Asia-Pacific Education Assessment Conference 2013 How Can "Goal-Based Assessment" Lead to Better Educational Practices?: Focusing on Performance Assessment in Japan

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Self-Introduction

- The study of educational methods (curriculum, assessment/evaluation, and instruction)
- Performance assessment (portfolio assessment, performance tasks, rubrics)
- Investigation about theories and practices in the United States and England.
- Collaborative research and development projects with teachers and schools in Japan
- Pre-service teacher training at Kyoto University
- E.FORUM; offering in-service teacher training http://www.educ.kyoto-u.ac.jp/e-forum/

Workshops:
In-service Teacher Training

Introduction
(1) Merits of Goal-Based Assessment

- Goal-based assessment makes you think through the goals of teaching.
- It lets you assess students by referring to those goals.

  → ①diagnostic assessment, ②formative assessment, ③summative assessment
- You can improve your practice according to the results of the assessment.
- (Hopefully) You can ensure that every student meets the goals and reaches the targeted level of academic achievement.

(2) Problems to Solve in order to Implement Goal-Based assessment

- What are the appropriate goals we should target?
- How can we clarify the assessment criteria (and standards)?
- Which assessment methods should we use?
- How can we improve our teaching practice according to the results of goal-based assessment?
- Don't goals constrain educational practice?

  <= Criticism from theorists who advocate goal-free assessment

(3) A Big Difference Between Singapore and Japan

- Singapore: nation-wide qualification systems for the secondary education
  GCE-O, GCE-N, GVE-A
- Japan: no nation-wide certificate system for the primary and secondary education
  - The National Courses of Study(NCS)
  - Authorized Textbooks
  - Cumulative Guidance Records
    - 2001-: Goal-Based Assessment
  - Each school(teacher) decides the concrete assessment criteria and methods.

(4) This Session

- Today I would like to share my experience of collaborative studies with schoolteachers that investigated how performance assessment can be better implement.
- "*Jugyo kenkyu*(授業研究)": lesson study

  School teachers participate in collaborative research on how to improve their lessons. As such, they plan a lesson together. A teacher conducts the lesson and others observe it. Afterward, they discuss what can be learned from the lesson. Sometimes, a research lesson such as this is shown to teachers from other schools.

- "*Shudan-shiko*(集団思考)": collective thinking, collaborative thinking, group thinking
  - A teaching method that involves incorporating the students' ideas, even '*tsumazuki* (slip-ups, mistakes)', in a positive manner into the lesson and deepening understanding through peer discussion. .
  - Cf. Yoshio Toi (1912-1991), Kihaku Saito (1911-1981)
- In our collaborative studies, we tried to combine the ideas of performance assessment and collective thinking. Today, I would like to explain how this functioned.

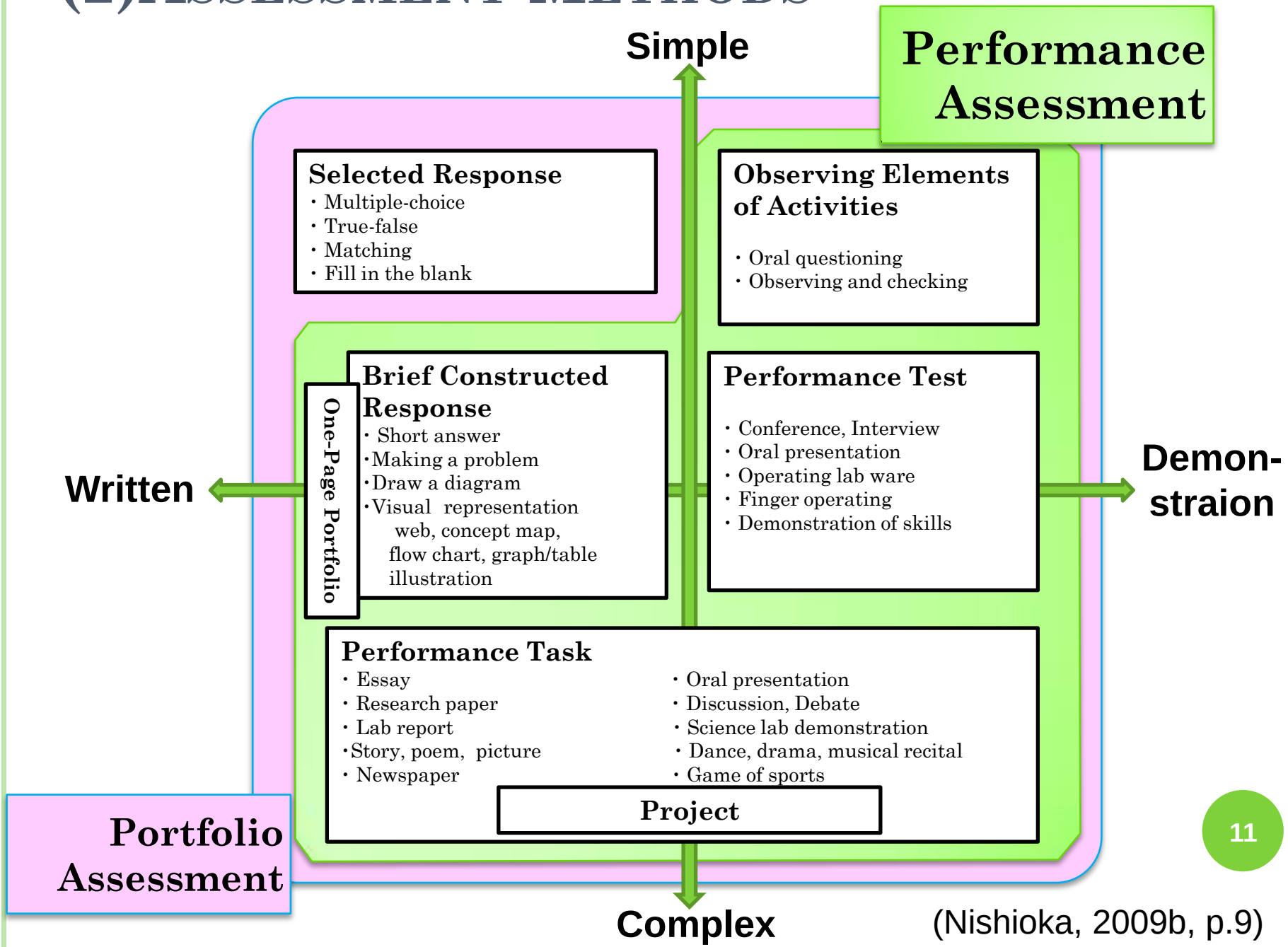
(5) A Request

- **I would also like to learn form your experiences.**
- In the middle of and at the end of this session, please answer the following questions:
  1. What are the similarities between teaching and assessment practices in your country and Japan?
  2. What are the differences between teaching and assessment practices in your country and Japan?
  3. Which points in my presentation will be useful for your future educational practice?
  4. What points of educational practice in your country do you think Japanese teachers should learn from?
  5. I would appreciate any other comments.

1. Performance Assessment
(1) Definitions

- The term **"performance assessment"** refers to a method for assessment (of problems and tasks) that requires using (applying) knowledge and skills.
- The term **"performance task"** refers to a complex task that requires comprehensive mastery of various forms of knowledge and skills. More specifically, such tasks include completion of pieces (i.e., products), such as essays, reports, and exhibits, and demonstrations (i.e., performances , in a narrow sense), such as speeches, presentations, and experiments.

(2)Assessment Methods



(Nishioka, 2009b, p.9)

(3) Portfolio Assessment

- Portfolios are a systematic accumulation of records of work and self-assessment made by students, and records of the teacher's teaching and assessment and the like.
- Portfolio assessment is an approach that aims to nurture the student's ability to self-assess their own learning, and at the same time for the teacher to broaden and deepen the assessment of his/her own teaching and the student' learning.

A Portfolio

(Cf. Miyamoto, H.; Nishioka, K. and Sera, H., *Portfolio Assessment for Developing Real Academic Achievement in Integrated and Subjects Study,* Nihon Hyoujun, 2004.(in Japanese))

(4) Arguments for 21st Century Competencies

①OECD Key Competencies

Use tools interactively

Why

- The need to keep up to date with technologies
- The need to adapt tools to own purposes
- The need to conduct active dialogue with the world

What competencies

A. Use language, symbols and texts interactively
B. Use knowledge and information interactively
C. Use technology interactively

Interact in heterogeneous groups

- The need to deal with diversity in pluralistic societies
- The importance of empathy
- The importance of social capital

