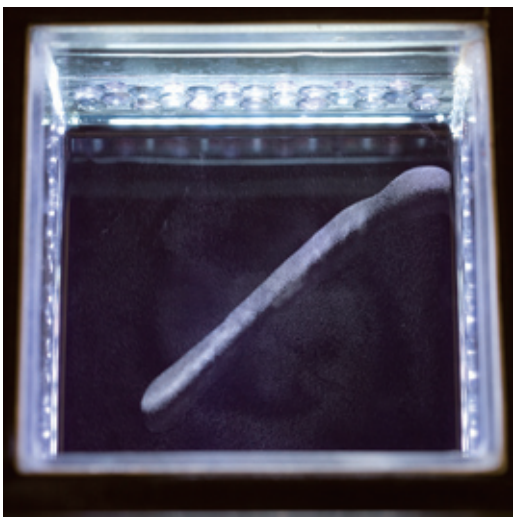
Did you know that we are surrounded on all sides by radiation?

Although radiation is usually connected with accidents at nuclear power plants and atomic bombs, which has given it a bad name, it is also extremely useful in our daily lives for curing cancer, diagnosing disease and creating new substances, etc. Radiation comes from outer space and from certain radioactive substances on earth, and surrounds us on all sides. The NaRiKa Cloud Chamber converts invisible radiation rays into visible paths.

NaRiKa Cloud Chamber

Cat. No. B10-7758

Using an air-cooled high-performance Peltier module with a large 100mm square observance layer and high-brightness white LED, traces of natural radiation come into clear focus.



Traces of thick, short, straight alpha rays.

Specifications

Cooler: Air-cooled electronic freezer (equipped with a high-performance Peltier module)
Lighting: Ultra-bright white LEDs
Power supply: AC 240V / 300W
Maximum Electrical Consumption: 300W
Size and Weight: 430 x 304 x 248mm (excluding protrusions,) approximately 15kg
* Ethanol with a purity rate of 99.5% is required for experiments.

Radiation Q & A

Q: What type of radiation rays can be seen in a Cloud Chamber?

Only traces of charged particles (particular ions that have been saturated in electricity) can be seen with direct observations. In other words, only traces of alpha rays (from the atomic nucleus of helium) and beta rays (electrons,) are visible.

Q: How can radiation rays be seen with a Cloud Chamber?

This is achieved through the evaporation of ethanol within the Cloud. It is necessary to heat the top of the chamber to between 30 and 35 degrees Celsius and the bottom of the chamber to less than -30 degrees Celsius in order to evaporate the ethanol, and when this condition is satisfied, a supersaturated area of ethanol with an approximate thickness of 15mm forms on the bottom. The radiation rays, which are charged particles, become ionized when they penetrate this supersaturated area, and traces of the ethanol atoms that have been tricked into becoming the nucleus of the ions are formed in the same way as white vapor clouds appear in the wake of an airplane.

