CONCEPT DEVELOPMENT

A Hilda Taba Teaching Strategy

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INTRODUCTION

The launch of Sputnik in 1957 spawned a generation of innovative works in education. Many focused their efforts on curriculum, resulting in such timeless pieces as *Man: A Course of Study* and the *Biological Science Curriculum Study*. Hilda Taba and her colleagues were a part of this curriculum zeitgeist. Working primarily in social studies, Taba published important practical and theoretical curriculum works. But she didn't stop there. Taba balanced her efforts in curriculum with a parallel emphasis on a refined description of inquiry-based instruction. The inductive instructional strategies she developed broadened the scope of her work so they apply across subject domains.

I was introduced to the Hilda Taba teaching strategies as an M.Ed. student at the University of Arizona. Dr. C. June Maker, who had studied at the Institute for Staff Development in Florida, required a course on the Taba strategies and developed her other methods courses using Taba's carefully structured question sequences and close, detailed self-assessment of pedagogy.

I wish I could say that I immediately recognized the Taba strategies as transformative teaching tools, but it's not true. At the time, I thought Taba and her colleagues had simply created a nit-picky, micro-managing approach to writing lessons. It wasn't until after I had graduated and used the strategies with both children and adults that I came to realize the paradigm-shifting nature of her system that uses thoughtfully planned question sequences and nuanced instruction to develop higher-order thinking.

More than 25 years later, my notebooks of Taba materials are still among my most prized professional possessions. To my mind, these materials should be integral to pre-service instruction, peer coaching groups, and professional development. They are of enormous value to anyone interested in refining their classroom practice.

This book draws from seminal pieces of Taba's repertoire, including the 1967 edition of *A Teacher's Handbook to Elementary Social Studies* and *A Teacher's Handbook to Elementary Social Studies: An Inductive Approach,* published posthumously through the efforts of Mary C. Durkin, Jack Fraenkel, and Anthony McNaughton. I also drew upon training materials prepared at the Institute for Staff Development and on Mary Durkin's 1993 book *Thinking through Class Discussion*.

Four appendices are included to provide additional detail on topics related to Concept Development. The first two, *Thinking throughout Concept Development* and *Types of Groups*, introduce additional layers of depth and complexity to the Concept Development lesson. The third is a transcript of a 1971 presentation by Mary Durkin, one of Taba's team of colleagues, in which she highlights important features of the strategy. The fourth appendix includes blank lesson plan forms and cognitive maps for your own personal use.

CHAPTER 1: THE HILDA TABA TEACHING STRATEGIES

> *One scarcely needs to emphasize the importance of critical thinking as a desirable ingredient in human beings in a democratic society. No matter what views people hold of the chief function of education, they at least agree that people need to learn to think. In a society in which changes come fast, individuals cannot rely on routinized behavior or tradition in making decisions....[T]here is a natural concern that individuals be capable of intelligent and independent thought.* (Taba, 1962, p. 216)

TABA'S APPROACH: INDUCTIVE REASONING

Constructing a house requires beginning at the bottom and building up; starting with the roof doesn't work. Builders first pour a foundation and then add the frame, floors, and walls. Finally, with all the supports in place, a roof is built on top.

Hilda Taba approached teaching thinking in the same way: from the ground up—an inductive approach. Taba believed that, just like roofs, higher-order thinking is built upon a strong foundation—a foundation of quality information. Thinking skills combine with facts to build walls around the foundation. Finally, with foundation and walls in place, students can construct the highest-level ideas—abstract generalizations. Together, facts, thinking skills, and abstract ideas form a cohesive set.

Each of the Taba teaching strategies is designed to develop a different set of skills. While there is some discrepancy about how many strategies Taba developed, the materials created by the Institute for Staff Development include four: Concept Development, Interpretation of Data, Application of Generalization, and Resolution of Conflict. Several "secondary strategies" are also referenced in Taba's work, such as Concept Attainment.

These strategies are grounded in the theories of Tyler, Piaget, Vygotsky, and Ausubel. They also reflect Taba's assumptions about learning:

> *…[thinking] skills will arise from a dynamic interaction between the student and the stimulation he receives from well-phrased and carefully sequenced questions, from interesting and socially significant content, and from the kind of classroom climate which encourages free-ranging and uninhibited responses.* (Taba, Durkin, Fraenkel, & McNaughton, 1971, p. 65, emphasis added)

Several of Taba's assumptions about the nature of thinking and learning are encapsulated in the statement above.