What competencies

A. Relate well to others
B. Co-operate, work in teams
C. Manage and resolve conflicts

Act autonomously

Why

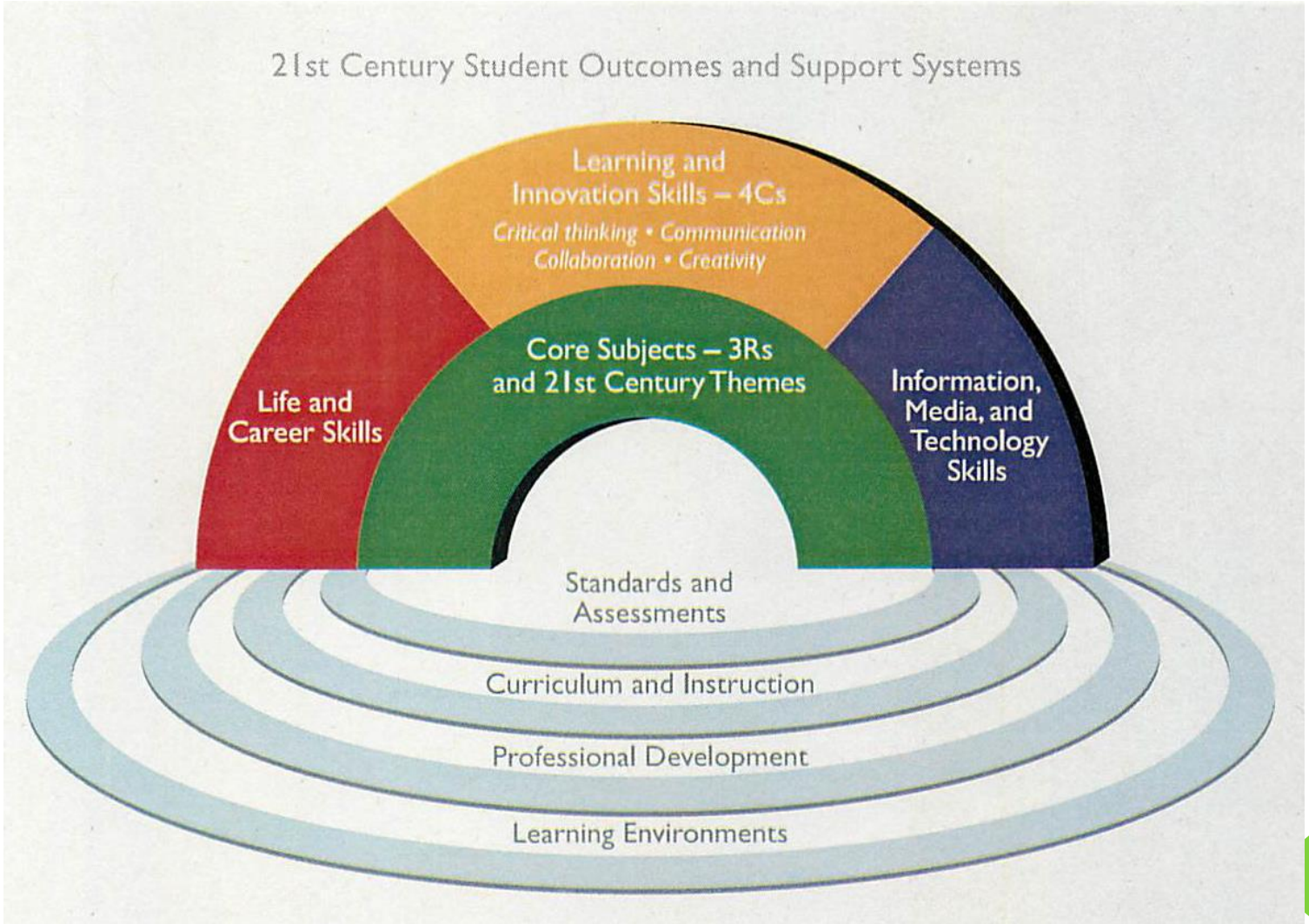
- The need to realise one's identity and set goals, in complex world
- The need to exercise rights and take responsibility
- The need to understand one's environment and its functioning

What competencies

A. Act within the big picture
B. Form and conduct life plans and personal projects
C. Defend and assert rights, interests, limits and needs

(http://www.oecd.org/pisa/35070367.pdf)

②The Partnership for 21st Century Skills(P21)



(http://www.p21.org/storage/documents/1.__p21_framework_2-pager.pdf)

③Assessment and Teaching of 21st Century Skills (ATC21S)

(http://atc21s.org/index.php/about/what-are-21st-century-skills/)

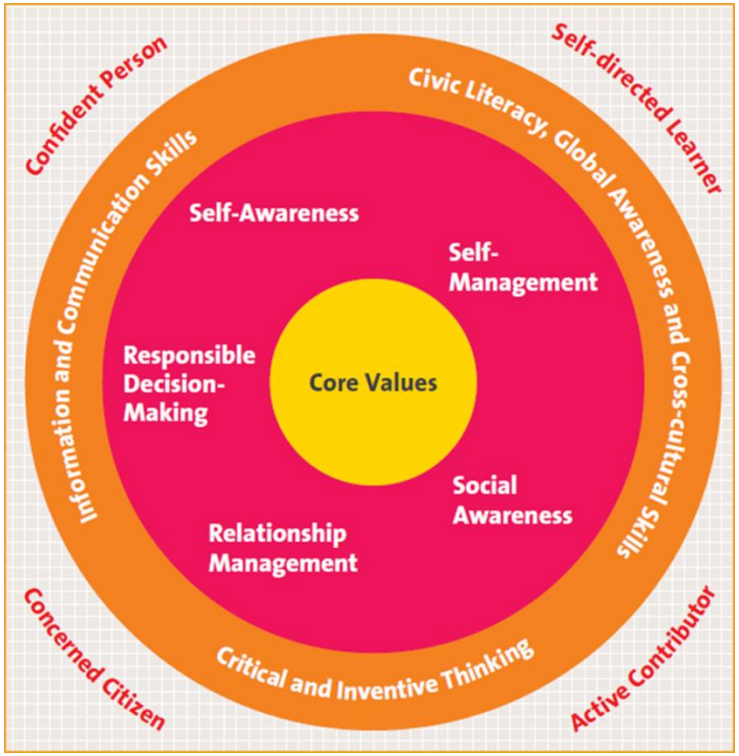
④Commonly Emphasized

- Literacy, communication
- Logical thinking
- Higher-order cognitive skills
- Problem-solving
- Social ability, teamwork
- Autonomy etc.

Cf. Matsushita, K. (Ed.), *Will "New Ability" Change Education?: Academic Achievement, Literacy, and Competency,* Minervashobo, 2010 (in Japanese)

⑤ Thinking School, Learning Nation (TSLN) (1997-) (Singapore)

- Desired Outcomes of Education (DOE) (1997)
- Innovative & Enterprise (I & E) (2003)
- Teach Less, Learn More (TLLM) (2004)
- Curriculum 2015



⑥"Zest for Life" (Japan)

- The ability of children to confidently acquire basic, fundamental information and to master the qualities and competencies that allow them to learn and think on their own, thus giving them the aptitude to behave and make judgments subjectively and to solve problems in a desirable manner
- The ability of children to form a well-rounded character and to discipline themselves, to work with other people, to care about other persons, and to be sensitive
- Good health and physical strength, in order that children may live active lives

(The aforementioned information first appeared in 'Education in Japan: A View Toward the 21st Century (First Report)', issued by the Central Council for Education in 1996)

The Period for Integrated Study(PFIS)

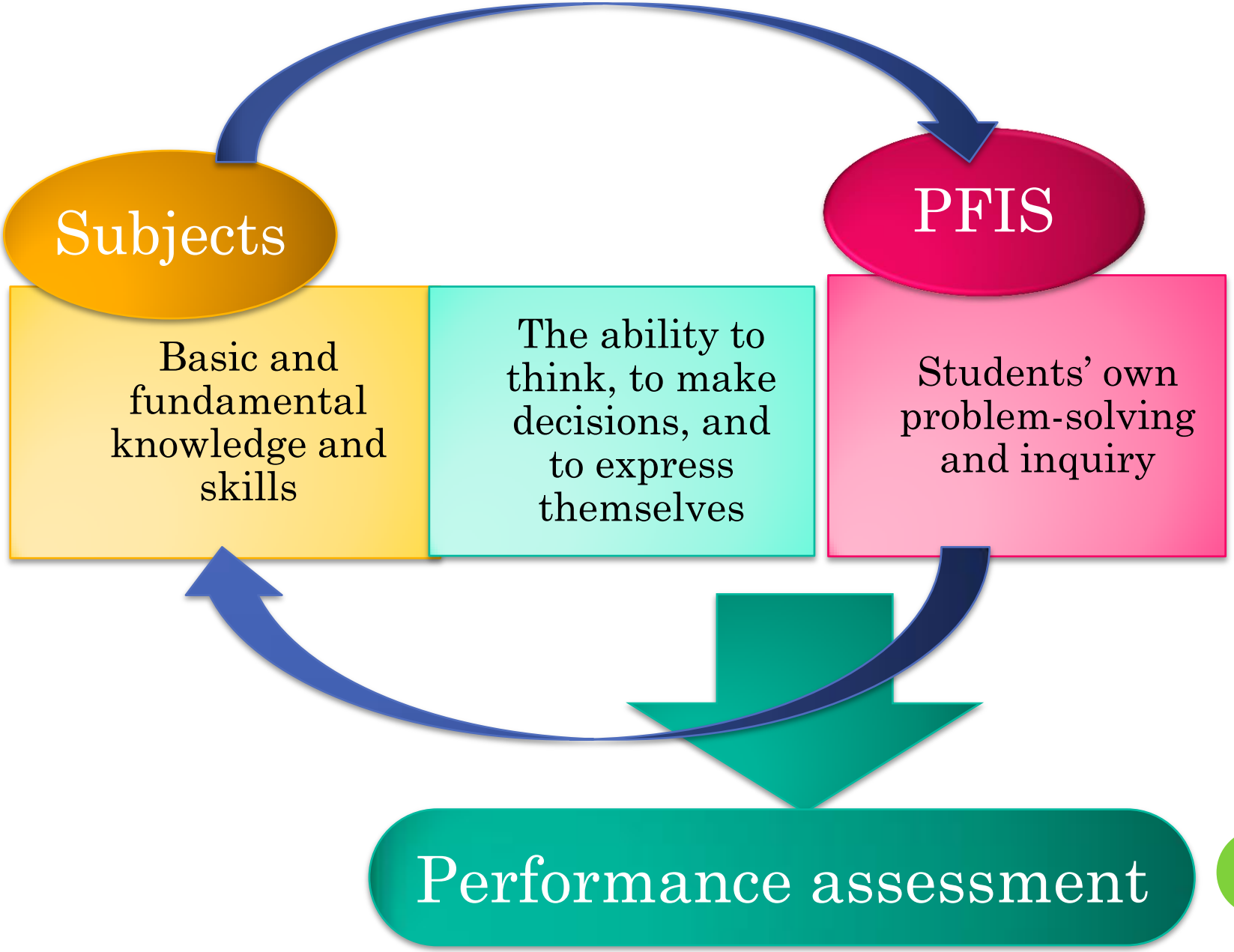
- Established in the 1998-revised NCS
- I. OVERALL OBJECTIVES

To enable students to think in their own way about life through cross-synthetic studies and inquiry studies, while fostering the qualities and abilities needed to find their own tasks, to learn and think on their own, to make proactive decisions and to solve problems better. At the same time, enable students to acquire the habits of studying and thinking, and cultivating their commitment to problem solving and inquiry activities in a proactive, creative and cooperative manner. (quoted from the 2008-revised NCS)

Three Elements of Academic Achievement in Subjects

- each school should be committed to enhancing its instruction to enable students to solidly acquire basic and fundamental knowledge and skills, to foster the ability to think, to make decisions, to express themselves and other abilities that are necessary to solve problems by using acquired knowledge and skills, to cultivate an attitude of proactive learning and to develop students' individuality.

