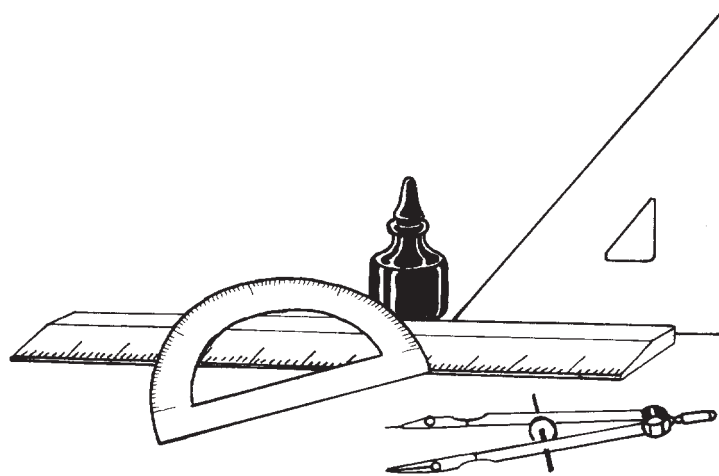


**Effective
Teaching Strategies
and
Tools**



CLAYTON COUNTY PUBLIC SCHOOLS

Human beings are tool makers. As teachers, we seek to find tools to make work easier, to utilize techniques to engage students with active in-depth learning.



ACTIVE IN-DEPTH LEARNING

Introduction

John Goodlad's comprehensive research on *A Place Called School* illustrated that, "The American classroom is preoccupied with the dissemination of information and low-level intellectual processes."¹ According to Goodlad, the use of diverse instructional strategies to promote active in-depth learning is minimal.

If we create the classrooms where students are engaged in meaningful tasks and where students are motivated to learn, then we as teachers need to be able to employ a variety of techniques to promote active in-depth learning.

In an effort to provide the time necessary for such teaching, many school leaders have begun to utilize a more intensive block scheduling structure. However, educational leaders will need to do more than just change the schedule. If they see dramatic improvement in student achievement, they will need to provide teachers a way to obtain the necessary knowledge, skills and methodologies to make active in-depth learning a reality.

In this book, we will attempt to explain the essential features of active in-depth learning and to teach you those tools and strategies to transform your classroom from a passive learning environment into an "aerobic session for the mind" - one that engages, stretches and builds students' learning capacities.

What is active learning?

Let's begin by defining active learning and identifying its essential features. There are many more ways to learn than by "telling." Learning isn't about pouring information into students' heads; learning requires thought. As Confucius noted, "Learning without thought is perilous." By the same standard, "Teaching without thought is a waste of time!" Twenty-five hundred years ago Confucius understood that learning is an active process. He reminds us of that concept by scripting the following adage:

What I hear, I forget.

What I see, I remember.

What I do, I understand.

To learn something well, it helps students to hear it, see it, ask questions about it and to discuss it with others. Above all, however, students need to “do it.” They need to figure out things by themselves: generate their own examples, trust their own hypotheses, demonstrate their own skills, assess their own competencies, determine the qualities of the efforts, apply what they have learned to new situations and teach others what they have learned.

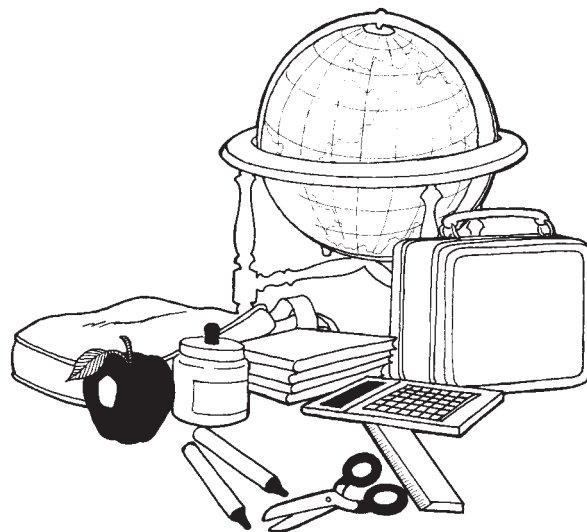
Active learning, then, is more than just engaging students in activities; it is a cyclical process where participants constantly move between periods of action and periods of reflection. We learn by doing, but we learn more deeply when we take the time to look, to reflect upon our actions and to abstract meaning from the data. The cycle then repeats itself again and again as we deepen and broaden our perspective.

Active in-depth learning is like a coil that constantly expands inward and outward. In that process, three actions are present:

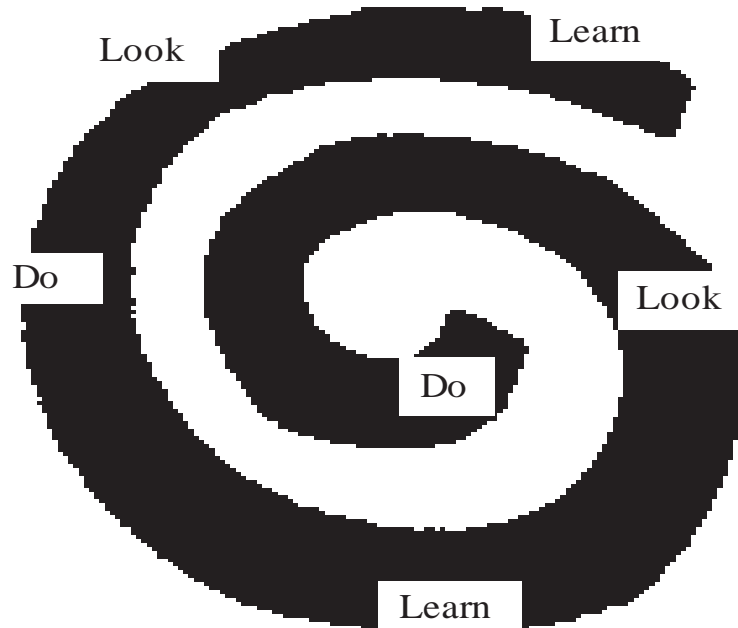
DOING is the process of performing tasks which require some type of mental activity.

LOOKING is the process of becoming an observer of your own thinking and actions.

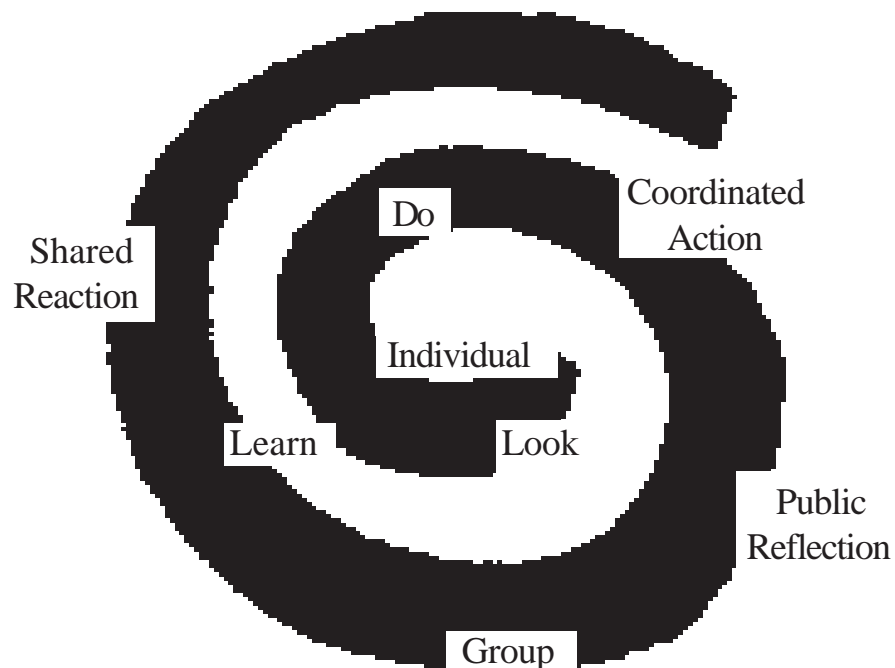
LEARNING is the process of creating connections and rearranging what you know already to form new pictures of behavior.



The following graphic representation of a coil depicts the natural process of **DO, LOOK, LEARN**:



The depth and breadth of the learning is enhanced when groups of students are engaged in the process. **Doing** becomes coordinated actions; **looking** becomes public reflection; and **learning** results from shared meaning. This graphic representation depicts the reciprocal nature of the individual and group in-depth learning process:



What is in-depth learning?

To learn something deeply means four things - to know it, to understand it, to be able to use it, and to see how what you have learned is connected to your own personal life experiences.

Galileo said that with each lens he added to his telescope, he could see farther and clearer. In the same way, each goal of teaching is a lens which helps us to understand what in-depth learning means. For example, to know is the *goal of mastery*. Mastery helps us see that learning must be memorable and that students need to learn meaningful content to be able to use and apply specific skills. The thinking *goal of understanding* helps us see that reasoning is the process of learning. This goal allows students to discover, explain, and prove their understanding. The *goal of self-expression* helps us to see the importance of creativity and aesthetics, and the need to synthesize and transform what has been learned into expressive products and performances. The *goal of interpersonal learning* helps us see that learning must be connected to personal experiences. Learning is a vehicle for developing deep connections not only between the learner and the content but also between learners themselves. To learn something deeply requires students participating in the process of **DO, LOOK** and **LEARN**, as well as, their “visiting each of the neighborhoods” of learning - Mastery, Understanding, Self-Expression, and Interpersonal Connections.

We can teach faster than students can learn. There is far more to teaching than telling. In order to achieve the four goals of in-depth learning - *mastery, understanding, self expression and interpersonal connection*, students need to be actively involved doing and reflecting upon their experiences. When students are actually involved, they use their heads, hearts, minds and their hands. As a result real, lasting learning will occur.

Active in-depth learning is hard work. It is both an engagement of the mind and a transformation of the mind and body. There are no short cuts! Just as we cannot grow crops without preparing the soil, planting the field and harvesting the plants, students cannot really learn without preparing their minds. They, too, must plant the seeds of knowledge in a rich experience of prior learning and harvest their own experiences articulated in meaningful ways. In farming, as in learning actively, students will reap only that which *they* sow.

Active learning is also fun and rewarding because students are personally involved and have the opportunity to work with other students. In learning the content they

are engaged in the critical skills of learning how to think as well as in seeing the product of their work as enjoyable and satisfying.

Why is active in-depth learning so important?

We can teach faster than students can learn. There is far more to teaching than telling. In order to achieve the four goals of in-depth learning — *mastery, understanding, self-expression, and interpersonal connection*, students need to be actively involved doing and reflecting upon their experiences. When students are actively involved, they use their heads, hearts, minds, and their hands. As a result, lasting learning will occur.