THE FOUR TABA TEACHING STRATEGIES

Strategy	Purpose	Lesson Sequence	Skills Developed
Concept Development *Generalization* *Facts*	Derive abstract principles from concrete facts.	• List • Group and Label • Subsume • Regroup • Generalize	• Identify shared attributes • Categorize • Select appropriate terms • Develop hierarchies of ideas • Engage in flexible thinking • Create abstract generalizations
Interpretation of Data *Causes* ← *Facts* → *Effects*	Starting with a set of facts, predict direct and indirect consequences, and infer direct and indirect causes.	• List data • Determine direct effects • Infer indirect effects • Determine direct causes • Infer indirect causes • Create a generalization based on evidence and inferences discussed in the conversation	• Identify and list relevant data • Identify direct causes • Infer direct consequences • Identify/infer indirect causes and consequences of events • Draw direct connections between data and inferences • Create abstract generalizations
Application of Generalization *Generalization*  *New Facts*	Test the fit of an abstract rule or principle by applying it to a new set of information.	• List what might happen using the principle in a generalization • Identify necessary conditions for listed events to occur • Infer possible consequences of listed events • Provide evidence to support inferences • Affirm or edit generalization (principle) based on conversation	• Apply general principles to specific circumstances • Use existing principles to predict future events • Use known principles to explain new information • Create causal links between facts and principles

Strategy	Purpose	Lesson Sequence	Skills Developed
Resolution of Conflict/ Exploring Feelings *Cognitive and Affective Understanding* *Problem*	Students explore a variety of dimensions—affective and cognitive—involved in solving different kinds of problems.	• Identify relevant information in a problem scenario • Infer possible actions and emotional responses of different people • Propose and defend possible solutions • Infer reactions to proposed solutions • Relate the situation to other, similar problems, and describe emotional responses • Identify criteria and evaluate solutions • Conclude how people deal with these situations in general	• Interpret feelings, values, and attitudes to solve a social or human relations problem • Explore feelings, values, and attitudes behind human behavior • Generate alternatives for action in a problem • Predict possible short- and long-term consequences of alternatives • Choose a justifiable alternative based on specific criteria

Thinking can be taught.

Underneath this assumption lies a secondary assumption that all students can improve in their ability to use higher-order thinking skills. Taba's research demonstrated that students of varying abilities can make improvements as a result of using her methods.

Students can reach higher levels of thinking using a small quantity of quality information.

Taba questioned the assumption that children need vast quantities of facts before they can learn higher-order thinking skills. She demonstrated through her strategies that students can develop higher-level thinking skills using relatively small quantities of relevant information.

Thought processes evolve in a "lawful," or natural, sequence.

Taba did not focus on individual thinking activities, but on complete thinking sequences that cultivate higher-order thinking. Many familiar thinking skills are embedded in each sequence; however, the strength of the Taba strategies is in the natural progression a lesson follows from initial facts to final abstract generalizations.

Higher-order thinking is achieved through structured question sequences.

Questions are the centerpiece of the Taba strategies. Open-ended, focusing questions form stepping stones that lift students from lower-order to higher-order thinking. Probing questions draw students into deeper levels of thinking within each stage. Consistent with the view that questions are vitally important, the strategies are supported by two tools to help cultivate students' questioning skills. The Cognitive Map helps teachers plan question sequences, and discussion analysis forms help teachers self-asses their classroom discussion technique.

Meaningful generalizations are formed by working with information in depth.

Higher-order thinking, according to Taba, is the result of a "dynamic interaction" between students and content—a continuous interaction that runs the course of a lesson. This approach ensures that students understand the direct connection between facts and generalizations. Generalizations created as the result of working in depth with information tend to be both substantial and complex, not "bumper sticker" tag lines at the end of a lesson.

SYSTEMIC, REFLECTIVE ATTENTION TO INSTRUCTION

The Taba strategies invite instructors to be deliberate in all aspects of instruction, from lesson planning to self-assessment. The system built around the lessons helps ensure their success and cultivates teacher skills in questioning and active listening. Elements of this instructional system include:

Advanced Planning. Taba's research demonstrated that preparing focusing questions and anticipating student responses in advance are important elements of a successful discussion. She developed the Cognitive Map to assist in the planning process.

Questioning. The Cognitive Map allows teachers to "see" how thinking will unfold in a lesson, allowing them to plan questions to propel the conversation from one step to the next. Taba's research on questioning practices revealed the significant influence seemingly innocuous questioning habits can have on a lesson. She developed a set of recommended practices to follow throughout an inquiry-based lesson, including habits that promote or discourage student participation. A brief introduction to these practices is presented in Appendix C.