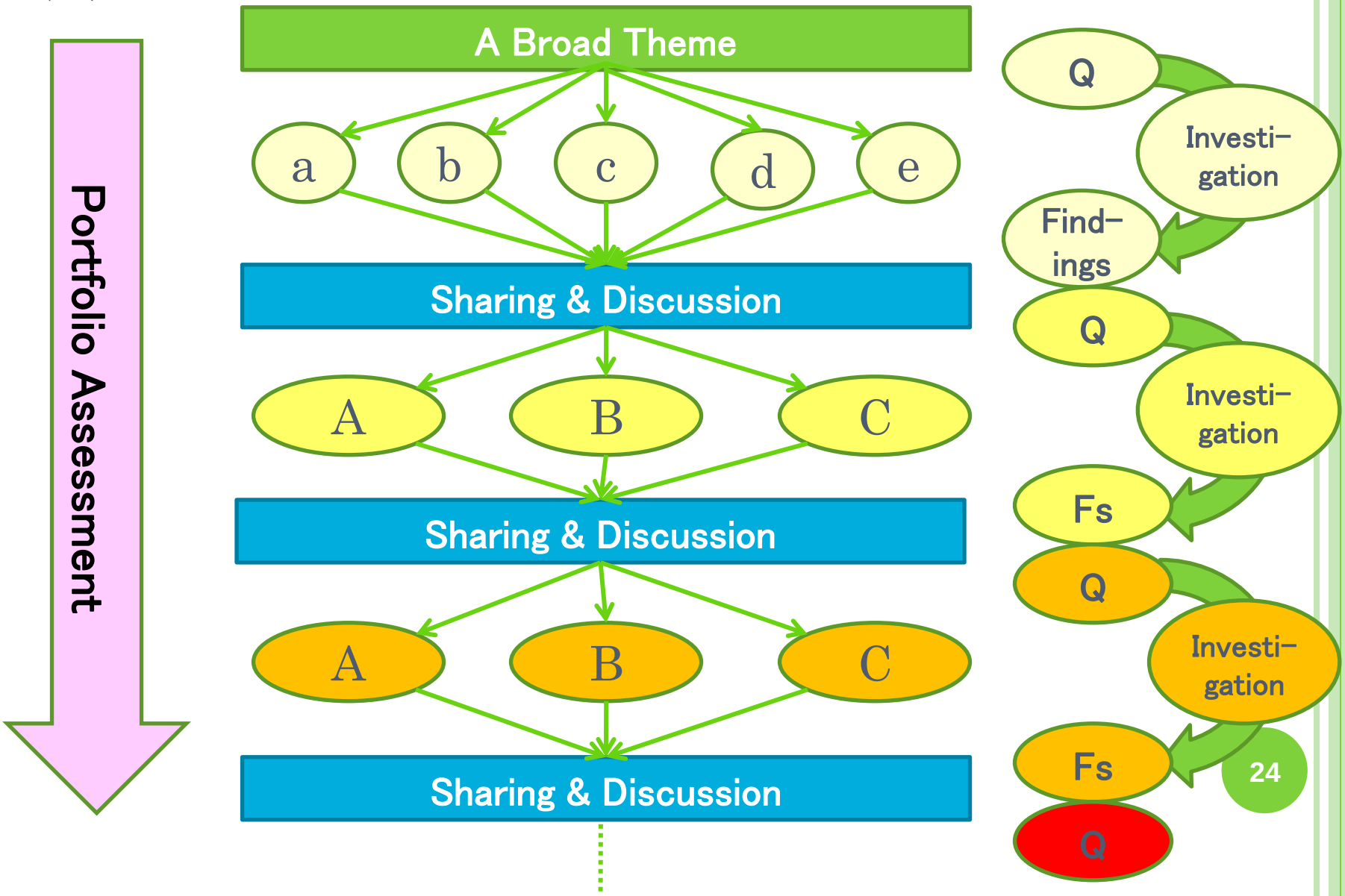
(quoted from the 2008-revised NCS)


Subjects
PFIS
Basic and fundamental knowledge and skills
The ability to think, to make decisions, and to express themselves
Students' own problem-solving and inquiry
Performance assessment

(6) Performance assessment and 21st Century Competencies

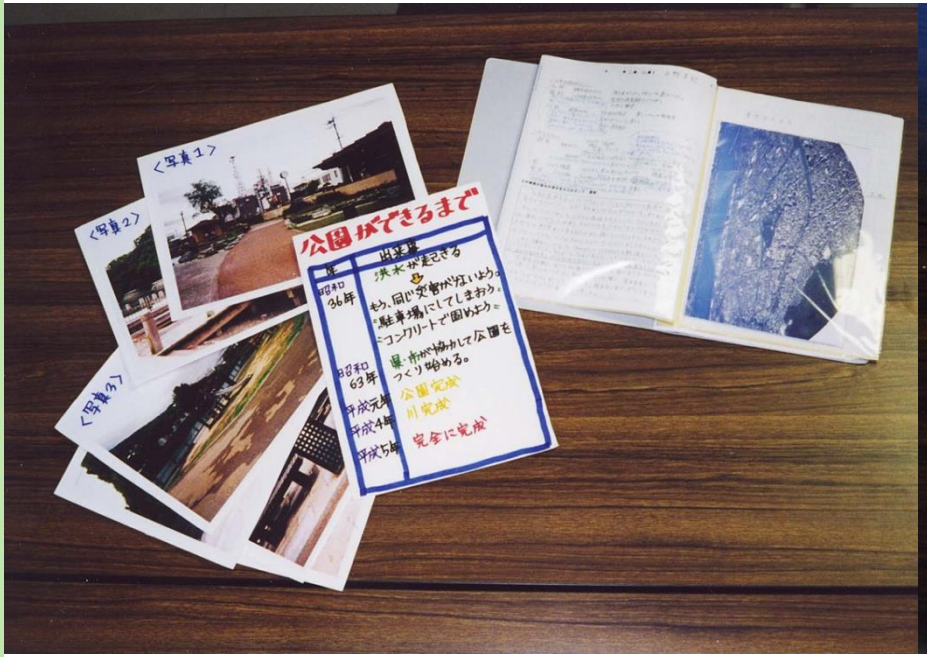
- Performance assessment is an effective way to promote 21st century competencies.
- It is not enough to change assessment methods; it is equally important to enable students to learn how to think logically and synthesize knowledge and skills.
- How can we improve our teaching practice by combining performance assessment with collective thinking method?

2. Assessment of the PFIS
(1) The Structure of a Unit



(2) Three Types of Opportunities to Assess Students' Learning

- Sharing and discussion by the whole class
- One-to-one/group conferences
- Materials collected in the portfolios



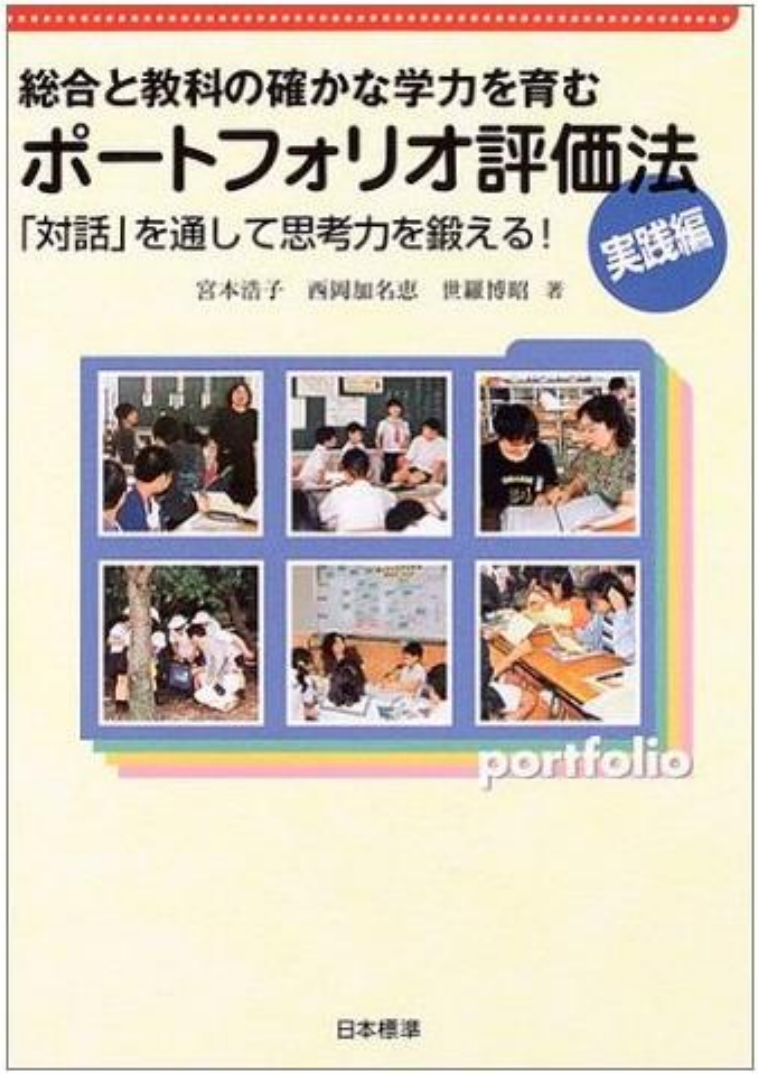
(3) Assessment Criteria

- What problems have students noticed? What is the level of quality of the issues that the students intend to study?
- Are students thinking logically? Are the students following a path of study that is consistent with their themes? Have students been aware of relationships, common points, and differences among the targets of their studies? Have students been able to think about various types of information in a comprehensive manner?
- Have students gained direct experience, for instance, by making relevant items and conducting interviews, experiments, and door-to-door surveys? Haven't students accepted the content of relevant books without questioning it?