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Clayton County Public Schools
Judy Commander
Robynn Greer
Sharon Harper
Ann Martin

Silver, Strong and Associates
Dr. Harvey Silver

Graphic Arts and Word Processing
Laurie Bradley
Jane Fountain

¹ Goodlad, John. A Place Called School, 1984. McGraw Hill Publishers. New York, NY

4 GOALS OF ACTIVE IN-DEPTH LEARNING

MASTERY

Memory
Specific knowledge and skills
Model, exercise, practice and quick feedback
Competence

INTERPERSONAL

Relationship
Caring
Experience and personal connections
Self-knowledge and personal connections



UNDERSTANDING

Discovery/Inquiry
Patterns by positions, proofs and problem solving
Reason, analysis and problem solving
Comprehension

SELF EXPRESSION

Invention and transformation
Explanation and production
Originality
Craftsmanship

Language Arts/ Social Studies Tool Guide/Instructional Strategies

Title VI Thoughtful Education Project 1996-1997

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THINK, PAIR AND SHARE

(T.P.S.)

PURPOSE: Is a simple technique for getting students to think and communicate and to work together quickly.

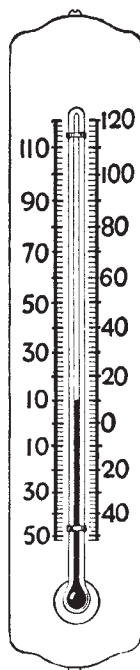
PROCEDURE: The teacher poses a question for students to think about. The students generate responses and share them with their neighbors. The teacher then collects the students' ideas.

STEPS:

THINK, PAIR AND SHARE

1. Teacher poses a question.
2. Students think and construct a response.
3. Students share their ideas with a neighbor.
4. Teacher records students' ideas.

EXAMPLE: Based on our demonstration, think about how the boiling of liquids is different from the freezing of liquids. Discuss your idea with your neighbor and be ready to share.



KINDLING

PURPOSE: Is a technique for promoting participation, deep thought, communication, and cooperative work.

PROCEDURE: Like T.P.S. the teacher poses a question for students to think about. Instead of sharing with neighbors, however, students “jot down,” scribble, or draw their responses to the question in their “*Write to Learn*” or “*Thinking Logs*.” The students now share their ideas either with neighbors or with a small group. The students can compare their ideas with others, critique their ideas, generate new ideas, or draw conclusions from everyone’s responses. The teacher collects and records student ideas on the board so they can be examined and explored further.

STEPS:

KINDLING

1. Teacher poses a question.
2. Students think about the question.
3. Students record ideas in “*write to learn*” or “*thinking log book*.”
4. Students share their responses in pairs or small groups.
5. Students look for similarities between responses, critique ideas, generate new ideas or draw conclusions.
6. Teacher collects and records ideas so they can be examined and explored further in class.

EXAMPLES:

Think for a moment about what you know about the circulatory system and what you know about blood. Share your ideas with a neighbor. + same idea; \checkmark different idea

Think about a time when you were really scared. Share your ideas with a neighbor. What can we learn from your experience that we can use as writers to make fear grow in our stories.

Imagine you came back to America 300 years later to discover it was no longer a great power. What do suppose caused this change of power? Share your ideas with a neighbor and generate one new idea together.

Here are two factoring problems (give 2). What differences do you note between the two? Jot down thoughts and ideas. Meet with a neighbor and compare your ideas and explain how you would solve the problems.



GIVE ONE, GET ONE

PURPOSE: Is a technique used to initiate physical movement to promote students to think divergently and to generate many ideas quickly.

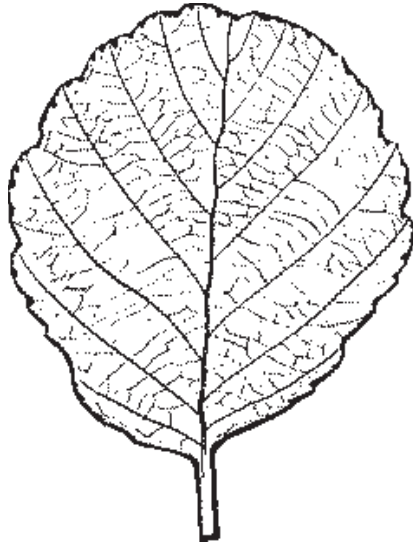
PROCEDURE: The teacher poses a question and asks the students to record two responses. The teacher then asks the students to stand up and move around the room to make connections with other students' responses. Each time a student "connects" with a new student, he needs to give the student a different idea and get another idea in return (new ideas should be added to student's original list). If both participants have the same ideas, they need to work together to generate a new idea. They then can continue their journey connecting with other students. The teacher provides the students with a goal for the number of different ideas to collect and a time limit within which they have to collect them. It is important that students are reminded to work with only one student at a time (before they move to another student). Students should *not* form small groups to collect ideas. The point of the strategy is for students to meet other students and to move from one person to another sharing and revising ideas.

STEPS:

GIVE ONE, GET ONE

1. Teacher poses a question.
2. Students generate two ideas.
3. Teacher establishes a goal (number of ideas and a time limit - time to collect ideas).
4. Students stand up and "connect" with another student only to give an idea and get a new idea.
5. If they both have similar ideas, they need to brainstorm together to generate a new idea.
6. Students return to their seats (they can share ideas in small groups and try to generate two or three additional new ideas).
7. Teacher collects and records ideas to be examined and explored.

EXAMPLE: How is a leaf like a factory? Generate two ideas. Move around the room sharing ideas until you have given and collected six additional ideas in two minutes.



ASSOCIATIVE THINKING

PURPOSE: To spark student interest in a topic before reading; to generate student prior knowledge; to understand the four components of thought (words, images, feelings and physical sensations).

PROCEDURE: The teacher introduces the concept of associative thinking. “When I say, _____, what is the first thing that comes to mind?” Encourage students not to censor their first thoughts or to look for what they consider to be the correct response or what the teacher wants. Collect students’ thoughts and build four categories according to the four quadrants of thought (physical sensation, feelings, images and words). After three words ask students to notice if they have a pattern of associations. Read the title of the text students will read and generate associations in all four categories.

STEPS:

ASSOCIATIVE THINKING

1. Introduce the concept of associative thinking to students, “When I say the word _____, what is the first thing that comes to mind?”
2. Collect students’ thoughts and build categories according to the four quadrants of thought.
3. After three words ask students to notice if they have a pattern of association.
4. Read the title of the text you selected to share with your students. Then ask them to generate associations in the four quadrants.

EXAMPLES: What comes to mind when you think of revolution?

What comes to mind when I say the title of the novel, *The War of the Worlds*?

BRAINSTORMING

PURPOSE: Is a technique used to rapidly generate multiple responses to a problem situation.

PROCEDURE: The teacher organizes students into groups of three to five and selects one to be the “recorder.” The class reviews the following rules for brainstorming:

1. *Inspect the question.*
2. *Develop as many ideas as possible as quickly as you can.*
3. *Stretch your thinking. Each idea should be new and different (think creatively and divergently).*
4. *All responses are acceptable. Do not respond to judge someone’s ideas.*
5. *Work within the time limit.*

The teacher then presents a question or problem; the recorder solicits one idea from each participant before proceeding to the next. Students are encouraged to build off other students’ ideas. The goal is to generate as many ideas as possible within the time limit. Once time is up, the ideas are examined for their quality. The group decides which ideas are *great ideas*, which are *good ideas*, and which are *just okay*. It is important to use all three categories. The students now reflect on the criteria they used to distinguish which idea belonged in which group. Finally, students select the idea that they feel best addresses / solves the problem situation.

STEPS:

BRAINSTORMING

1. The teacher organizes students into groups of 3 to 5.
2. The teacher reviews the rules for brainstorming.
3. Each group selects a recorder (or two).
4. The teacher poses the question or problem and sets a time limit.
5. The recorder records each idea as stated (ideas should not be evaluated or critiqued) by a group member. Solicit one idea from each participant before proceeding to the next.
6. Students are encouraged to build on each other's ideas and generate as many responses as possible within the time allotted.
7. Ideas are examined and grouped according to their quality. Criteria for selection are determined, and the best idea to solve the problem is selected.

EXAMPLE: What if the major rivers (Mississippi, Missouri) had flowed west to east instead of north to south?

How would it have affected the development of our country?

Brainstorm as many ideas as possible.



FACTSTORMING

PURPOSE: Like brainstorming it is a technique used to generate as many facts as one can related to a particular divergent thinking question.

PROCEDURE: The students are organized into small groups. The teacher poses a question, i.e., names of natural resources. The students select a recorder for the group and generate as many responses as they can in a designated period of time.

STEPS:

FACTSTORMING

1. The teacher organizes students into groups of 3 to 5.
2. The teacher reviews the rules for brainstorming.
3. Each group selects a recorder (or two).
4. The teacher asks a divergent thinking question with many possible correct responses.
5. Students generate as many facts as they can.

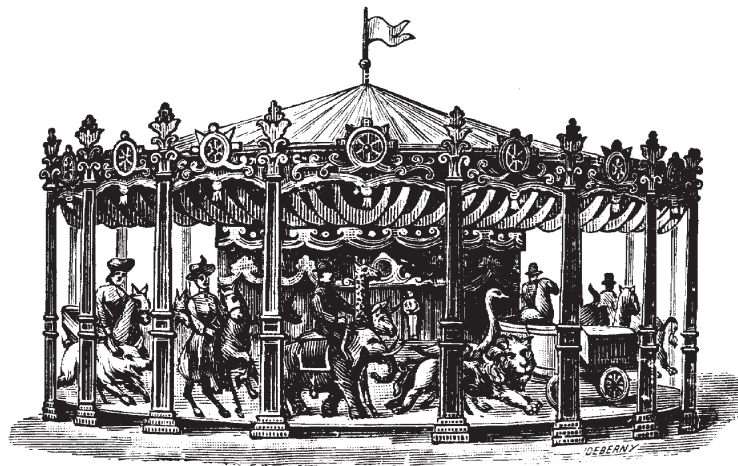
EXAMPLE: List all that you know about World War II. How many geoc shapes can you name?

How many geometric shapes can you name?

CAROUSEL BRAINSTORMING

PURPOSE: Is a questioning technique used to generate lots of ideas in response to different style questions, to promote group work and to allow for physical movement.

PROCEDURE: The teacher generates a number of divergent thinking questions - five or six questions that require more than one possible response (i.e., How is the atmosphere like a blanket?). Each question is written on a large piece of paper, leaving plenty of room for student responses. Paper can either be posted around the room or can be placed at a table. The students are then put into small groups (3 to 5 students per group). Each group is assigned a magic marker. The group then moves to one of the papers and begins to generate responses to the question. One student can record the group's responses. After two or three minutes the teacher asks the students to finish and instructs the students to move to the next question. Students should first read the previous responses and then use their time to generate and record new ideas or to expand on existing ideas. Students are encouraged to think quickly to change recorders at each station. After each group has visited all of the stations and has returned to their original station, they summarize the ideas written down by their classmates. An alternative possibility for students individually is to walk around the gallery and reflect on the generated ideas.



