

3. National Research Coordinator's Comments (English)

- [00:00:15](#) 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.
- [00:00:32](#) Confirming the task from the previous lesson: The teacher confirms student comprehension of the topic of the last lesson, "dew point."
- [00:01:15](#) Introduction of the day's topic: The teacher introduces today's topic of "how clouds form" and also lets the students know that they will be covering "how fog forms" in the lesson following. By having the students think about "where clouds form," the teacher attempts to draw student interest in the day's topic.
- [00:03:55](#) Teacher demonstration: To have the students think about the thin air in the sky, the instructor has them observe the inflating balloon in the decompression apparatus and confirms that air expands in the sky.
- [00:08:15](#) Explanation of experiment methods: The teacher explains the procedures for the experimentation in observing the change when air inflates, which involves two types of experiments with four different methods. The ideal situation would have been for the teacher to stop in between the explanations to confirm student understanding because there was little student reaction, and it was not entirely clear how much student comprehension there was on the topic and the procedures.
- [00:14:15](#) Prediction: Before beginning the experiment, the teacher has the students write down their predictions on their handouts. By having the students predict, it is hoped that there will be further awareness on the topic at hand. However, there is a gap between thinking about "how clouds form" and the experiment that they are about to conduct. It may have been better to have the students predict the results of the four different experiments they were about to conduct.
- [00:17:15](#) Group experiment: The teacher has prepared ample tools for investigating the change in insulated expansion. When it was revealed that students lacked comprehensive understanding of the procedures, there was not enough explanation, and the syringe was damaged. It would have been nice to see more interruptions by the teacher with thorough instructions. But the teacher also appears to be giving individual attention to each of the groups to address their questions and to provide them with hints. By having the groups rotate in segments, the experiment is effectively and thoroughly carried out by each group.
- [00:36:45](#) Summary of results: The instructor summarizes the results of the four experiments on the blackboard.
- [00:44:10](#) With the results the teacher explains that "how clouds form" depends on the expansion of the air, and ties it to a natural phenomenon.
- [00:45:05](#) Presentation: The teacher has the students predict the temperature change when air expands, and explains that in expansion, the temperature falls; and in compression, the temperature rises. Furthermore, he explains that when the temperature falls to the "dew point," clouds form and also that the smoke of the incense served as the nucleus of

water drops. However, the explanation behind the temperature change cannot be explained by this experiment, and it is desirable that this will be confirmed with further experimentation. There is some doubt regarding student comprehension on the topic.

[00:51:55](#) Bow: End. 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. It is typical of many of the Japanese science lessons, but it applies creative methods of teaching. The instructor and the students have a good relationship, and it is clear that the students like their teacher. This makes for a good environment for learning. In addition, there was care in making sure that all students had a hands-on experience with plenty of creative tools and apparatus preparation. With more attention to student comprehension of the material, it would be an even better lesson.