- Have students exercised strength in working together? Do students cooperate during group activities? Have students come up with new ideas using the opinions of other group members?
- Have students developed the ability to accurately assess themselves?
- Do students use the knowledge and skills they have acquired when studying the relevant subjects?

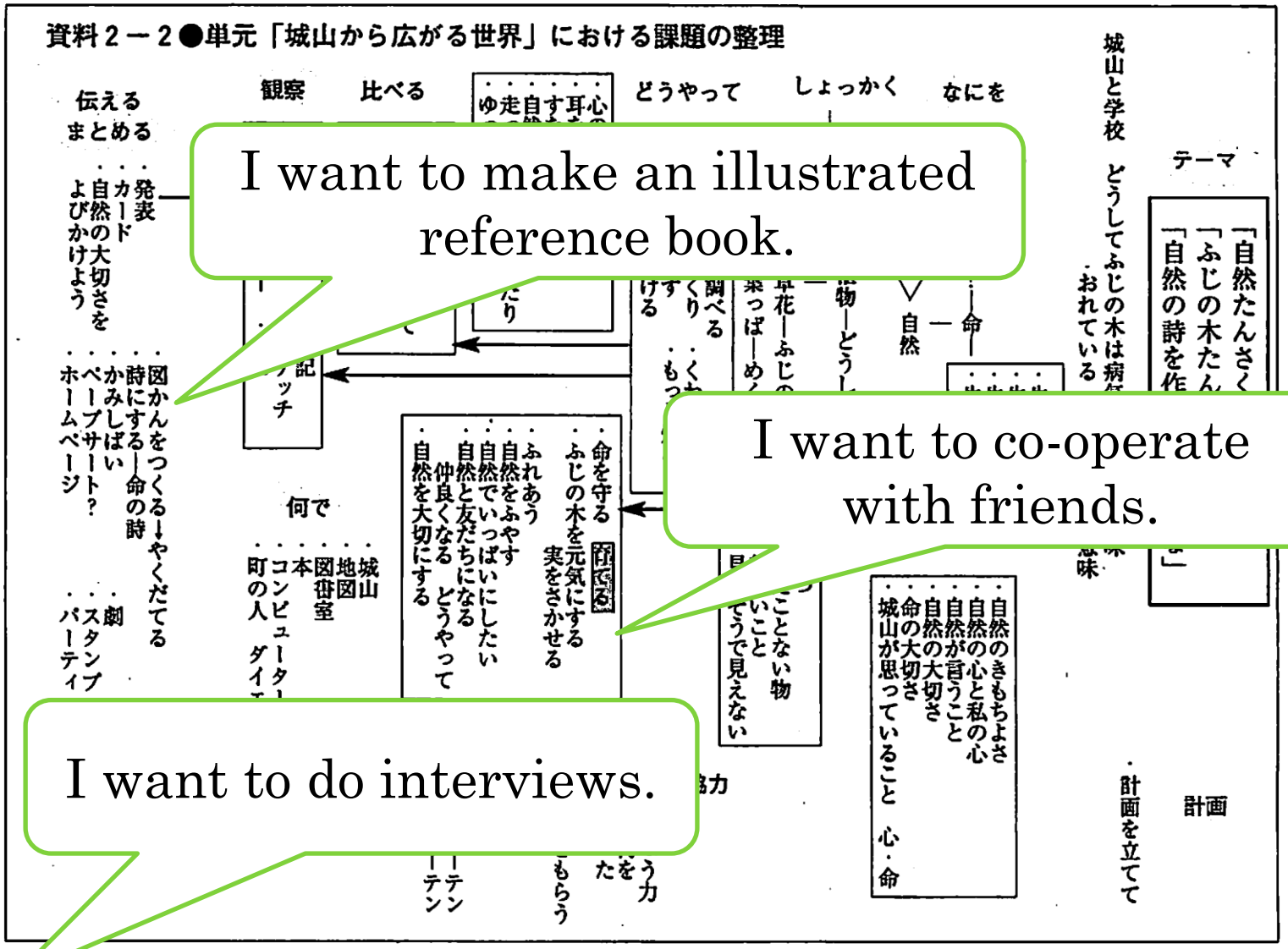
(4) An Example

- Fuzoku Elementary School Attached To Naruto University Of Education
- The Teacher: Ms. Hiroko Miyamoto
- Students: 4th Graders
- The Broad Theme: "The Broader World We See from Shiroyama"
- Length of the unit: 33 hours



（Miyamoto, H.; Nishioka, K. and Sera, H., *Portfolio Assessment for Developing Real Academic Achievement in Integrated and Subjects Study,* Nihon Hyoujun, 2004.(in Japanese)）

①Mapping What Students' Want to Do

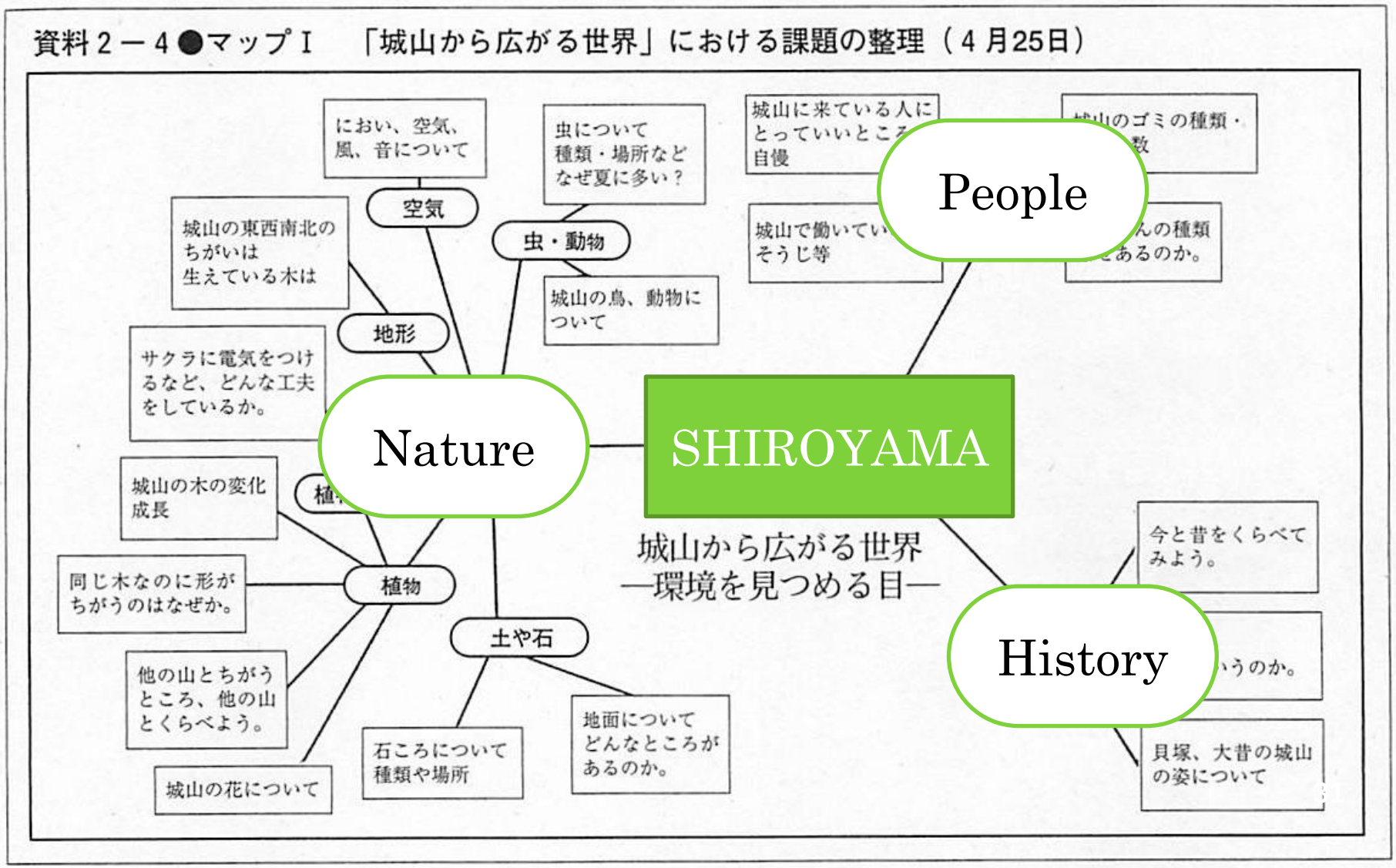


② Visiting Shiroyama

- T: Let's go to Siroyama and see if the topics you have chosen are doable.