STEPS:

CAROUSEL BRAINSTORMING

1. Teacher generates questions for students to answer.
2. Students divide into small groups. Each group uses a different color marker to record ideas.
3. Each group is positioned at each station for 3 - 5 minutes during which time students generate and record responses.
4. When the time ends, groups rotate to the next question (or the question rotates to the group). Students read the new question, read the previous responses and either develop new ideas or expand on existing ideas as quickly as possible.
5. Either ask each group to summarize the response at their first station or encourage students to walk around the gallery reading and reflecting on the ideas.

EXAMPLES: **Chart for Station One (Metaphor)**

Select one; give three reasons why.

How is a natural resource like a video store?

How is a natural resource like a roller coaster?

Chart for Station Two (Visualizing)

Icons are visual symbols which represent ideas. For example, a picture of a wheelchair represents a handicap. Identify three natural resources and create two icons for each.

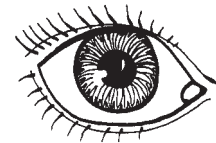


Chart for Station Three (Classifying)

Group and Label - examine the following list. Place the things in groups and label them. Use your grouping and labeling to develop a classification system which will explain different categories and natural resources.

air	sunshine	waterfalls
sand	oil	wing
whales	humans	trees
gas	iron ore	flowers
river	tuna	copper
beavers	deer	buffalo
aluminum	timer	waterfalls
kaolin	lakes	nickel
shrimp	rain	beaches
snow	magnesium	oysters

Chart for Station Four (Prioritizing)

Natural Resources
Priority Pyramid

Determine the importance to man of the six natural resources listed by placing them in the priority pyramid.

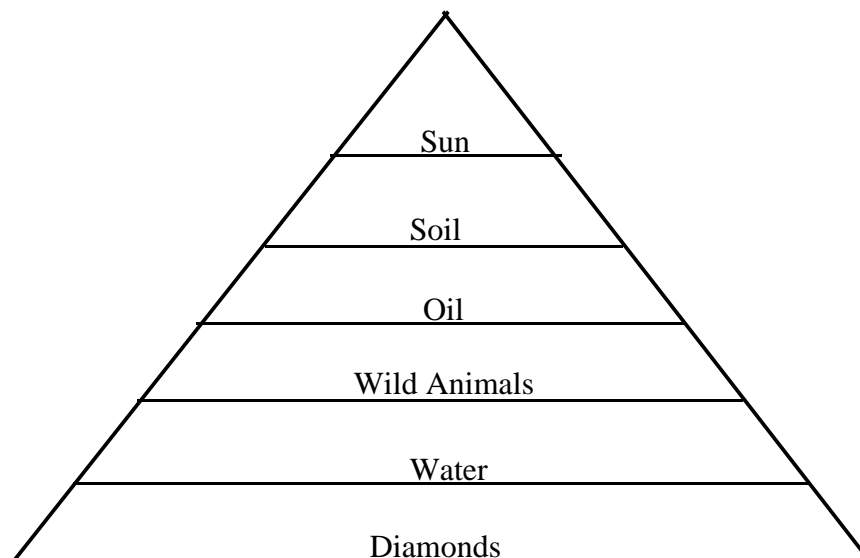


Chart for Station Five (Creativity)

Write a cinquain poem for one natural resource. The form is as follows:

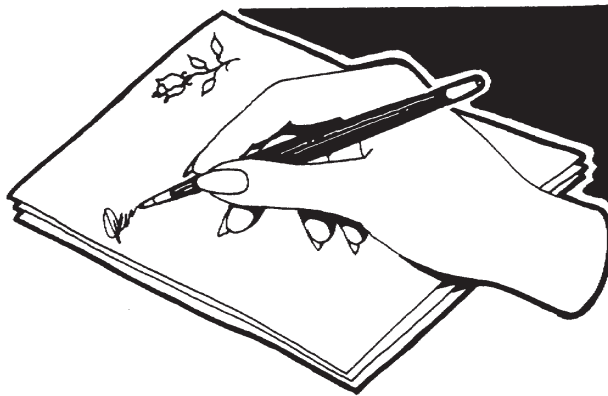
Noun

Two adjectives

Three action verbs

Four word sentence

Noun



GRAFFITI

PURPOSE: Is a technique used to generate lots of ideas, to question different styles and to stimulate physical movement.

PROCEDURE: The teacher generates sixteen to twenty questions covering a particular content area. Each question is written on a large piece of newsprint, is posted around the room and represents one of the four types of thinking: Remembering, Reasoning, Creating, or Relating. When generating questions, the teacher should also consider varying the questions according to the use of multiple intelligences (bodily kinesthetic, verbal, logical - mathematical, musical, spatial, interpersonal, and intrapersonal). Students are given markers and allowed twenty minutes in which to roam around the room and record a response to each of the questions. As they respond to the questions, students should think about which types of questions to which they enjoy responding and which they find difficult to answer. Students may also be asked to identify which style of thinking they believe each question represents. After students have had an opportunity to respond to each question, the teacher assigns either a group of students or someone to study the responses and to summarize them with the class.

STEPS:

GRAFFITI

1. Teacher generates 16 to 20 question stems about a topic.
2. The question should reflect four styles of thinking - remembering, reasoning, relating, and creating.
3. The questions should also reflect multiple intelligence perspectives.
4. Students roam around the room responding to each question.
5. Assign students to summarize responses and report back to the class.

EXAMPLE: Sample questions in the four quadrants

<p style="text-align: center;">REMEMBERING</p> <ul style="list-style-type: none">• Write down three facts from the eight's times table.• What rivers flow west to east?	<p style="text-align: center;">RELATING</p> <ul style="list-style-type: none">• Have you ever used a fraction to settle an argument?
<ul style="list-style-type: none">• How are you like a salad dressing? <p style="text-align: center;">REASONING</p> <ul style="list-style-type: none">• How are you and your father similar and different?• Why do you have to change the denominator	<p style="text-align: center;">REORGANIZING</p> <ul style="list-style-type: none">• How is a fraction like a Congressperson?• If you had the power to create a new holiday, what would you create?

NOTE: Each question would be written on a separate piece of newsprint.



THINK OF A TIME

PURPOSE: Is a technique to help students see things from different points of view.

PROCEDURE: Students are grouped into threes and numbered one, two, and three. Students are asked to examine an issue from three points of view:

1. As a “participant”
2. As an “observer”
3. As a “supporter”

In the first round the teacher asks students to think of a time when they experienced something related to the content they are being taught (ie. When they were confronted with prejudice, when they took advantage of someone, etc.) Record what they remember about the experience in writing. They then compare their stories with others in their group to determine common attributes. After exploring the various points of view in their group the number one students move to another group where they summarize their original ideas. The new group listens and compares its ideas with the new ideas.

The process is then repeated from the second perspective. The teacher asks the students to think of a time when they were observers (observed someone confronted with prejudice). Students record and discuss in a similar manner with the group and summarize.

Finally, students are asked to consider the experience from the third perspective - what it was like when they supported someone. (ie. When they supported someone who was experiencing prejudice). Students record and discuss; then number three students move and summarize.

The last group develops a set of attributes or elements critical to the concept being examined. The students reflect upon what they know about the concept and what they noticed about themselves as learners. Then they establish goals for deepening their understanding the next time they engage in the process.

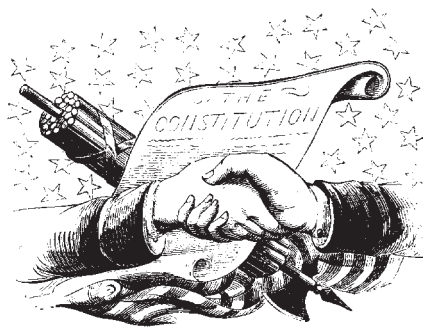
STEPS:

THINK OF A TIME

1. Students are grouped into threes and each student is assigned a number (1, 2, 3).
2. Students examine an issue from three points of view:
 - participant
 - observer
 - supporter
3. Students respond individually in writing comparing their stories with others and examining common attributes.
4. After exploring one point of view, one student from each group joins a new group where he shares his previous groups' attributes with his new group.
5. The last triad develops a set of attributes or elements critical to the concept being examined.
6. The students reflect upon what they now know about the concept - what new insights they have that they didn't have when the process started. They also reflect upon themselves as learners and establish a goal for the next time that will allow them to deepen their engagement in the process.

EXAMPLE: Think of a time when you were confronted with responsibility and learned something about freedom.

Think of a time in which a boundary expanded your possibility.



POSTER SESSION

PURPOSE: Is a novel way for students to present and exchange ideas about a topic being discussed or studied.

PROCEDURE: Ask students to select a concept or idea related to the topic or unit being discussed or studied. Have them prepare a visual display of the concept on a poster board. The poster can include words and pictures and should be self-explanatory. That is, observers would easily understand the idea without any further written or oral explanation. Students can work alone or in pairs. They also can be asked to write a small narrative to support their visualization. Have students post their visuals around the room and then invite them to circulate freely around the room viewing and discussing each other's drawings. Give students post-it notes to record and provide feedback to other students about their work. The teacher then convenes the class and leads a discussion about the work and what they learned and what they found most valuable. Posters can also be used for students to describe their thoughts and feelings about a topic.

STEPS:

POSTER SESSION

1. Students select a concept or idea to be visualized on poster board. Students can use words or pictures. Poster needs to be self-explanatory.
2. Students post their visuals around the room and circulate freely around the room viewing and discussing.
3. Teacher convenes class to discuss ideas.
4. Teacher continues lesson building on student responses.

EXAMPLE: In your group prepare a poster which represents your understanding of democracy.

MAPPING

PURPOSE: Mapping, mind mapping and webbing are terms often used synonymously to describe the visual representation of hierarchical relationships of a central concept supporting ideas and important details. Mapping can be used to teach vocabulary, to introduce outlining, to teach note-taking, to use as a prereading activity, to demonstrate comprehension or to use as a study guide.

