



Science Toolkit: Grade 8 Objective 1.B.1.a

Student Handout: Science: Grade 8 Objective 1.B.1.a

Standard 1.0 Skills and Processes

Topic B. Applying Evidence and Reasoning

Indicator 1. Review data from a simple experiment, summarize the data, and construct a logical argument about the cause-and-effect relationships in the experiment.

Objective a. Verify the idea that there is no fixed set of steps all scientists follow, scientific investigations usually involve the collection of relevant evidence, the use of logical reasoning, and the application of imagination in devising hypotheses and explanations to make sense of the collected evidence.

Selected Response (SR) Item

Question

Use the technical passage '[Green Ocean Machine](#)' to answer the following.

The data table below shows four investigational setups that might help a scientist test the following hypothesis: "If an alga provides Hatena with the ability to capture energy, then the Hatena with the alga will survive better."

Investigational Setup	Beaker X	Beaker Y	Sunlight
1	Hatena and alga	Hatena only	Yes
2	Hatena and alga	Hatena only	No
3	Hatena and alga	Alga only	Yes
4	Hatena and alga	Alga only	No

Which investigational setup would best help the scientist test the hypothesis?

- A. 1
- B. 2
- C. 3
- D. 4

Correct Answer

A. 1

Question

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Handouts

Green Ocean Machine

The plants in the window, the trees outside and the broccoli in the refrigerator all have ancient ancestors that didn't used to be green. They only "got green" when they captured smaller green creatures that turn sunlight into food. These small green creatures eventually became the green "chloroplasts" that the plants use to capture energy from the sun through the process of photosynthesis.

In Japan, scientists have now discovered a tiny ocean creature that may be in a similar process of "getting green." This process could eventually provide the tiny sea creatures with their own chloroplasts, or something similar.

These organisms are called "Hatena" which means "mysterious" in Japanese. Sometimes they are green and sometimes they don't have much of a color at all.

The creatures turn green after they swallow up an even smaller, green sea creature called an "alga." These single-celled creatures stay green until it's time to divide in two. At dividing time, one of the two new cells is green. The other new cell is colorless, though you might say it is "green with envy" because it develops an arm that captures its own green creature. Once Hatena has a green sunlightcapturing alga inside its body, its arm disappears. The new green partner seems to provide Hatena with most of its energy needs.

If the scientists are right, then Hatena and the green critter are in the process of becoming one organism instead of two separate organisms. If this happens, the green creature will become an important sun-capturing part of every Hatena—similar to the green "chloroplasts" found in the plants in the window, the trees outside and the broccoli in the refrigerator.

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