Instructors who pay close attention to what students say will be able to respond with follow-up questions that probe or shift the discussion—a skill that empowers both teacher and student.

Reflective, Self-Aware Instruction. The third component of the instructional system is a set of materials that allows teachers to self-assess their skill in classroom discussion. Starting with a basic discussion analysis, the materials proceed to attend to very specific details that can affect student engagement and ease.

The structures built into the Taba strategies do not make them rigid, teacher-proof, or "dumbed down." Instead, the structure allows for more sophisticated instruction. Experienced teachers find flexibility in the topics they choose, in their selection of questions, and in the specific ideas they pursue in depth during a discussion.

A System of Support for Successful Instruction

Plan

Focusing Questions
and
Cognitive Map

Concept Development Step	*Focusing Questions*	*Materials and Supports*
Step 1: Listing Data	*What is an example of food that comes from nature?*	• Provide pictures of food around the room. • Refer students to textbook. • Allow students to talk to a partner for a minute before gathering list.
Step 2: Grouping and Labeling	*Grouping: Which items on our list can we group together based on an important shared characteristic? Why do these items go together?* or *Which items could go together because they are alike in an important way?* *Labeling: What 1–2 word label would best describe this group?*	• Provide guidelines: Students must create at least xxx groups and can have no more than yyy items left. • Give students time to Think-Pair-Share before beginning class discussion • Use 2nd Column to record answers • Change marker color • List groups then go back and label
Step 3: Subsuming	*Which of the items under one group could also go under another group?* *or* *I see that 'corn' is under the group Starch. Where else might 'corn' fit? What makes you think that 'corn' could belong in that group?*	• Change Marker colors • Show hierarchy by listing in outline form on the board
Step 4: Regrouping and Labeling	*So far, so good! Now what completely new ways can you find to group the items on our list?* *If necessary: If you shift your thinking away from food groups and towards other aspects of food, what new groups do you see?*	• Change marker colors • Provide time to think before discussion.
Step 5: Generalizing	*Based on our original list, the groups we've created and the way we subsumed the groups, what would you conclude about the food we get from nature?*	• Give students a minute of individual think time to write down ideas before discussing as a class. • Gather a few ideas and then select one to edit one or two as a class to incorporate other ideas

Cognitive Map for Concept Development

Purpose of Discussion: ____ *Extend and clarify the students' concept of human dependence on nature.*

Possible List (Step One)	Possible Groups and Label (Step Two)	Possible Subsuming (Step Three)
		Possible Regrouping Step Four)
Possible Generalization(s) (Step Five):		

Grouping and Labeling: Anticipate groups and labels students will create

Teach

List	*Groups and Labels*	*Subsuming*	*Regrouping*
1. Steak 2. Peaches 3. Apples 4. Pineapple 5. Pears 6. Ham 7. Green beans 8. Carrots 9. Celery 10. Rice 11. Wheat 12. Tomatoes 13. Salmon 14. Milk 15. Chicken 16. Cheese 17. Shrimp 18. Seaweed 19. Eggs 20. Yogurt 21. Potato 22. Honey 23. Beans 24. Oatmeal 25. Broccoli	**Sometimes Stored** Peaches Apples Pineapple Pears Green Beans **Meat Protein** Steak Shrimp Ham Chicken Salmon **Starch** Rice Beans Potato Oatmeal Wheat **Vegetables** Carrots Celery Broccoli Seaweed Tomatoes Potato	**Sometimes Stored** *Tomatoes* *Ham* *Vegetables* **Starch** *Rice* *Wheat* *Oatmeal* *Beans* *Potato* **Complete Nutrition** *Starch* *Protein* *Vegetables*	~~**Ground Grown**~~ **Farmed** Pineapples Carrots Celery Potato **Animal Produce** Cheese Eggs Honey Yogurt Milk **Water Based** Rice Salmon Shrimp Seaweed
Generalizations: Humans gather, grow and preserve food from nature. Nature creates a variety of food that man eats to stay healthy and alive.			

Reflect

Discussion Analysis

PRACTICE

Finding patterns in classroom interactions requires taping a 5-10 minute segment of a Concept Development lesson. It will help to start taping as a part of your standard practice so that everyone becomes accustomed and comfortable with the presence of the camera.