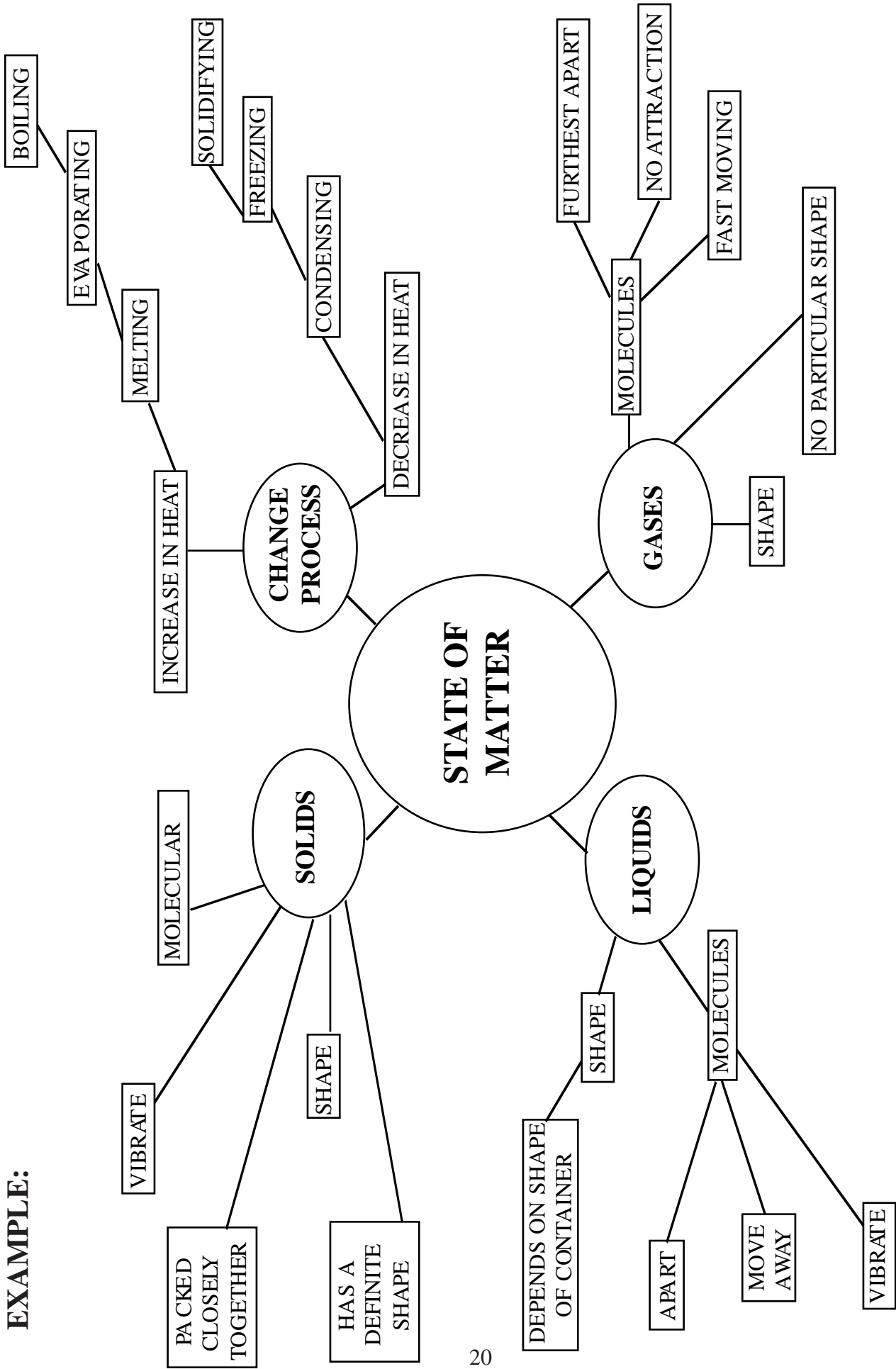
PROCEDURE: The first step in developing a map is for the teacher or students to identify a topic, main idea or central question. The students circle the central concept and write it in a circle on the center of their page. The secondary categories are identified and connected to the main idea chapter or subheadings. The students either generate or collect supporting details. The supporting details are connected to the idea or topic they support. Maps force students to pay attention by reading, recalling and studying. They demonstrate the hierarchical patterns of comprehension. Mapping the entire chapter of a text may be too time consuming; it may be best to map a portion of the chapter that the teacher has identified as important.

STEPS:

MAPPING

1. Teacher or student identifies the topic, main idea or central question, writes it in the center of the page and circles it.
2. Teacher or student identifies secondary categories (may be chapter headings in the text).
3. The secondary categories are connected to the main idea.
4. Students collect or generate supporting details and connect them to the category they support. Process continues until all notes are connected to other notes in a way that makes sense.

EXAMPLE:



RESPONSE TECHNIQUES

PURPOSE: Is a technique to vary the approach to call on students and have participation in classroom activities.

PROCEDURE: There are many ways to call upon students in class. The important thing is for the teacher to vary the techniques. One obvious way to call upon students is to call on the students who have their *hands raised*. In *random calling* the teacher poses a question and then randomly calls on students in the class to respond. Alternatively the teacher can design a deck of cards with the students' names and choose one card at a time. In *student calling* students who are called upon can call on other students to respond. In a *whip* the teacher goes around the classroom obtaining a short response to the question from everyone.

STEPS:

RESPONSE TECHNIQUES

1. Teacher poses a question.
2. Give students time to think and construct a response. Call on a student.
3. The teacher uses a variety of techniques - raised hand, random, student calls, whip.

EXAMPLES: Some examples are raised hands, random calling, student calling and whips.



PRIORITY PYRAMID

PURPOSE: Is a technique that helps students prioritize ideas according to what they believe is most important.

PROCEDURE: The teacher provides students with a pyramid organizer to record their ideas and presents them with a list of ideas. Alternatively students can generate their own list or they can be taken from a text (i.e. Pick the five most important ideas from this passage, teacher selects). Students should place the most important idea on the top, the next most important idea on the next tier, etc. until the last item is put at the base of the pyramid. After the students have ranked the items, they should reflect on their choice and try to identify the criteria they used to determine the rank order.

STEPS:

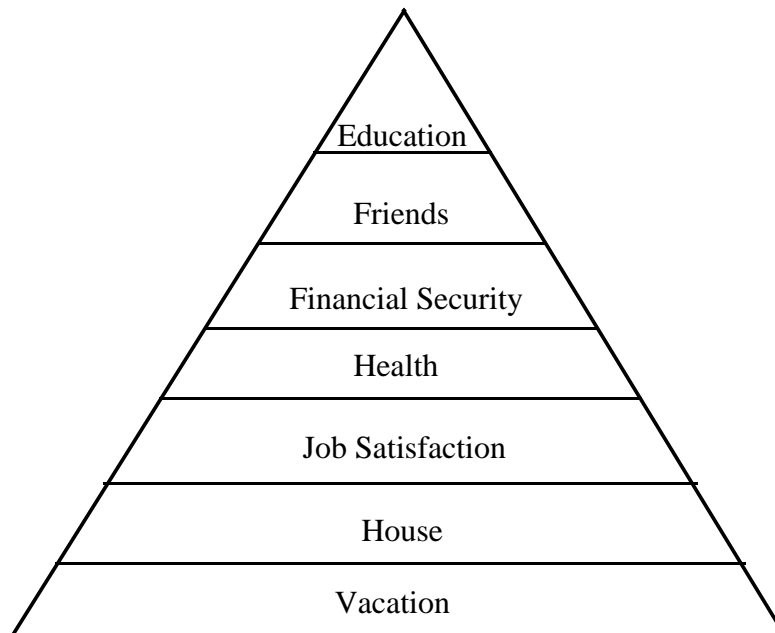
PRIORITY PYRAMID

1. Teacher provides the students with a pyramid organizer.
2. The teacher provides a list of ideas (or the students can select their own ideas). The teacher explains that the most important idea is placed at the top of the pyramid followed by the next idea, etc., so that the least important idea is at the base.
3. Students examine items on the list or in the text and rank them according to importance.
4. Students reflect upon their choices and establish the criteria they used to determine the rankings.

EXAMPLE: Task: Which is the most important to you - friends, career, education, money, physical or financial security, leisure?

Directions

1. Read all items.
2. Determine considerations to be made - what you could live without, how one might affect the other, how each affects the future, etc.
3. Rank order based on considerations.
4. Reflect on priorities.



RANK ORDER LADDER

PURPOSE: Is a technique used to help students sequence items according to a set of objective criteria (i.e. rank the following according to when they occurred in history).

PROCEDURE: Unlike the priority pyramid the teacher will establish an objective criteria of organizing this information (i.e., it can be quantity, time, order). The students need to know the order and criteria. For example, put four documents in order - Declaration of Independence, Mayflower Compact, Articles of Confederation, Magna Carta and explain their relationship according to the principles of American Democracy. Sequence the events first to last.

STEPS:

RANK ORDER LADDER

1. Teacher establishes the items and objective criteria (i.e. time, quantity, size, etc.) to be used to order the items.
2. The teacher provides items or students select items to be ranked.
3. The students rank items and explain how they used the criteria to obtain their order.

EXAMPLES: Rank order your favorite TV programs using *most favorite* to *least favorite* as the criteria. From this list generate three or four overall favorite TV programs. Rank them according to which you think will continue to be shown for the longest period of time.



LEARNING PARTNERS

PURPOSE: Is a technique to use when you want to involve everyone in the class in a collaborative activity but don't have the time to establish small discussion groups or to complete a cooperative learning activity.

PROCESS: Learning partners is an efficient and effective way to promote active learning. A pair is a good configuration for developing supportive relationships and for working on complex tasks. It is difficult to get left out of a pair and it's also difficult to hide in one. In this technique the teacher first determines the type of task that he/she wants the students to complete. For example, the task may be to read and discuss a document.

The teacher then establishes the pairs and the amount of time students will have to work on the task. During the work the teacher should walk around the room monitoring the student performance and judging how much time students will need to complete the task. They should not be stopped abruptly from working. The teacher will announce to the students that they have a minute to complete their task and that they should look up as they finish. After the partners have completed their task the teacher should collect student responses and then ask students to reflect upon their work and how they worked together to complete the task.

STEPS:

LEARNING PARTNERS

1. Determine the task.
2. Establish partnerships and time to complete task.
3. Monitor student work.
4. Bring students to a stop gradually.
5. Collect and discuss by responses.
6. Reflect upon the task and partnerships.

EXAMPLES:

1. Interview another concerning reactions to an assigned reading, a lecture, a handout, or another type of information.
2. Critique or edit each other's written work.
3. Summarize a lesson or class discussion.
4. Read and review. Both read a page together, stop and then one partner asks questions while the other closes the book. Reverse roles.
5. Develop questions together to ask the teacher.
6. Test each other on materials presented in class.
7. Respond to questions posed by the teacher.
8. Compare notes taken in class.
9. Analyze a case study.
10. Conduct an experiment.
11. Complete an exercise or problem set together.



COOPERATIVE STRUCTURE FOR PROMOTING POSITIVE INTERDEPENDENCE

PURPOSE: These are techniques to promote interdependence and individual accountability in group work.

PROCESS: This process is based on the belief that a product that is produced by a group is usually better than one that has been produced by an individual. The teacher identifies a task that he/she wants the students to work on cooperatively and then determines a specific structure that is best suited to complete the task. The structure creates a need for students to work cooperatively and, at the same time, promotes individual accountability. The teacher needs to make sure that the students fully understand their roles in the structure. After the work is completed the teacher grades the students appropriately according to the structure that was chosen.