- S: "I wrote that I wanted to do interviews, but now I am wondering what I'm going to ask."
  => "I am going to study what is appealing to people who come to Shiroyama by interviewing them"

③Mapping Students' Topics to Investigate



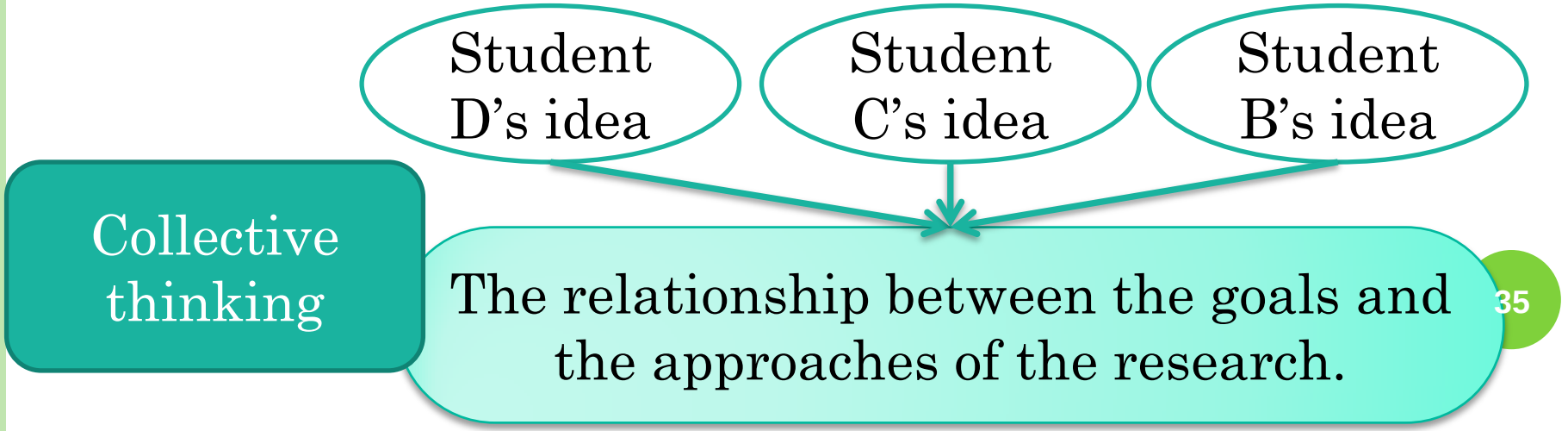
④A Group Conference

④A Group Conference

- T: [While looking at her notebook] You wanted to check what type of insects were living in Shiroyama, how they developed, and the manner in which they lived, correct? The great thing about A was that A did not forget to prepare an insect cage and net.
- B: I brought an insect cage.
- T: What was the most difficult thing for you to do in order to actually complete this work? [B and A took some time to review their portfolios.] What was the hardest part?
- A: There were only butterflies. I was looking for other insects. But I could not find them; some of those I found were already dead.
- B: [Pulling out a map of Shiroyama from the portfolio and pointing at it] Teacher, we went all over these places, but I could find nothing there. There are normally butterflies and drone beetles around. But when I went there, I couldn't even find any butterflies. So, I gave up trying to find them around there and went down…[snip].

- T: So, the flight patterns of the butterflies were not very clear [taking notes in his notebook], and thus you could not check them, right?
- B: Yes. [A nods.]
- T: You need to figure out some tricks for this kind of checking. You can think about this in many ways. [Hears C muttering 'I got it'] Did you get it? What kind of tricks?
- C: Well, I don't know if I have got it right, but when butterflies emerge, I should measure the temperature. And when I next see them, I should measure the temperature again…
- B: [Breathlessly] That's how we find them!
- T: What C said right now is one method. [D raises his hand.] Do you have an opinion? [D nods.] Yes.
- D: [Becoming excited] I am thinking about different ways to eat or slurp foods, such as watermelons. I think it would be great to lure butterflies using bait and then define the shapes of their mouths with a magnifying glass.
- B: I see!

- T: You have a point there. In fact, D, C, and B each gave different goals, in the sense that they have different approaches toward narrowing down this work. Observing the way of imbibing food was D's idea, and this approach focused on how the insect eats, as well as the characteristics and movements of a single insect. Meanwhile, B mentioned relationships with temperature and wind that can indicate places where insects may be found. [The rest is omitted. After the aforementioned procedures, the teacher advised the students that they needed to choose a method of studying that is based on their goal. Additionally, the teacher advised students that they could consult books about insects in the library.]



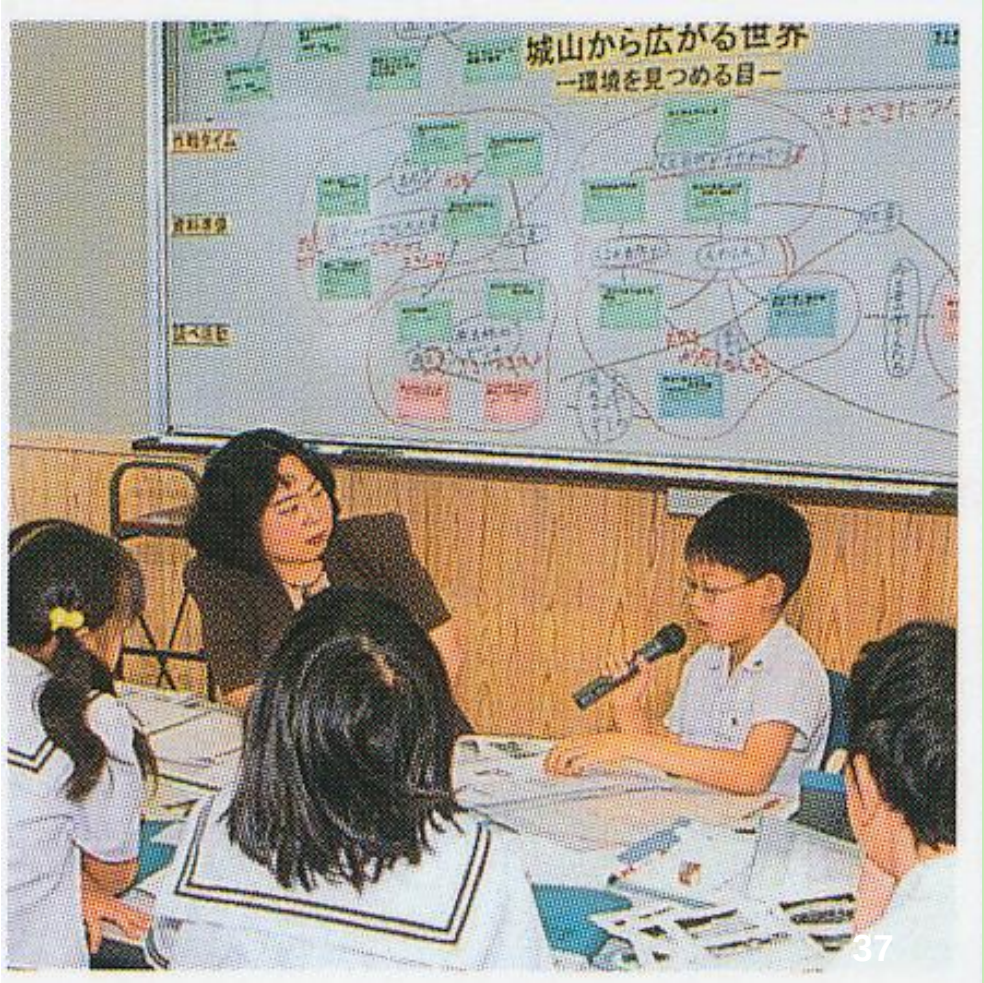
⑤Interim Peer Presentations

- Ms. Miyamoto had each group report on what they had discovered by doing interim peer presentations in preparation for the final presentations for their parents and guardians. With the aim of thinking about the main points of their presentations for the final report, she had them listen to each other and to think about similarities and differences. She then build up a map on the blackboard based on what the children said.