Record five minutes of your Concept Development lesson. Set the camera where it will get the best recording of teacher-talk . While student talk is important, the primary focus of this analysis is what you (the teacher) says.

Part 1: Classroom Interaction Analysis

Using the chart below and chart the path of your classroom conversation using the code.

T = Talk A = Ask M = Management

Teacher																						
Students																						

Teacher																						
Students																						

Teacher																						
Students																						

Teacher																						
Students																						

Count the number of times you enter each code for you (Teacher) and for your students. Include a subscript to distinguish between individual students, if desired. Put the totals in the blanks at the bottom of the page

Teacher	*Students*
Talk ______	Talk ______
Ask ______	Ask ______
Open	
Close	
	Manage______
	Number Participating______

Question Count	
Teacher	*Student*
Open	*Open*
Close	*Close*

CHAPTER 2: FROM FACTS TO GENERALIZATIONS IN FIVE STEPS

> *The ability to think cannot be "given" by teachers to students. Effective thinking depends on the richness of content, the processes used, and the initial assistance provided in the development of such processes.* (Taba, Durkin, Fraenkel, & McNaughton, 1971, p. 11)

THE FIVE STEPS OF CONCEPT DEVELOPMENT

Concept Development is probably the easiest of the four Taba strategies. In fact, one might wonder why an entire book would be devoted to such a straightforward process. It's true that most teachers do a good job of learning Concept Development fairly quickly; it's equally true that those who take time to get to know this strategy find many opportunities to make small but meaningful refinements to their instruction.

A Concept Development lesson has five steps. Each of the five steps builds upon the one before, adding a new level of complexity. Together, the steps create a natural stairway from facts to generalization. The steps are listed below. The chart on the following page shows a completed Concept Development lesson on nature.

Step 1:	List	Gather a list of about 25 items that can be placed together under one category.
Step 2:	Group and Label	Group and label the items from Step 1.
Step 3:	Subsume	Cross-categorize items and/or create a hierarchy of ideas using the items and groups from Step 2.
Step 4:	Regroup	Set aside groups and labels from Step 2, and create completely new groups using the items from Step 1.
Step 5:	Generalize	Make broad but relevant statements about the nature of the items on the list based on insights gathered during Steps 1-4.

(Taba et al., 1971)

The fundamentals of teaching Concept Development are quite easy: the steps follow in a natural sequence, and students move automatically to increasingly complex thinking. At the same time, there is a great deal to explore beneath the surface of the strategy, with many opportunities to draw added value from the five simple steps. The example in this chapter walks through each step in detail, providing examples of some of the many teachable moments that can occur in a Concept Development lesson.

TIMING

A Concept Development lesson typically lasts around 70-75 minutes. The chart at the top of page 13 gives a general sense of how long each step takes for most fourth- through twelfth-grade classrooms. Students in grades K-3 will move through Concept Development more quickly because they work with fewer items. For these students, a Concept Development lesson lasts around 30-40 minutes. These are just approximate times, however. The actual time will vary depending on students' familiarity with the strategy and the intended goals of the lesson. Suggested ways to break up a lesson over two or more class periods are presented in Chapter 5.