STEPS:

COOPERATIVE STRUCTURE FOR PROMOTING POSITIVE INTERDEPENDENCE

1. Identify the goals for cooperation and the task to work on cooperatively.
2. Determine which structure is best suited to achieve the goals and to complete the task.
3. Present the structure to the students and make sure they fully understand their role in each structure.
4. Collect work and grade appropriately according to the structure.

EXAMPLES:

UNITED WE STAND

In this technique, each group is required to produce one product that compiles each member's best work. For example, each group would develop one set of answers, one chart, one essay, one poem, one illustration, one graph, one diagram, one lab report, etc. Students understand that the group's product should be the result of everyone's efforts and contributions and that they will receive a shared grade.

DIFFERENT STROKES

With this technique each group member is expected to provide an individual product after conferring with team members. This technique promotes divergent thinking since students are expected to look for many varied responses to the question. A problem or question is posed and after group discussion, each student must formulate a unique and correct answer. Students are given credit for every correct group response that is different.

EACH TO HIS OWN

Group members first discuss and combine ideas. Then each member of the group is required to produce an individual product. The group members check with each other to compare answers. Credit is given for correct and matching responses.

PICK'EM AT RANDOM

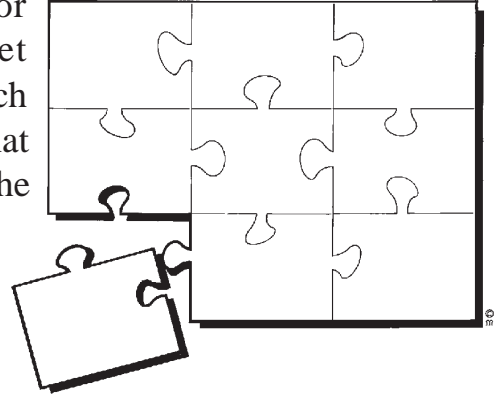
The students work together in a group making sure that each member of the group has the same answer and can explain how they acquired the answer. The teacher then randomly calls on one student to represent the group and share the group's answer. A shared grade is given to each participating group member.

SIGN OFF

This technique ensures student cooperation and accountability within the group structure. Each group member must sign all work that is submitted, but all members must agree that each student has done appropriate work before the signature is allowed. This technique promotes high levels of cooperation because the signature guarantees that all students have worked on the question, that they understand the answer and that they can explain and defend the group's position if asked to do so.

DIVIDED RESOURCES

This technique limits resources given to each group member so that the members of the group must share materials and work cooperatively. The teacher may give each member of the group different documents or clues needed to solve a mystery or a puzzle or provide each group with one worksheet containing the questions, one map from which to work, one copy of directions, one pen that must be shared, etc. Each method ensures the need for students to work together.



SURVEYING

PURPOSE: Is a way to assess what students are thinking and to invite them to participate in class.

PROCEDURE: The teacher asks the class a question which requires students to make a choice:

How many are there?

Agree?

Disagree?

Students can raise their hands, do thumbs up or down, etc., to show their responses. Both the teacher and the students get a quick sense of the class ideas or feelings about the issue being discussed. The teacher can then use the students' responses to give direction to the lesson.

STEPS:

SURVEYING

1. Teacher asks question.
2. All students invited to respond.
3. Teacher and students observe student responses.
4. Teacher continues lesson building on student responses.

EXAMPLE: How many people agree with the answer?

How many people disagree?

How many people have ever felt strongly about something that they were willing to protest?

JEOPARDY

PURPOSE: Is a way to stimulate creative thinking and to assess what students know and understand about a topic.

PROCEDURE: The first step for the teacher is to introduce the topic being studied. Then the teacher asks, “If _____ is the answer, what are the questions?” The students generate as many questions as they can where the term the teacher presented would be the answer. The teacher records the possible questions. The questions are examined and grouped, and the teacher and class assess what they know and understand.

STEPS:

JEOPARDY

1. Teacher introduces a topic and reviews the structure of jeopardy (you are given the answer and must generate the question).
2. Teacher asks “If _____ is the answer, what are the possible questions?”
3. Students generate responses.
4. Teacher collects and records students’ questions.
5. Questions are examined and grouped in order to assess student knowledge and understanding.

EXAMPLES: If quadratic equation is the answer, what are the possible questions?

If balance of power is the answer, what are the possible questions?

If Macbeth is the answer, what are the possible questions?

PHYSICAL BAROMETER

PURPOSE: Is a technique both for assessing student positions quickly and for having students physically participate in the class.

PROCEDURE: The teacher designates specific areas in the classroom to represent various positions (i.e. strongly agree, agree, neutral, disagree and strongly disagree). The teacher then makes a statement or poses a question such as:

*Should animal testing be allowed in scientific research?
Who should Columbus take as his last crew member to the
new world - a tailor, soldier, merchant, mapmaker or
watchmaker?*

The students think about the statement or question, get up from their seats and move to the part of the room that reflects their position or answer. The students first discuss the reasons for their choice with other students who think like them. They then explain their position to the rest of the class. The groups can ask questions of each other. After the question and answer period the students are asked to reflect again and to take a final position (either stay where they are or move). Students who choose to move should be prepared to explain why they moved.

STEPS:

PHYSICAL BAROMETER

1. Teacher designates areas of the room to represent distinct positions / responses to a question.
2. The teacher poses a question or makes a statement.
3. The students reflect on the issue or question, take a position, and move to the appropriate region of the classroom.
4. The students discuss the rationale for their position with others who have the same position.
5. Students in each group explain / defend their position to the rest of the class.
6. Students reflect on their choice and ask questions of each other.
7. Students take a final position and defend their choice either verbally or more commonly in writing.

EXAMPLES: Where do you stand

...on the use of animals for medical testing?

strongly agree, agree, neutral, disagree, strongly disagree.

...strict gun control laws?

strongly agree, agree, neutral, disagree, strongly disagree.

...the use of nuclear power?

strongly agree, agree, neutral, disagree, strongly disagree.

Which character is most like you? (*Lord of the Flies* - List four characters.) Go to the part of the room where the character is listed.

FEEDBACK TOOLS

PURPOSE: Is a technique to obtain immediate feedback from students so that they can get appropriate help where and when it is most needed.

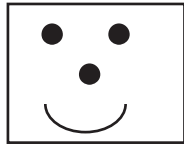
PROCEDURE: The teacher designs a special code or system that allows the students to make it known when they do not understand. The code can be red light, yellow light or green light cards (signifying extreme confusion, moderate confusion, and no confusion, respectively); hand signals; pictures; knowledge barometers; etc. The teacher begins teaching and periodically asks students to assess their understanding and provide him/her with feedback. If students say they are confused (red light cards, for example) the teacher asks students to state at what point they became confused and clarifies, and then asks another student to restate. The teacher now reteaches the “confusive” material. The teacher slows down or accelerates the pace of the presentation depending upon the student feedback he/she receives.

STEPS:

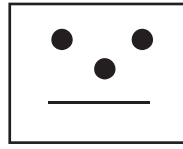
FEEDBACK TOOLS

1. The teacher provides students with a device to give feedback on the lesson.
2. The teacher begins teaching, stopping periodically to allow students to offer feedback.
3. The teacher affirms student needs and inquires about student confusion.
4. The teacher then reteaches the lesson. Additional feedback can help the teacher determine whether to slow down or accelerate the pace of instruction.

EXAMPLE:



Got It



Slow Down



Confused

Go



Green

Slow



Amber

Stop



Red

CATEGORIES

PURPOSE: A technique for forming groups and reviewing content.

PROCESS: The teacher identifies a general theme or topic and categories according to the number of groups he/she wants to establish. The teacher then generates specific items for each category depending upon the number of students to be in each group. For example, if the subject is geography, specific categories could be land forms, weather, natural disasters, names of continents, countries, rivers or mountain chains. The items for each category for a class of 28 students would be as follows:

Land Forms	Weather	Disasters	Continents
island	humidity	tornado	Asia
peninsula	temperature	hurricane	Africa
isthmus	precipitation	earthquake	North America
plateau	wind	Monsoon	Australia

Rivers	Mountain Ranges	Countries
Amazon	Rockies	United States
Nile	Urals	England
Mississippi	Pyrenees	China
Thames	Sierra Madre	South Africa

Each student is given a card with a specific term on it. The student is asked to identify the topic, then to consider the category in which the term belongs. The student then searches for others who fit into their category. When most of the groups have found their members, the teacher brings the students to a halt and has those groups that are complete name their category, read their items and explain why the items relate. The remaining students who have not found a group are coached by the others until they find their respective groups. The teacher, at some point, may provide an answer key to help the students identify their groups.

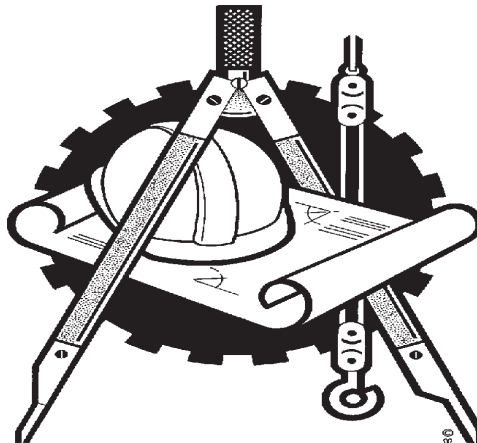
A variation of this technique is to provide students with a single line from a limerick or other poetic form, such as a sonnet, which the students would have to reconstruct into a complete poem. Another variation is to have students solve a mathematical equation and find others who have a similar answer. This technique is highly adaptable to various classroom needs.

STEPS:

CATEGORIES

1. Choose a topic. Formulate categories and specific items for each category depending on the number of groups and students you want in each group. Place each item on a card and distribute to the students.
2. Have the students mingle and try to find other students that they believe belong to their category.
3. Stop when most students have come together.
4. Have each group identify its items and explain why the terms go together.
5. Coach the remaining students to find their groups or provide a key with the answers.

EXAMPLE: Possible categories are characters in literature, television programs, historical events or documents, types of food, parts of speech, conjugated verbs, biological species or elements from the periodic table.



ENERGIZERS

PURPOSE: The purpose of energizers is primarily to “liven up,” energize, activate and stimulate the mind and body of your learners. Recent brain research tells us that physical stimulation boosts mental activity, that learning done with the body is generally more effective than with the mind only and that the “engagement part” of emotions increases the impact and recall of the learning experiences.

PROCEDURES:

ADD-ONS

One person is invited to come to the front of the room and act out or present something that he has learned from the class. Another comes up and joins the impromptu living sculpture. Others come up, one at a time, to add and create a giant scenario that represents what they have learned.

AROUND THE WORLD

All the students are asked to stand up at the back of the room. A question is asked either by the teacher or a student. The students write their answers on paper. If the answer is correct, they may take a step forward. Each question is worth a certain number of steps depending upon its degree of difficulty. This technique is great for spatial-kinesthetic learners.

BALL TOSS

Five to seven students stand in a circle about ten feet apart following each other. One has a ball or a bean bag. The person tosses it to another person to start. Content could be “Q” or “A,” items in a category, work association or to continue a story.

