



3

# Science Topics

Super Science High School Textbook



Ikeda High School



# Science Topics <sup>3</sup>

## Super Science High School Textbook

### Contents

What is the rotation of the earth? .....	02
Luminous clouds .....	04
What is needed to germinate seeds .....	06
The volcanic activity of Sakurajima... ..	08
The Wonder of the iris and the pupil .....	10
Why earthquakes happen .....	12
Experiment in Hiraga Gennai .....	14
About blood pressure .....	16
What you can see by observing the sunspots .....	18
Is alchemy possible? .....	20
How the rainy season works .....	22
Why is something hot?.....	24
Why is it so hard to breathe when you run? .....	26
Recent Space Technological Advances .....	28
Blood Type and Personality Assessment .....	30
Why do fish form schools?.....	32



## Experiment in Hiraga Gennai



**Y**ou've probably heard about Gennai Hiraga.

**A**ccording to Wikipedia, he was a herbalist, geologist, scholar, doctor, marine entrepreneur, playwright, juror, writer, haiku poet, orchid painter, and inventor. He had a wide variety of talents in both science and the humanities.

**H**e was the Japanese Leonardo da Vinci.

**H**is most famous contribution was the Electel. It was a static electricity generation device that was invented in the Netherlands, and was actually presented to a Shogun about 25 years before Hiraga Gennai succeeded in copying it. Some people think that the Electel was the invention of Gennai Hiraga, but he just repaired and restored a broken Electel.



**H**e had no proper education in electricity because of his isolation, but, in a few years, he repaired it to the point where it produced electricity. There is also a theory that he had heard about the experiments of the American scientist, Benjamin Franklin. However, it may just have been his persistence that led his success.



▲ "European lady" by Hiraga Gennai



▲ Replica of Erekiteru (a hand-operated electric generator)

**U**nfortunately he died in prison.

**A**t the time of his death, Genpaku Sugita, who is famous for the book, *Dismantling Shinsho*, had Hiraga's tombstone specially engraved. In addition, there is a chapter in his book, *The Beginning of Dutch Studies*, that is devoted to a dialogue with him.. Perhaps it was his misfortune that he had few talented researchers and few who understood what he was doing.

**I**n our school we can do cutting-edge scientific research.

**S**tudents, regardless of whether they are in the humanities or sciences, can experience science. We should learn from Hiraga Gennai's successes and failures.