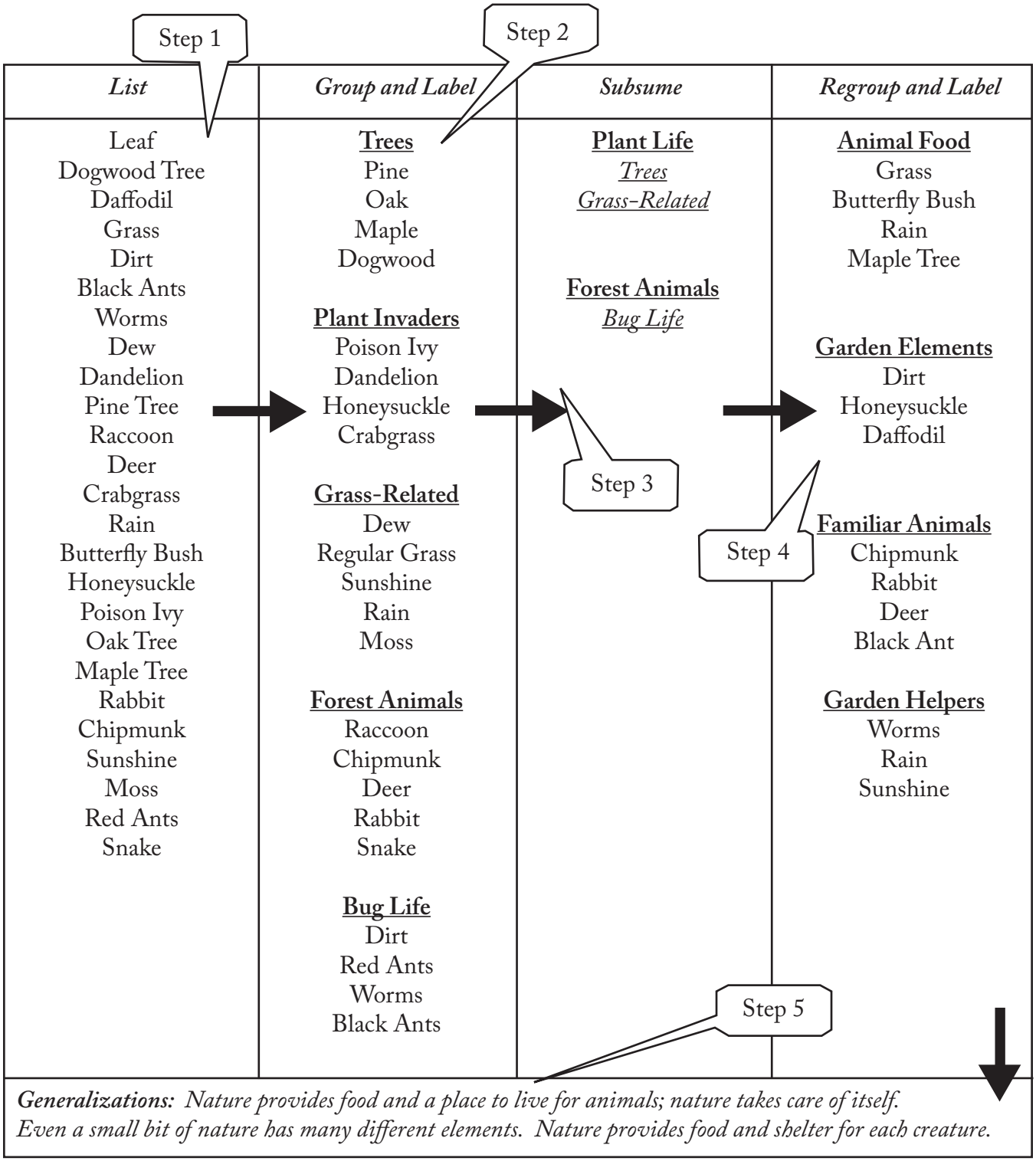
PROGRESSION OF A CONCEPT DEVELOPMENT LESSON

Purpose of Discussion: *To extend and clarify students' understanding of interactions among elements of backyard nature*

Grade Level: *Elementary*

Source of Background Information: *Personal experience*

First Focusing Question: *What are examples of nature in your back yard?*



Step	*Time*
List	5 Minutes
Group and Label	20-25 Minutes
Subsume	10-15 Minutes
Regroup	20-25 Minutes
Generalize	15 Minutes

CLASSROOM PREPARATION

Concept Development is not a complicated strategy and does not require an elaborate set-up. Classroom preparation is fast and straightforward.

1. Use butcher paper, a whiteboard, or a smartboard separated into four sections to keep a record of the lesson, (low-tech butcher paper is often the most flexible option). Remember to leave space on the board to record students' generalizations at the end of the lesson.

2. Provide students with a copy of the organizer, or have them recreate it in their notebooks.

3. Gather four different colored markers, one for each column of the chart; this helps students keep track of the different steps.

4. If possible, select a student to write on the board so you can focus on the classroom conversation.

5. Have a copy of your Cognitive Map available for reference.

6. Review Appendix A and Appendix B.

BOARD LAYOUT FOR CONCEPT DEVELOPMENT

List	*Group and Label*	*Subsume*	*Regroup*
Generalizations:			

CONCEPT DEVELOPMENT LESSON PLAN

One of Taba's core beliefs was that "…[thinking] skills will arise from a dynamic interaction between the student and…well-phrased and carefully sequenced questions" (Taba et al, 1971, p. 65). If carefully sequenced questions are necessary to develop thinking skills, then anticipating question-and-response patterns becomes the centerpiece of lesson planning. Carefully planned questions are like a trailblazer's marks, carving a path through the material to the desired goal. The purpose of the Cognitive Map is to help teachers anticipate how students' thinking will develop as the lesson proceeds. The example below presents a Cognitive Map for a lesson on human dependence on food. Fifth-grade teacher Mr. Todd used the Cognitive Map to consider the list he'd like students to work with, the kind of groups they are likely to create during Grouping and Labeling, and so on. Having seen the lesson unfold in his mind's eye, he's ready to ask himself, "What question will get students to suggest these items for the list?" and "What question will encourage them to group in ways that show them something important?" These questions are the heart of his Concept Development lesson plan. The final Cognitive Map and lesson plan for Mr. Todd's lesson are presented on the following pages.