BARNYARD

This tool provides an energizing way to form groups. Secretly assign numbers to everyone up to the number of groups you want (eight groups everyone gets a number from 1-8). Assign a noisy animal from the barnyard to each number: all one’s are dogs, all two’s are cats, all three’s are goats, all four’s are horses, all five’s are sheep, all six’s are chickens, all seven’s are ducks and all eight’s are mules. Then have all the students stand up, and mix around the room making the appropriate noise of their animal trying to find the other members of their group. To add to the fun and difficulty have everyone close their eyes and try to find the members of their group.

BIRTHDAY LINES

Invite students to stand up. Ask them to get into single file, in order of their birthdays from January 1 to December 31. To add to the fun, divide the class in two and have them compete to see which half is the fastest or you can have them line up without speaking. Have students discuss what they learned from this about problem solving, team work and communication.

CHALK TALK

Put a question or a prompt on the board. Then invite students to come to the board one at a time to respond. Each student can come to the board and respond to the question, the prompt or the previous student response.

PICTIONARY

Divide the class into teams. Select concepts that you have taught and put each one on a card. Invite a member of the team to come to the board and draw a picture without words that represents the idea. The other members of the team have three (3) minutes to figure out the idea being communicated to them. This is an excellent activity to stimulate visual intelligence.

COMMERCIAL BREAKS

This is a great technique to review information. Divide the class into teams. Each team is assigned a topic or they choose one. Each team is responsible for developing an impromptu television commercial. The point of the commercial is to review the content. This can also be done with partners or by individuals.

EXPERT INTERVIEWS

Half of the students become experts in the topic you are teaching and half are interviewers. The interviewers have two (2) minutes to get the story. The roles are then reversed.

HUMAN KNOT

The class is divided into six eight-person teams. The team stands in a circle and each member grabs the hand of a team member next to him and another hand of someone in the circle *not* next to them. Make sure that everyone is connected. One person squeezes the hand of the person next to him; that person squeezes the other hand of the next person and so on until the “squeeze” returns to the person who started it. The group is then asked to try to untangle themselves so that they are all facing the same way in the circle holding hands. The one important rule is that the group cannot break hands at any time.

INQUIRY

The teacher selects specific terms or names of people that she wants the students to remember and writes each one on a card. Each student is given a card and asked to tape it on the back of another student. One card is given per student. The students then stand up and walk around the room looking at the backs of all the other students. They stop and ask other students *yes* or *no* questions to collect information before they guess. When they think they know the concept, they make a guess. If they are correct they wear the card in front. When everyone has guessed their terms, the teacher has the students form groups of terms that go together and has each group explain why.

ONE INTERESTING FACT

Students are handed a card and asked to write something about themselves that no one knows and that they are comfortable with sharing. After the card is written each student stands up. When all the cards are complete the teacher distributes the cards back to a different student. The students then have to walk around the room trying to find the person who has their card. Calling out is not permitted. They can ask one student at a time. When the student has been found and has found the person they were looking for, they return to their seat.

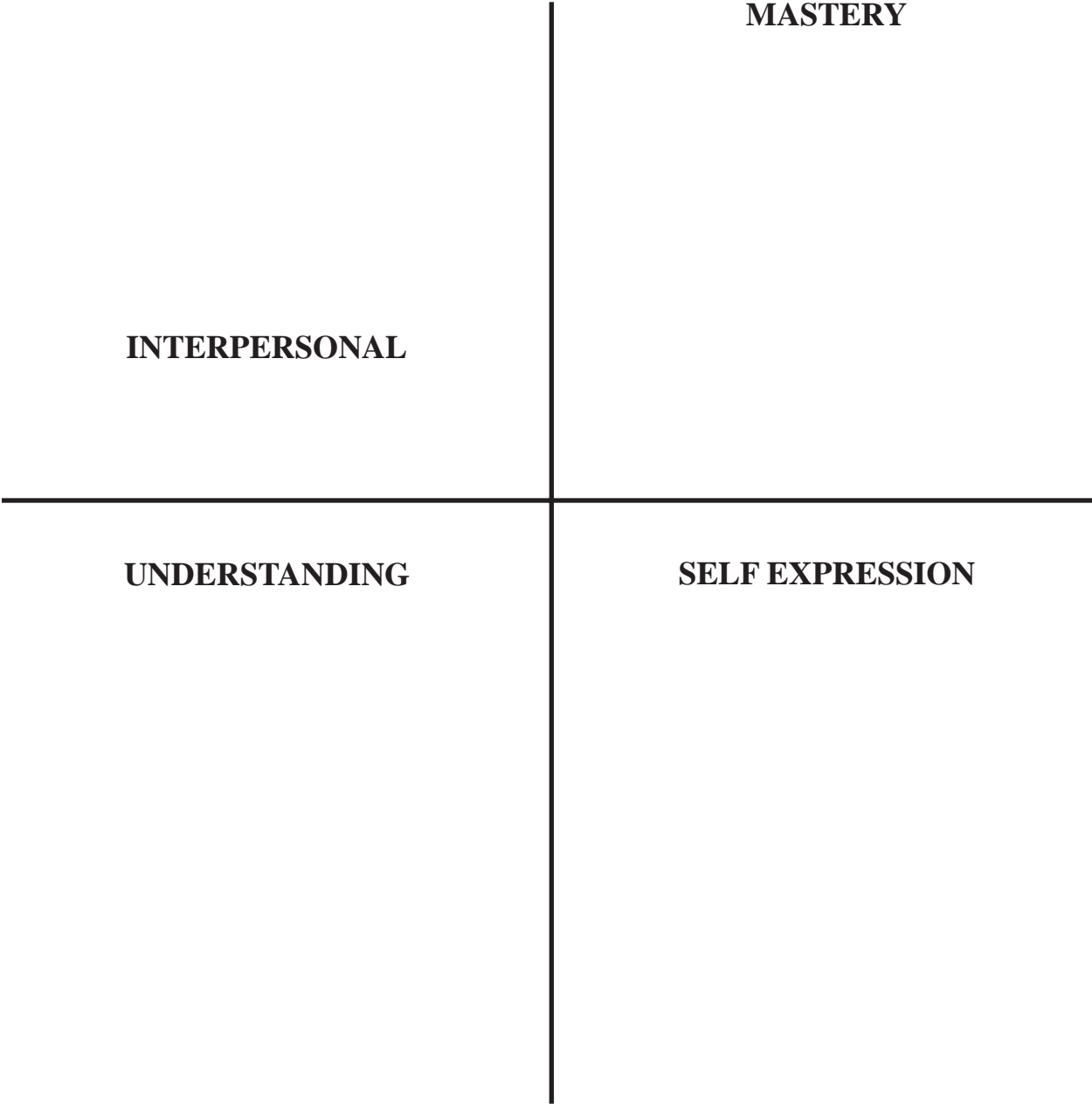
SQUARE DANCE

The students form two circles - one inside the other. A command is given to one or both members of the circles. The teacher may say, "Inside circle walk three steps to the right; outside circle, two steps to the left," etc. Participants stop in front of their new partner and are asked a question to think about. They discuss their responses. The question can be content oriented, (i.e. Which character in the book is most like you and why?) or personally oriented, (i.e. If you found \$25.00 what would you do with the money?).

SCRUNCHES

Have the students scrunch their toes, then their ankles and continue up the torso to the top of their heads so their whole body is scrunched tightly. Then have them release the scrunch slowly from the top of their head to their toes. This increases the blood flow through the body and brings oxygen to the cells which enhances their ability to think.

Notes to Myself to Begin the Change...



CIRCLE OF KNOWLEDGE STRATEGY

DESCRIPTION: The Circle of Knowledge Strategy is designed to ensure effective discussion through high levels of participation, high levels of focus and high levels of thinking among students. It is used to develop evidence to support arguments, develop explanations and describe relationships between and among key ideas.

WHEN TO USE IT:

- to present or review information
- to build bridges between prior knowledge/experience and the content of the lesson
- to synthesize ideas
- to generate new questions about what is being learned

TEACHER PREPARATION:

- Design key questions - “focusing” and “sparking” questions.
- Plan a variety of techniques to help students show responses. (kindling{toolbox})
- Plan for students to communicate in small groups.
- Determine specific tools to engage students in discussion (Q-Space, Kindling).
- Plan for reflective closure.

STEPS:

1. Establish “focusing” and “sparking” questions.
2. Have students think about or visualize an answer to assist them to internalize the question.
3. Have students write down, demonstrate, role play or construct answers individually in order to pull their thoughts together and to gather their resources prior to sharing.
4. Set up small group discussions for sharing ideas.
5. Have students explain, support, and critique their responses in small groups.

STEPS (continued)

6. Lead large group discussions using a variety of student recognition techniques - i.e. random calling, volunteering, surveying, sampling, redirection.
7. Have students state their positions, support other positions, critique positions, and summarize their positions.
8. Use Q-Space (toolbox) techniques - question, silence and waiting time, proofing, accepting, clarifying and correcting and elaborating and extending.
9. Check to see that students are able to organize their ideas and share them clearly and forcefully.
10. Are students able to explain, support and critique?
Are small groups on task?
Has student participation increased?
Are students raising new questions about the learning?

NOTES:

- Have students respond in words, drawings and writing.
- Provide sufficient time for both covert and overt thinking.
- Record responses to assist students to structure their arguments.
- Summarize often to keep focus.
- Have students assess the quality of the discussion.

EXAMPLE: Content - reading

Goal - establishing comprehension of main idea

KEY QUESTIONS:

- Focusing - “What is the main idea of _____?”
- Sparking - “What word(s) are mentioned frequently in this piece?”
“What kinds of things does the author say about these words?”

FOR ADDITIONAL INFORMATION SEE:

- Circle of Knowledge Strategy for Georgia Critical Thinking Skills Program (available for checkout at NJC)
- *Teaching Styles and Strategies*, Manual #2, pp. 64-71.

COMPARE AND CONTRAST STRATEGY

DESCRIPTION:

Compare and Contrast Strategy helps students describe simple ideas/objects in terms of similarities and differences and draw conclusions based on observed characteristics.

WHEN TO USE IT:

- to help students see differences or similarities between two or more objects, ideas or materials
- to help students draw conclusions as a result of examination and discrimination

TEACHER PREPARATION:

- Decide the ultimate purpose and the final activity.
- Select sources that contain all of the facts you want students to use.
- Present at least two sources of information for students to study.
- Design a visual organizer for students to identify likenesses/differences in the assigned information.
- Determine method of evaluation.

STEPS:

1. Present information (ideas, examples, skills, procedures, etc.)
2. Have students describe them one at a time.
3. Compare the objects and generate a list of similarities.
4. Contrast the objects and generate a list of differences.
5. Identify the criteria that were important when comparing and contrasting.
6. Summarize significant likenesses and differences.
7. Determine possible causes and effects of differences.
8. Draw conclusions about similarities.