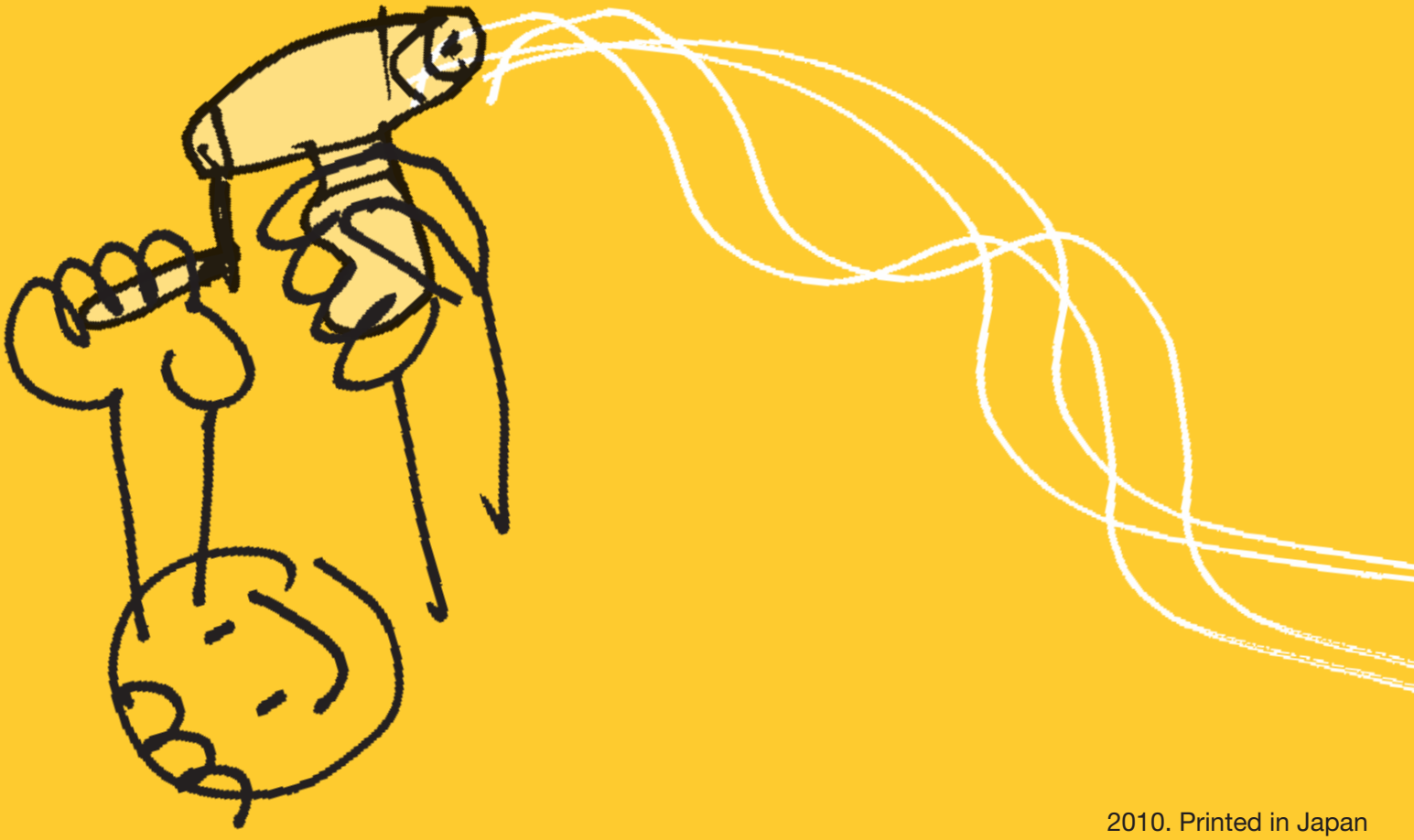
Q: Does that mean that a special cooling device is needed to obtain the -30 degrees Celsius required to operate the Cloud Chamber?

The bottom of the chamber is cooled with dry-ice or liquid nitrogen in most classroom experiments. However, there are certain drawbacks with this, such as schools in areas where these substances are not easily available and the problem of storing them in the long-term. It is also extremely difficult to maintain a stable temperature of -30 degrees Celsius at the bottom of the chamber even when they are available. Furthermore it is necessary to ensure a temperature difference of between 60 and 70 degrees Celsius in order to operate the low-temperature resistance Cloud Chamber.

This is why we at NaRiKa came up with the Peltier Cloud Chamber. The SML-01 uses a combination of ice made in a freezer and a Peltier module and the SML-02 uses a combination of an air-cooling fan and a Peltier module to maintain a temperature of -30 degrees Celsius at the base of the chamber, and this enables radiation traces to be observed under perfect conditions at any time.

NaRiKa

SCIENCE IS JUST THERE



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