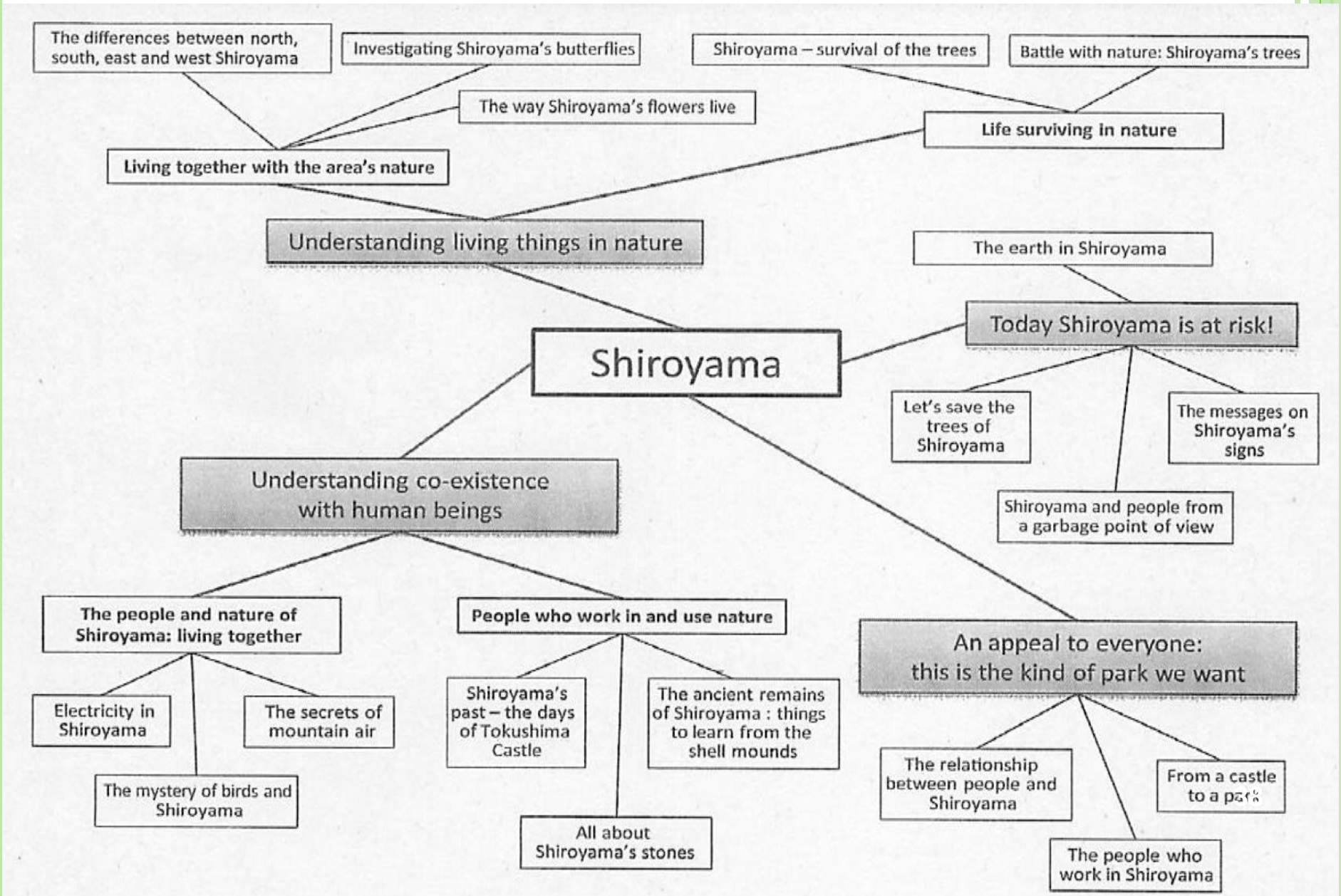
Collective thinking
in whole-class lessons.

A Poster

資料２－９●城山の鳥グループのポスター

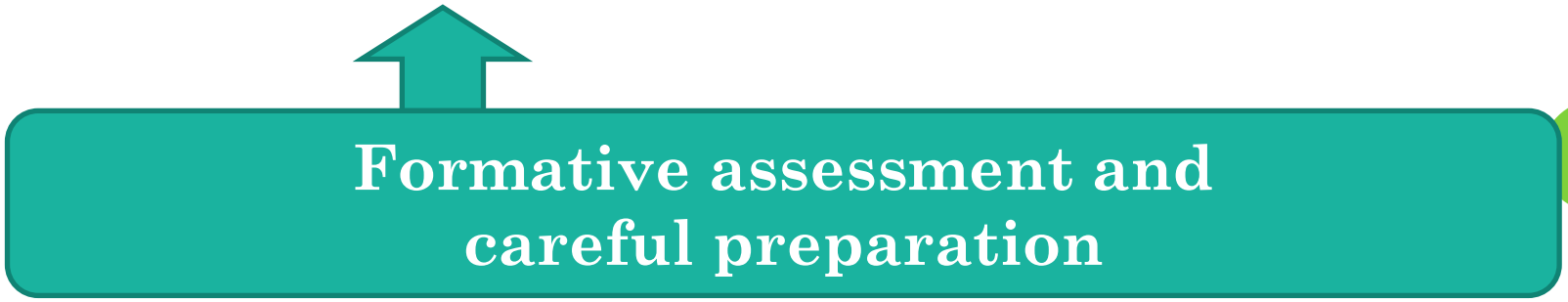


Mapping Students' Findings



(5) Positive Effects of the Collective Thinking Method

- Teachers are able to adjust their teaching according to the students' readiness.
- The methods enables students to learn how to deepen their thinking as well as how to cooperate with each other.
- Students' mistakes are appreciated because they are also important elements in deepening understanding of other students as well.
- Students maintain their confidence.



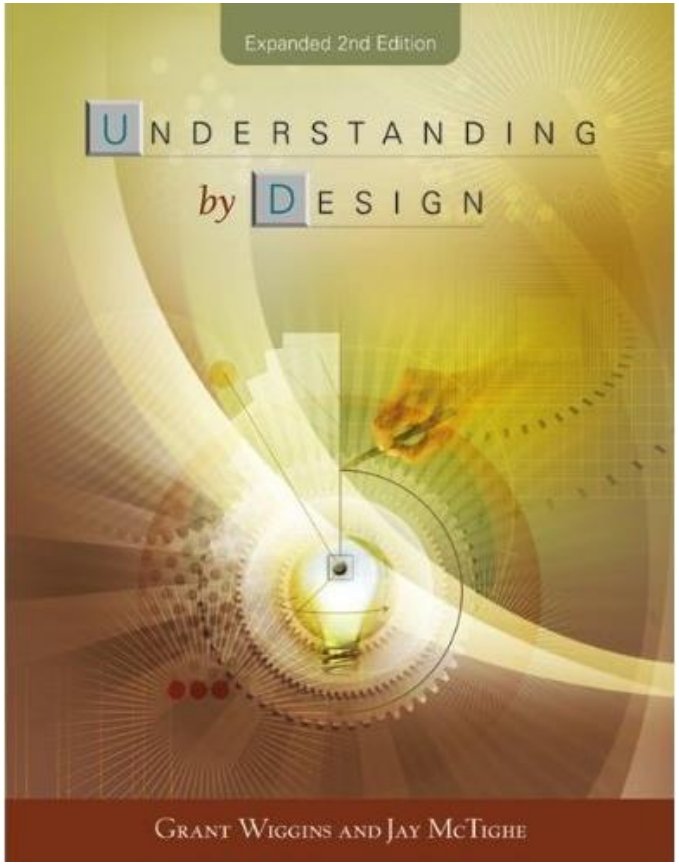
3. Assessment in A Subject
(1) An Example

- Yokohama Junior High School Affiliated with the Faculty of Education and Human Sciences at Yokohama National University
- The Teacher: Ms. Asami Mifuji
- Students: 7th-9th Graders
- Social Studies

(Mifuji, A. & Nishioka, K., *How to Approach Performance Assessment: Social Studies Curriculum and Lessons,* Nihon Hyoujun, 2010 (in Japanese))

(2) Developing Performance Tasks

- Wiggins, G. & McTighe, J., *Understanding by Design*, ASCD, 1998/2005



The Nested Structure of "Essential Questions"

What are happiness and peace? How is it possible to establish a peaceful and happy society?

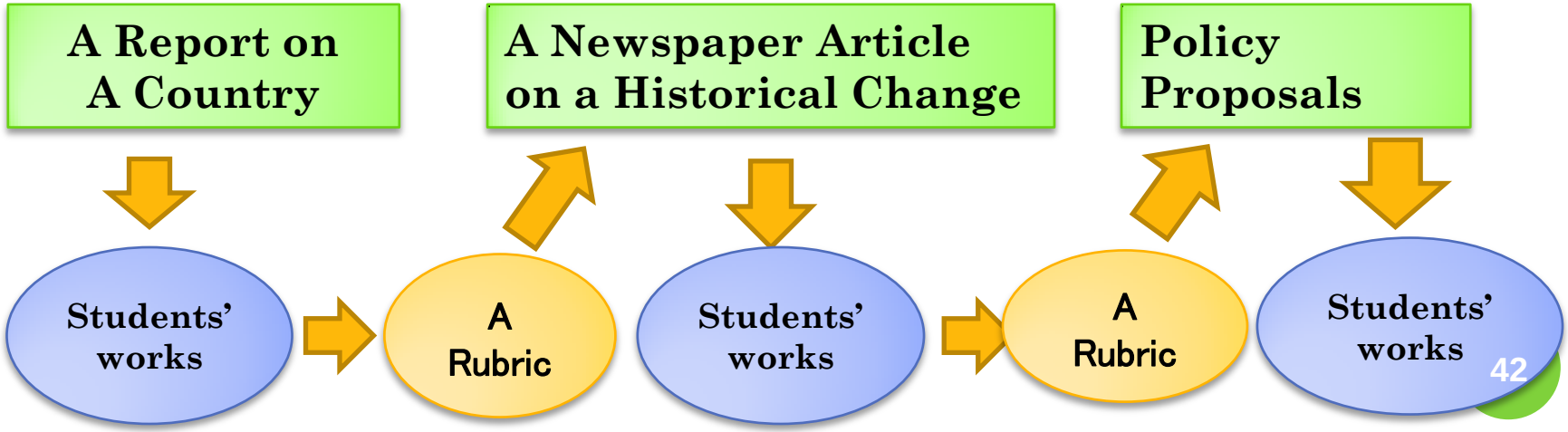
How do people live, and in what kinds of geographical conditions? How can we change geographical conditions?

What does the change of an era really mean? What causes change in society? What changes can create a peaceful, democratic nation and society?

What is democracy? What are the characteristics of a democratic nation?

What kind of economic problems exist? What are the causes of these problems? How can these problems be solved?

Recurring Similar Performance Tasks



A Longitudinal Rubric

A Task: Propose an Economic Policy!

- Imagine that you are a parliament member, and elections for the House of Representatives will take place soon. TV FY will hold a series of discussions on economic policy before the election. During this program, parliament members who propose different economic policies for certain themes will discuss issues concerning each policy.