NOTES:

- Establish that different criteria will determine if an object is similar or different (physical descriptions, how it works, importance to the body).
- Tell students that it is easier to describe similarities when comparing two things which are very much alike and harder to describe the differences. When two things are very different the opposite is true.

EXAMPLE:

The Heart
(reading passage)

The Lungs
(reading passage)

VISUAL ORGANIZER:

Heart		Lungs
Differences	Similarities	Differences
1. Physical Description:	1. Physical Description:	1. Physical Description:
2. How it works:	2. How it works:	2. How it works:
3. Importance to the body:	3. Importance to the body:	3. Importance to the body:

Physical description, how it works, and importance to the body are criteria selected for comparing and contrasting

SYNTHESIS: Design an activity in which students are asked to apply or use the new learning. An example may be: A five minute writing piece to answer the questions: If you had to choose between a heart transplant or a lung transplant, which would you choose? Why?

FOR ADDITIONAL INFORMATION SEE:

- Compare Contrast Strategy for Georgia Critical Thinking Skills Program (available for checkout at NJC)
- *Teaching Styles and Strategies*, Manual #2, pp. 72-77.

CONCEPT ATTAINMENT STRATEGY

DESCRIPTION: The concept attainment strategy develops conceptual thinking.

WHEN TO USE IT:

- to have students determine for themselves the essential attributes of a new concept
- to have students enrich or clarify thinking on a previously acquired concept

TEACHER PREPARATION:

- Select the concept to study.
- Identify critical attributes.
- Select and organize material into positive and negative examples. (yes/no)
- Sequence examples.
- Present examples for students to compare and contrast.
- Record attributes and hypotheses as students generate them.
- Recognize and reinforce the sequence of responses by indicating if the example is a “yes” or “no.”
- Present additional examples as needed.
- Have students describe critical attributes of the concept.
- Test students’ understanding by discriminating among additional examples and developing examples of their own.

STEPS:

1. Teacher presents “yes” and “no” examples for students to compare and contrast examples.
2. Students formulate tentative hypotheses (teacher records).
Students examine recorded examples, choose and refine hypotheses.
3. Students label and define the concept according to the critical attributes.
4. Synthesizing
Students reflect on the process by generating new examples or applying concept in a different context.

NOTES:

- Prepare enough “yes” and “no” examples.
- Ensure that all “yes” examples have all the essential characteristics.
- Ensure that “no” examples have none of or only some of the essential characteristics.
- Ensure that students can describe the critical attributes when identifying and/or discussing the concept.

EXAMPLE: Content - math

Goal - identify numbers as “prime” or “not prime” and express a conceptual definition of a prime number.

FOR ADDITIONAL INFORMATION SEE:

- Concept Attainment Strategy for Georgia Critical Thinking Skills Program. (available for checkout at NJC)
- *Teaching Styles and Strategies*, Manual #2, pp. 78-87.

COPE STRATEGY

DESCRIPTION: COPE is a strategy to master content by collecting, organizing, processing information and explaining what has been learned.

WHEN TO USE IT:

- to teach and organize content
- to apply the learning

TEACHER PREPARATION:

- Select content/information to be taught.
- Decide how to organize information (teacher directed or student created).
- Determine key questions for discussions.
- Determine time allotted for group/individual work and the form that work will take (Etch-A-Sketch, Think-Pair-Share).
- Determine method for explaining or elaborating the learning for the purpose of assessment.

STEPS:

COLLECT information by gathering data and making connections among the data. The teaching tool, Boggle, works well in the collection of information.

ORGANIZE the data using an assigned or self-created organizer such as a Venn diagram, graphs, outlines, flow charts, pictures, webs or Etch-A Sketch.

PROCESS or picture the information to create a conceptual understanding of the content matter.

EXPPLAIN or elaborate what has been learned. This provides the opportunity for assessment.

NOTES:

- Work best for Mastery Learning.
- Instructions for Boggle and Etch-A-Sketch are found in the Tool Guide.
- Monitor and adjust throughout this strategy.

EXAMPLE:

CONTENT: Social Studies

GOAL: TLW distinguish between jurisdictions of local, state and federal courts.
Students collect data on local, state and federal court systems (text, video, internet, etc.)
Organize data showing similarities and differences between local, state and federal jurisdictions. (graphic organizers)
Process the information by developing a pictorial representation of each jurisdiction
Engage students in explaining and elaborating the learning (key questions, discussion, group presentations, etc.)

FOR ADDITIONAL INFORMATION SEE:

- The Video Journal videocassettes *Strategies for Elementary School Teachers and Strategies for Middle School Teachers* (available for checkout through the Curriculum and Instruction Department at Morrow Annex)

DECISION MAKING STRATEGY

DESCRIPTION: The Decision Making Strategy teaches students to think critically about content in order to make well-informed decisions.

WHEN TO USE IT:

- to help students learn content
- to enable students to become decision makers
- to enable students to become decision evaluators

TEACHER PREPARATION:

- Decide on **content** you want students to learn.
- Prepare the **question**, dilemma, or situation.
- Determine if student is to be a **decision maker** or **decision evaluator** or **both**.
- Determine **information** students need. (background information, key issues, facts, resources)
- Determine the possible **alternatives**, and the **significance** or **consequences** of each. (short-term? long-term? affects whom?)
- Determine **criteria** to be used to **compare/contrast** alternatives.
- Decide how decision will be **communicated**.
- Determine how students will **demonstrate and apply** what they know and have learned.

STEPS:

Phase 1. Making Decisions

Collect background information.

Understand dilemma, situation, or question.

Establish/analyze alternatives and consequences.

Compare/contrast alternatives.

Phase 2. Communicating Decisions

Share/defend decision.

Analyze other decisions/positions.

Debate differing decisions.

Experience decision.

Persuade others to accept decision.

STEPS (continued):

Phase 3. Synthesizing

Predict long-range effects/significance.

Form text hypotheses regarding outcomes.

Draw conclusions about future events.

Plan and justify course of action based on predicted outcomes/decisions.

Evaluate/judge effects or significance.

NOTES:

For students to learn content, to become good decision makers, and to think critically, creatively and independently, a risk-free environment is essential.

EXAMPLE: Use a Rank Order Ladder (or other graphic organizer) to have students rank order the reasons the United States entered World War II.

Use the Priority Pyramid.

For Additional Information See:

Decision Making Strategy for Georgia Critical Thinking Skills Program (available for checkout at NJC)

DIVERGENT THINKING STRATEGY

DESCRIPTION: The Divergent Thinking Strategy teaches students there is not always one correct solution to a problem and that problems should be viewed in a variety of contexts.

WHEN TO USE IT:

- to explore a situation in new and different ways
- to break from “stereotypic” ideas

TEACHER PREPARATION:

- Select content.
- Design a question that evokes different kinds of thinking.
- Plan an environment in which free and spontaneous responses are accepted.
- Determine the mode of expression (speaking, writing, movement) you will use and support materials which may be needed.
- Explain what divergent thinking is.

STEPS:

1. Present the question to students.
2. Engage students in divergent thinking.
3. Record and verify responses.
4. Evaluate the quality of thinking by helping students look for evidence of fluency, flexibility, originality, complexity and elaboration in their thinking.

NOTES:

- Minimize the use of corrective feedback so that the flow of ideas is not inhibited.
- Intuitive or possibility feedback stimulates the flow of ideas.
- Provoke thought by asking for a new idea or by suggesting a different perspective.

EXAMPLE:

Content: math

Goal: develop a conceptual understanding of measurement

Explain that there is often more than one way of looking at things.

Students, working in groups, will find many possible answers to a question.

Any answer that works counts.

Provide groups with large sheets of paper to record their work.

The topic is **MEASURING** and the question is **WHY DO WE?**

Take five minutes to write down as many different answers as possible.

Students generate responses and teacher records answers on a master list.

Point out that some answers lead to other possibilities.

Allow small groups to meet to explore new ideas.

Record additional answers on master list.

Work in groups to organize answers in some way.

Ask students to represent answers in art project.

FOR ADDITIONAL INFORMATION SEE:

- *Talents*
- *Teaching Styles and Strategies*, Manual #2, pp. 133-138.

INDUCTIVE LEARNING STRATEGY

DESCRIPTION: Inductive thinking is a natural process in which the mind observes, compares and contrasts groups, and labels things together in order to form generalizations, make predictions, form and test hypothesis.

WHEN TO USE IT:

- to connect new information to previous knowledge
- to prepare for reading
- to prepare for a new unit
- to review previous material

TEACHER PREPARATION:

- decide on a topic to be taught
- decide on concepts to be learned
- prepare materials to be read, viewed or researched

STEPS:

1. Teacher created: The teacher may make a list of items he/she wishes students to organize into categories. (Ex.: Generate a list of words that have to do with the concepts/principal of U.S. Government.)

or

1. Teachers ask students to generate a list of items by brainstorming and using give one/get one. (Ex.: List all the items you can think of that deal with the U. S. Government.)

2. Students organize the data into categories (there are no right or wrong categories) and group items they feel have common attributes (Ex.: fit together).

3. Students give their categories names. (Ex.: Using the government theme they may have Judicial Branch, Executive Branch, etc.)

STEPS (continued):

4. Synthesize the information by making a hypothesis, or making a prediction or creating questions concerning the topic. (Ex.: What do these categories suggest about government in the U.S.)
5. Investigate through reading, research, watching a video, etc. information that will refute or support the hypothesis or answer the questions. (Ex.: Students watch a video on government in the U.S. Record information that supports their hypothesis or answers the questions.)

NOTES:

- Provide index cards or pieces of 3 X 5 paper for students to write down their items. It is easier to categorize items by physically putting them together.

EXAMPLES: You are in a time machine and have returned to the year 1750 to a New England colony. What would you expect to see? Make a list of those things you would expect to see.

Group these words that have a common feature or element into categories and label the categories. (There are no right or wrong categories.)

Based on your categories draw three conclusions about life in the colonial period in New England.

Read the passage/story/etc. in your textbook/or book/or watch the video/or do research about the colonial period. Any time you come across information to support or refute your conclusion (hypothesis) put a + for support - for refute.

After your reading/viewing, etc. write in your learning log a description of life in Colonial New England in 1750.

FOR ADDITIONAL INFORMATION SEE:

- Inductive Learning Strategy for Georgia Critical Thinking Skills Program.

METAPHORICAL EXPRESSION STRATEGY

DESCRIPTION: The Metaphorical Expression Strategy engages students in using three different types of analogies:

- direct - a simple analogy,
- personal - personally identify with topic, and
- compressed conflicts - demands that student consider a topic or object by using two words that seem opposite or contradictory to each other.

WHEN TO USE IT:

- to have student think imaginatively through the use of metaphors
- to engage in speculation leading to intuitive understanding

TEACHER PREPARATION:

- Decide on a concept and determine the essential question.
- Formulate a direct analogy, a personal analogy, or a compressed conflict analogy to explore the topic or concept.