COGNITIVE MAP FOR A CONCEPT DEVELOPMENT LESSON

Purpose of Discussion: *To extend and clarify the students concept of human dependence on nature*

<table>
<tr><th>Possible List (Step 1)</th><th>Possible Groups and Labels (Step 2)</th><th>Possible Subsuming (Step 3)</th></tr>
<tr><td>1. Apples
2. Steak
3. Peaches
4. Raisins
5. Pineapples
6. Pears
7. Ham
8. Green beans
9. Carrots
10. Celery
11. Rice
12. Corn
13. Tomatoes
14. Chicken
15. Sausage
16. Milk
17. Plums
18. Cheese
19. Shrimp
20. Peanuts
21. Eggs
22. Yogurt
23. Potatoes
24. Wheat
25. Oatmeal</td><td><u>Fruit</u>
Apples
Peaches
Pineapples
Pears
Raisins
Plums

<u>Vegetables</u>
Green beans
Carrots
Celery
Corn
Tomatoes

<u>Starch</u>
Potatoes
Rice
Oatmeal
Wheat
Peanuts

<u>~~Meats~~ From Animals</u>
Ham
Chicken
Sausage
Steak
Shrimp
Eggs

<u>Dairy</u>
Cheese
Milk
Yogurt</td><td><u>Vegetables</u>
Potatoes

<u>Starch</u>
Corn

<u>~~Meats~~ From Animals</u>
<u>Dairy</u></td></tr>
<tr><td colspan="3">Possible Regroups and Labels (Step 4)</td></tr>
<tr><td colspan="3"><u>Green</u>
Green beans
Celery
Pears
Apples

<u>Grown</u>
Pineapples
Potatoes
Peanuts
Corn
Carrots

<u>Breakfast Foods</u>
Yogurt
Eggs
Oatmeal
Sausage

<u>Protein</u>
Chicken
Cheese
Peanuts
Steak
Ham</td></tr>
<tr><td colspan="3">Generalizations (Step 5): Humans depend on nature for all food. Nature provides a way to create food.</td></tr>
</table>

SAMPLE FOCUSING QUESTIONS FOR CONCEPT DEVELOPMENT
Lesson Plan: *Concept Development*
Grade Level: *Elementary.*
Purpose of Discussion: *To extend and clarify students' understanding of a human dependence on nature*
Background Information for Lesson: *Personal experience*

Concept Development	***Focusing Questions***	***Materials and Supports***
Step 1: List	*What are examples of food that come from nature?*	• Provide pictures of food around the room. • Refer students to textbooks. • Allow students to talk to a partner for a minute before gathering the list.
Step 2: Group and Label Mr. Todd likes to include the word *important* because it deters grouping based on the first letter of the words or other trivial reasons.	Grouping: *Which items on our list can we group together based on an important shared characteristic? Why do these items go together?* or *Which items could go together because they are alike in an important way?* Labeling: *What one- to three-word label would best describe this group?*	• Provide guidelines: Students must create at least five groups and can have no more than five items left. • Give students time to think-pair-share before beginning class discussion. • Use second column to record answers. • Change marker color. • List groups; then go back and label.
Step 3: Subsume	*Which of the items under one group could also go under another group?* or *I see that "corn" is under the group "Starch." Where else might "corn" fit? What makes you think that "corn" could belong in that group?*	• Change marker colors. • Show hierarchy by listing in outline form on the board.
Step 4: Regroup	*So far, so good! Now what completely new ways can you find to group the items on our list?* *If necessary: If you shift your thinking away from food groups and toward other aspects of food, what new groups do you see?*	• Change marker colors. • Provide time to think before discussion.
Step 5: Generalize	*Based on our original list, the groups we've created, and the way we subsumed the groups, what would you conclude about the food we get from nature?*	• Give students a minute of individual think time to write down ideas before discussing as a class. • Gather a few ideas, and then select one or two as a class to incorporate into other ideas.