

3. National Research Coordinator's Comments (English)

- [00:00:57](#) Bow: Regardless of what subject or period, Japanese lessons typically begin with, "Please teach us," and end with, "Thank you very much." The greeting at the beginning of the class is to express a tacit understanding that the students will be seriously engaged in the lesson from that moment on. This school also has the students announce those who are absent.
- [00:01:28](#) The content of the previous lesson and confirming today's lesson topic: The teacher has planned carefully to set a clear goal for the day's experiment by first confirming the contents of the previous lesson and going over the details that relate to today's topic, then organizing those details. It is also common practice to clearly identify the topic (the day's task) at the beginning of the lesson.
- [00:04:46](#) Confirming the tools for the experiment: By using the handout, as well as by pointing to the specific tools, the instructor is confirming the tools to be used.
- [00:07:06](#) Instructions for safety: It is always important to maintain safety during chemistry experiments. In this lesson the teacher cautions the students by demonstrating and going over the set-up and the shutting off of the apparatus before beginning the experiment. These points of caution serve as a review.
- [00:08:37](#) Group experiment and the teacher's instructions: It is a common structure to proceed with the experiment in small groups. While the students are carrying out the experiment by following the instructions on the handout, the instructor gives detailed assistance to students by going to each group to confirm the set-up and procedures, advising the students on the recording of the results, and answering student questions.
- [00:20:12](#) Presentation of the results and summary: After having the students present the results of the experiment, the instructor takes those results, confirms them, proceeds to analyze them, and summarizes the lesson topic.
- [00:22:43](#) Presentation of new experiment topic: To make a connection between decomposition of the chemical change to the point that the gas that was produced by heating sodium bicarbonate was not a conditional change, the teacher illustrates how what was generated in the water and the white solid material ceased to be sodium bicarbonate as further proof. This confirmation leads to the new experiment topic. This new topic is difficult to identify for the students on their own, so the teacher is telling them the main points and the method of confirming.
- [00:43:36](#) Summary of the experiment results: The teacher asks the class the results, and asks those who had a reaction to present their results. The instructor then uses those results to explain and proceed with the study and analysis.
- [00:49:50](#) Next lesson topic: The teacher announces the next lesson's task and makes a connection with today's lesson content.
- [00:50:32](#) Instructions for cleaning up: Clean-up is part of the experiment procedures. The teacher gives detailed instructions to the students on how to clean up and answers students' questions. Some students continue to clean after the lesson.
- [00:51:14](#) Bowing at the end: After everyone finishes the experiment, they are urged to move onto cleaning up. Overall Comment: The content of the lesson is in accordance with general knowledge (which all students should complete), and it is a standard subject matter. The

lesson is structured around the question of whether the change in sodium bicarbonate when heated is a conditional change or some other change (chemical change). The teacher proceeds with the activities of the lesson with detailed and careful planning. The students are then able to carry out their tasks with accuracy. The instructor has a good relationship with the students and creates a good environment for learning. On the other hand, there were a few comments made by the teacher that revealed some of the results. If there were more opportunities for students to express their own thoughts, it would create an even better atmosphere for optimal learning.