- The following three themes will be discussed.
- 1. The reduction of economic disparity:
  The 'working poor' issue
  - A: Further increase free competition.
  - B : Enhance social security.
- 2. Environmental policy
  - A : Prioritize global warming prevention.
  - B: Prioritize overcoming international competition.
- 3. Food policy
  - A: Further enhance trade liberalization.
  - B: Improve the food self-sufficiency rate through protection of food production.

- First of all, you will choose the sessions in which you will appear as parliament members, and then conduct the following tasks:

(1) Explain the issue and its underlying causes based on social structure.

(2) Propose policies for resolving the issue, while at the same time, explain the information put forth in (1).

(3) Debate the issue with other members who have made different proposals and respond to opinions and questions from general viewers who will participate in the program.

(4) At the end, using the content of the debate after it has ended, make necessary modifications, and complete a report on policy proposals.

(3) Developing Rubrics

Developing a Task-Specific Rubric

①Several different markers score students' works in a manner that allows the scores given by individual markers to be kept secret.

②Similarly scored works are collected, the characteristics of these works are discussed, and descriptors are created. Why did everyone have similar evaluations of these works, for instance: ‘these works are magnificent’/‘these works have met the required standard’/‘these works need quite a bit of improvement’?

③Groups of works regarding which opinions were divided are reviewed and descriptors are reconsidered.

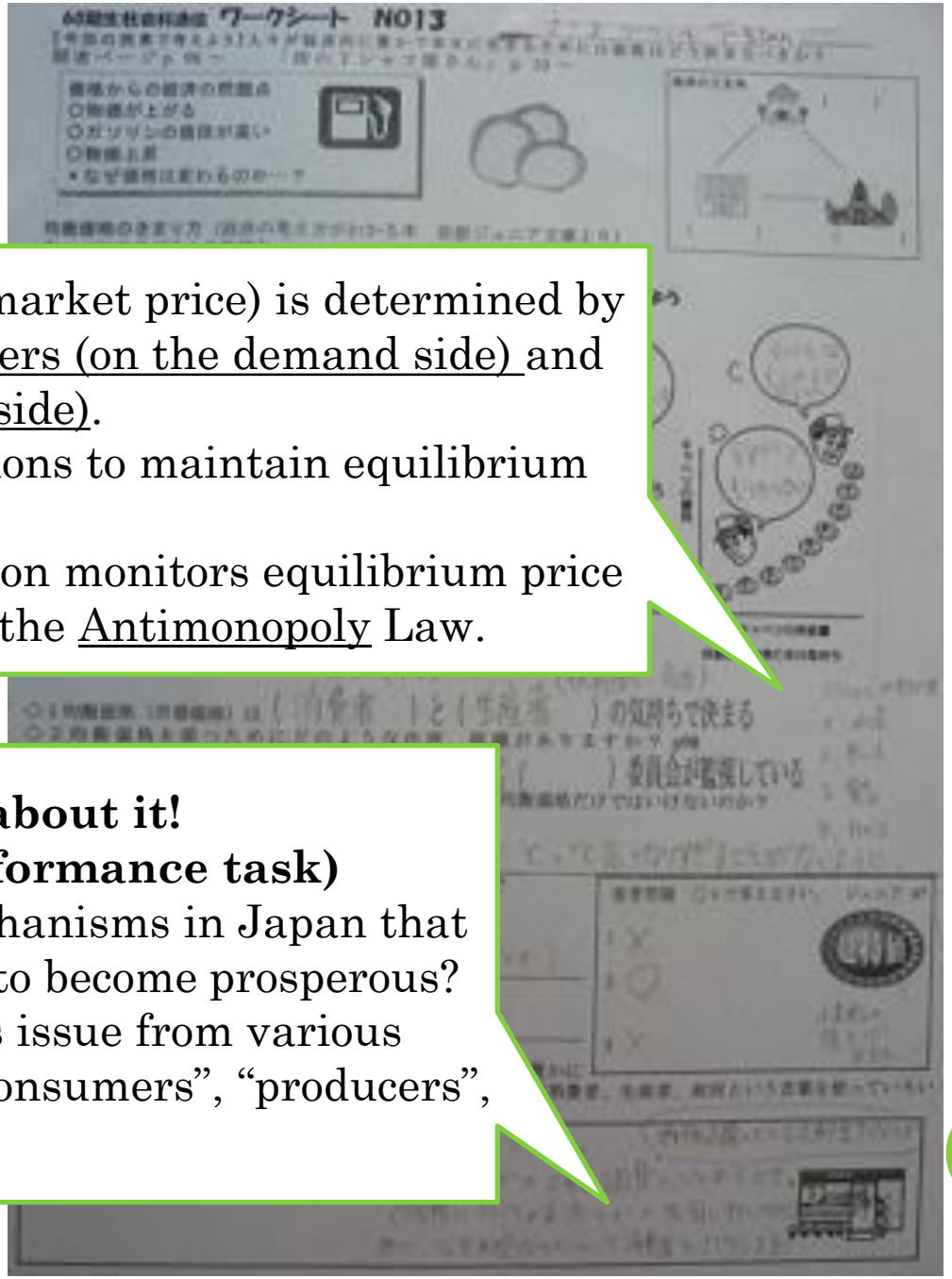
A Longitudinal Rubric

	Social Thoughts, Judgment, and Expression
5	In examining social phenomena, the student has more than three viewpoints, such as politics, economy, culture, population, and geography. He/She is able to combine the aforementioned viewpoints in a comprehensive manner, to undertake analyses from various perspectives, to state appropriate, detailed, and specific grounds for opinions, and to construct remarkably convincing assertions. Statements are made after suitable materials have been selected and compiled in a multifaceted manner.
3	In examining social phenomena, the student has more than two viewpoints, such as politics, economy, culture, population, and geography. He/She is able to associate the aforementioned viewpoints, to undertake analyses from various perspectives, to mention specific grounds, and to make clear assertions. Statements can be made using diverse materials. The student combines the aforementioned viewpoints and to make clear assertions by stating specific grounds for opinions. Statements are made by consulting various materials.
1	In examining social phenomena, the students states facts based on the various viewpoints, such as politics, economy, culture, population, and geography. However, facts are simply listed in a fragmented manner. Difficulty in connecting assertions with grounds can be identified. Difficulties have been caused while reading and creating basic data

(4) Teaching Methods

- Establish ideas about desired outcomes at the beginning of a study unit.
- Provide explanations for the tasks. Showing TV programs related to associated problems leads students to develop greater interest in the corresponding tasks.
- Provide students practice with small tasks (i.e. by associating each class with a different performance task).
- Organize class discussions and debates.
- Organize ideas by writing them out on a blackboard.
- Make students prepare drafts.
- Share rubrics with students.
- Let students present their completed work to a group or the entire class.

A Worksheet



- An equilibrium price (or market price) is determined by the sentiments of consumers (on the demand side) and producers (on the supply side).
- What laws and organizations to maintain equilibrium price levels?
  The Fair Trade Commission monitors equilibrium price levels in accordance with the Antimonopoly Law.

Let's Think about it!
(a draft for the performance task)

- What are the pricing mechanisms in Japan that would allow more people to become prosperous? (i.e. Let's think about this issue from various angles using the terms "consumers", "producers", and "governments")

A Debate

Writing on the Blackboard

<TV FY> Propose an Economic Policy!
How should we deal with economic disparity?

A. Further Increase Free Competition
- Support enterprises and revitalize them.

B. Enhance Social Security
- Support the working poor.

Economic recovery > Fulfillment of Welfare Policy > Business Development

Minimal level of life security

Prioritization of work sharing schemes

◎Tax allocation
◎Livelihood support

What are we going to do about these issues?

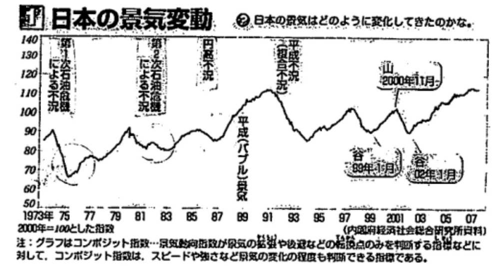
Cf. Mapping on a Blackboard

A Student's Work

「経済政策を提言しよう！」 '08 10/31

● 好景気にするため、**環境保護**を提案します！ ●

現在の地球規模の問題として地球温暖化を挙げる人は少なくないでしょう。
地球温暖化が進行することによって、今、日本でも気候が変化しています。これにより、農作物が通常のように育たなくなってしまいます。ここ数年でも気候変化による影響で主な産地である愛媛で、みかんの収穫量が減ってしまいました。このように温暖化は我々の食糧にも深く関わってきます。また、十数年後、熱くなった日本ではマラリア感染の恐れがでてきます。これはもう未来の話ではありません。これ以上温暖化を進めてしまうと国内は様々な問題によって混乱に陥り、不景気になるでしょう。右のグラフを見て下さい。過去にも国民の生活と関わる問題が起こった時に、景気が悪くなることが分かります。



〈浜島書店 ／ 資料集 より〉

なので我々は地球の為、人類の発展の為に温暖化を今ここで食い止めるべきなのです。そこで私は環境保護を提案します。

環境保護と言われると、大多数の人は植林を思いうかべるでしょう。確かに木はCO_2を吸収してくれますが、杉の木は1年間に14kgのCO_2しか吸収してくれません。今現在大気中には約8000億トンもの余分なCO_2があり、それだけでなく人は新たにCO_2を排出しているのですから、これでは植林だけでは足りません。それならばどうすればいいのでしょうか？私の提言の具体的な内容は<u>エコ商品の奨励</u>です。

1997年、京都議定書で日本はCO_2排出量を6％削減すると決めました。しかし議定書の試行開始となった2005年以降もCO_2排出量は増え続け、当時の－6％を達成するためには現在の段階で14.3％ものCO_2排出量を削減しなければなりません。そこで活躍を期待できるのがエコ商品です。

例えば冷房の設定温度を1℃上げると15％、電球を白熱灯から蛍光灯に変えると[illegible]％の省エネになります。つまり多くの人がエコ商品を利用すればCO_2の排出量を[illegible]削減することができるのです。

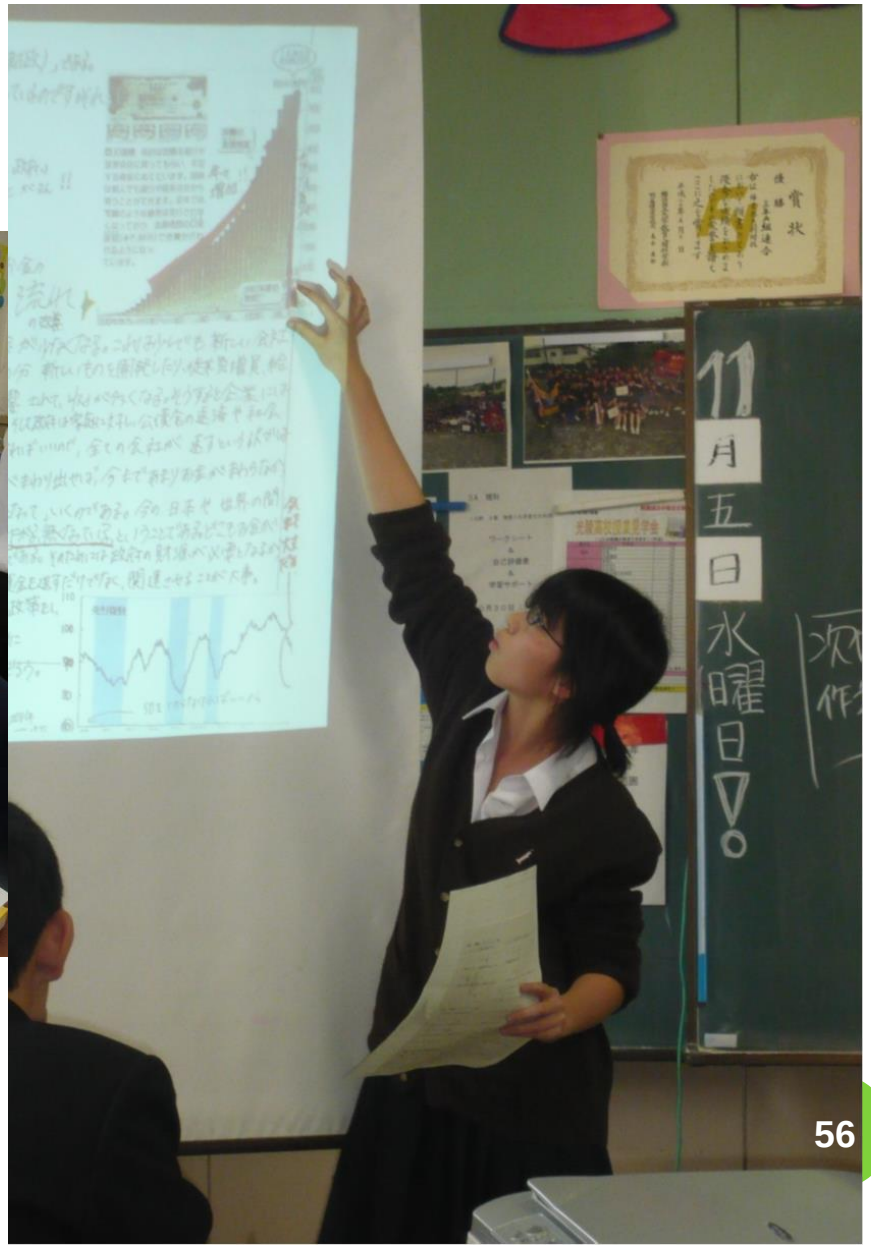
また、エコ商品を奨励することにより、日本の[illegible]産業も活発化します。これは日本の経済[illegible]なることを意味します。それだけでなく今世界で注目[illegible]、日本の機械類は精密さだけでなく、環境にも優しい、と各国から[illegible]地位が上がることも期待されます。

しかし、エコ商品の奨励には資金が必要です。未来の[illegible]使用期間の[illegible]少なくなっていく資源の確保など[illegible]以上に金がかかることは明らかです。なので今[illegible]から多少の資金を出すことが必要ですが、正直国にそこまで[illegible]ありません。そこで私がエコ商品の奨励と共に[illegible]するのは<u>環境税</u>の導入です。[illegible]「エコ商品の奨励」という目的をプラスし、目的税としてこの案を[illegible]と思います。具体的な内容は[illegible]ゴミ収拾を有料化[illegible]スーパーマーケットのゴミ袋1枚[illegible]数円の税[illegible]環境税[illegible]をエコ商品奨励のための資金としていきたいと思います。

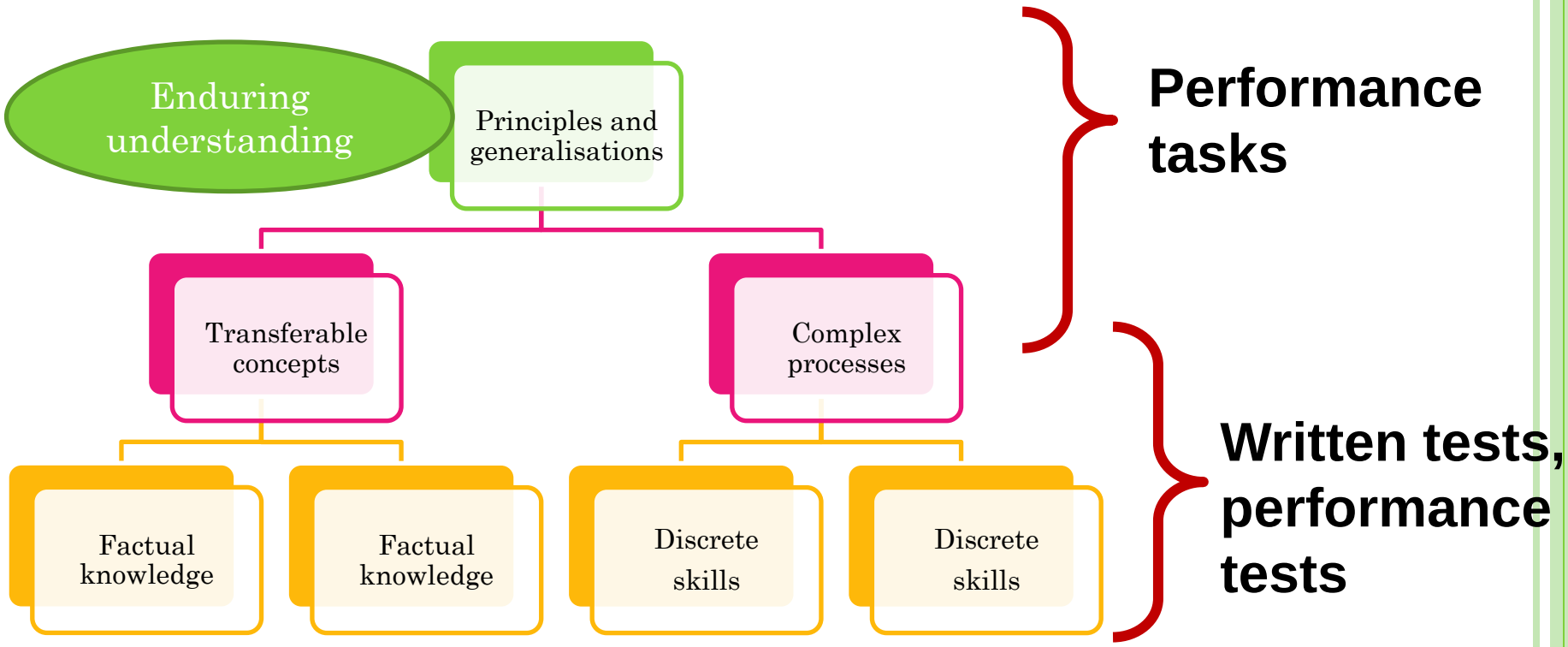
今、日本で、世界で、温暖化対策が必要とされています。地球の、人間の未来の為に、今の日本ができることとして、環境税の導入とエコ商品の奨励を提案します。

A Student's Work

Presentation



Conclusion
Structure of Knowledge and the Collective Thinking Method



(Cf. McTighe, J. & Wiggins, G., *Understanding by Design: Professional Development Workbook,* ASCD, 2004, p.65; Erickson, H.L., *Stirring the Head, Heart, and Soul,* 3rd Ed. Corwin Press, 2008, p.31)

- The collective thinking teaching method allows students to think about the structure of knowledge themselves and to deepen their understanding.
- While providing students with opportunities to participate in discussions, the teacher asks students to compare their ideas, to find the similarities, differences, and the relationships between them, and to reflect on their own ideas.
- The teacher also maps students' ideas on the blackboard so that they can easily understand the structure of the discussion.

- The collective thinking method must be one of the best ways to equip students with the capabilities needed to tackle performance tasks.
- To promote 21st century competencies, the simultaneous use of performance assessment and the collective thinking method is effective.
- When using this method, we need to implement formative assessment and carefully plan and prepare the lesson.

Questions

1. What are the similarities between teaching and assessment practices in your country and those in Japan?
2. What are the differences between teaching and assessment practices in your country and in Japan?
3. Which points in my presentation will be useful for your future educational practice?
4. What points of educational practice in your country do you think Japanese teachers should learn from?
5. I would appreciate any other comments.

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Thank you very much!