STEPS:

1. Present a metaphorical question phrased as a direct analogy, personal analogy, or compressed conflict analogy.
2. Elicit ideas about the topic addressed by the question.
3. Analyze the direct analogy, personal analogy, or compressed conflict analogy.
4. Form original analogies.
5. Continue to explore the topic or concept.

NOTES:

- Enhance creativity by direct attempts to promote the creative process.
- Use imagination as a tool for remembering and understanding new information.
- Use metaphorical activity to give students experience in the following stages of the creative process:
 - detachment •deferment •speculation •intuition of rightness

EXAMPLE: Judy's Crystal Stair

FOR ADDITIONAL INFORMATION SEE:

- *Metaphorical Expression Strategy for Georgia Critical Thinking Skills Program* (available for checkout at NJC)
- *Teaching Styles and Strategies*, Manual #2, pp. 139-146.

MYSTERY AND INQUIRY STRATEGY

DESCRIPTION: In the Mystery and Inquiry Strategy, students encounter a problem; examine and interpret clues, establish a hypothesis and evaluate the hypothesis.

WHEN TO USE IT:

- to encourage students to develop intellectual discipline necessary to collect data, process it, and apply logic to it
- to have students solve a problem (mystery) by probing and examining given clues and insights

TEACHER PREPARATION:

- Create or find an existing mystery (dilemma, situation, riddle).
- Provide clues.
- Identify a question, riddle, situation, or secret.
- Generate a list of questions that will puzzle students and engage curiosity.
- Design questions in the form of “yes,” “no,” and “but, why.”
- Develop a clear idea of solutions you would like to see generated.
- Gather the necessary clues.
- Identify big ideas and important details needed to solve the mystery.
- Decide how students will work to solve the mystery.
- Design a visual organizer on which students record information, group related clues, create hypotheses, and develop logical solutions.
- Consider content and product when assessing.
- Design a set of questions to encourage student self-reflection.
- Use a time limit for solving the mystery to provide a greater challenge.

STEPS:

Divide the class into groups.
Pass out envelopes with the clues .
Ask students to investigate the clues and come up with an answer to the unsolved mystery.
Students will present their findings to the class using visual or oral techniques.
Students will investigate the mystery through reading, research, audio visual material, etc.

EXAMPLE: A colony on the edge of a river in Jamestown, VA was founded in (1609)? by English settlers. In the first 20 years of the colony the death rate was 75% to 80% and far exceeded the death rate in Europe during the height of the plagues.

As a student of history you have been asked to determine what conditions would result in such a high death rate.

Examine the clues and construct a theory about what might have happened in the Virginia colony. Specifically include: Why did this occur? Who was dying? and Why did it continue so long?

Students will present their findings through visuals, skits, panels, etc. making sure they used all their clues.

Teacher will make the clues from primary sources; textbook, etc.

NOTES:

Use a famous speech (Gettysburg Address; Preamble to Constitution) and cut it into strips. Have students discover how the speech or famous passages fit together.

FOR ADDITIONAL INFORMATION SEE:

- *Inquiry Strategy for Georgia Critical Thinking Skills Program* (available for checkout at NJC)
- *Mystery Strategy for Georgia Critical Thinking Skills Program* (available for checkout at NJC)
- *Teaching Styles and Strategies*, Manual #2, pp. 99-115.

NEW AMERICAN LECTURE STRATEGY

DESCRIPTION: The New American Lecture is based on the traditional lecture, but integrates research on memory retention, such as using a graphic organizer and allowing students time to reflect and recall information.

WHEN TO USE IT:

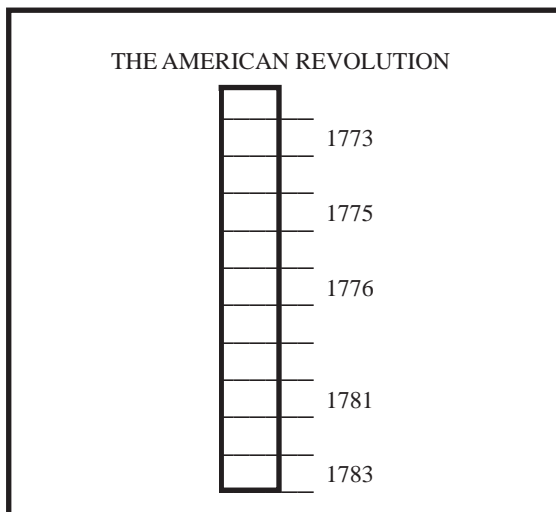
- to cover material in an efficient and timely manner
- to increase recall and memory retention
- to help students organize material

TEACHER PREPARATION:

- Select a topic and purpose for a lecture
- Identify important information you wish students to retain
- Create a visual organizer
- Create a Hook

STEPS:

1. Begin with a Hook (Example: How many of you have visited a historical site that dealt with the America Revolution? What do remember about that historical site? Sights, smells, etc.)
2. Students are given a visual organizer (Ex.: Time line)



STEPS:

3. The teacher begins the lecture over the American Revolution. After lecturing for about 5 to 10 minutes the teacher stops and allows students to collect information to put in the visual organizer. The organizer may be a chronological time line, cause and effect, map of the 13 colonies, etc.
After students write down information, the teacher continues the lecture, stopping after about 5 to 10 minutes. Have students record more information on the visual organizer.
4. Elaborate or review in the 4 thinking styles.

EXAMPLE:

PRACTICAL: Turn your paper over and write down as many causes of the America Revolution that you can remember.

PERSONAL: Have you ever been in a situation where it was necessary to have courage? What did it feel like? How were soldiers involved in the American Revolution courageous?

ANALYTICAL: Look at the statement and either prove or disprove it. "The colonists were well prepared for war."

IMAGINATIVE: What might have happened if George Washington had not been made general?

FOR ADDITIONAL INFORMATION SEE:

Teaching Styles and Strategies, Manual #2, pp. 44-59.

RECIPROCAL TEACHING STRATEGY

DESCRIPTION: The Reciprocal Teaching Strategy is designed to form a partnership between pairs of students working together (peers coaching peers).

WHEN TO USE IT:

- to have students work cooperatively to read and digest a text
- to increase knowledge and understanding of a piece
- to practice previously learned skills and information in order to increase comprehension

TEACHER PREPARATION:

- Create two worksheets as follows:
 - Partner students randomly.
 - Arrange seating to allow partners to sit *next* to each other.
 - Plan a warm-up question to help partners get to know each other.
 - Set reasonable time limits.

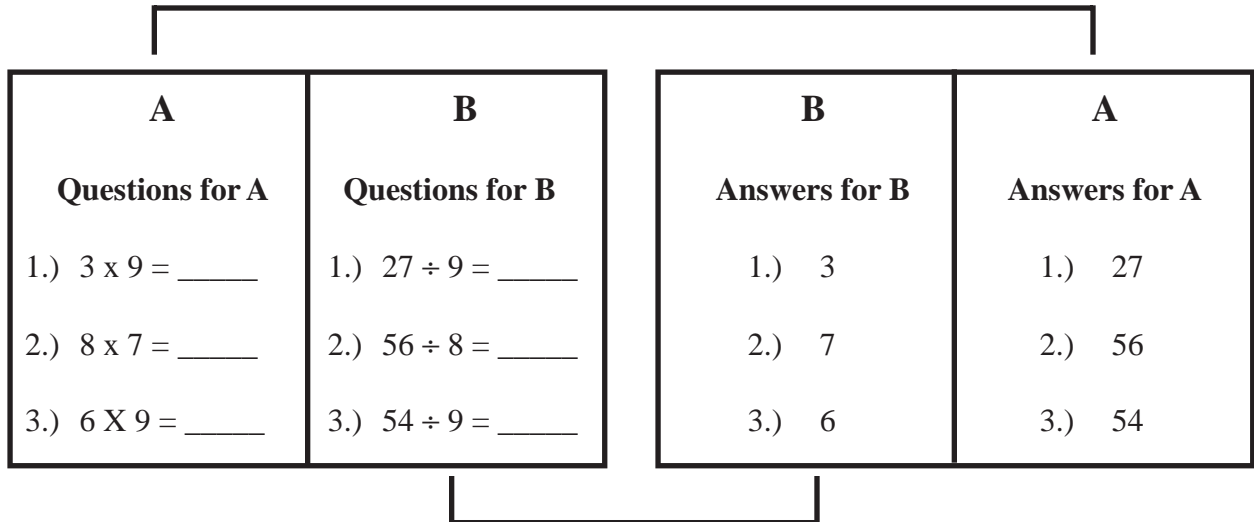
STEPS:

1. Select a piece that presents some difficulties.
2. Arrange students into pairs and have both read the piece silently.
3. Ask one to summarize while the other helps.
4. Provide the guide with sample summarizing questions to aid the doer.
5. Help the doer and the guide to work together effectively. The doer closes the book; the guide keeps the book open.
6. Reverse the roles when the doer has summarized the first half of the piece.
7. Observe whether guides made effective of helping information provided on information sheets.
8. Note progress in understanding and practicing cooperative learning skills.

NOTES:

- Teacher communicates only with guides.

EXAMPLE:



FOR ADDITIONAL INFORMATION SEE:

Teaching Styles and Strategies, Manual #2, pp. 200-212.

READING FOR MEANING STRATEGY

(READS)

DESCRIPTION: The Reading for Meaning strategy teaches students to interpret what they read and to find the main idea. Students are engaged in thinking before they read, thinking during the time they read and responding to or reflecting upon what they read.

WHEN TO USE IT:

- to help read and understand difficult passages
- To develop clear explanations of what is read
- To help students recognize the main idea

TEACHER PREPARATION:

- Select reading passage.
- Review the passage to determine types of difficulty students will have in understanding the piece.

There are four types of difficulties.

To prepare students for *Mastery* statements—

Determine important points to identify main idea of the passage.

Underline the statements you will paraphrase.

Circle words you will change.

Convert these points into statements.

To prepare students for *Understanding* statements—

Generate a list of ideas in the text.

Prepare three to six statements that require students to interpret the text and use inference to recognize main idea.

Prepare one or two statements that are easy to eliminate and at least two or three statements that can be discussed and interpreted.

To prepare students for *Self-expressive* statements—

Generate a list of what this text tells beyond the text itself.

Prepare statements that generate predictions.

Provide new endings.

To prepare students for *Interpersonal* statements—

Generate a list of feelings that the author revealed or evoked in the passage.

Write statements that reflect these feelings

- Identify which type of issues you will address.

STEPS:

1. **R**eview the text. Identify concepts students are to know and understand
2. **E**stablish statements (not questions). Consider the four types of questions.
3. **A**sk students to read or listen to passage, take a position and collect evidence to support position.
4. **D**iscuss with other readers. Listen to other arguments to gain new insights.
5. **S**urvey students for agreements or disagreements. Use organizer to collect evidence to support or refute the critical statement that you are addressing. Summarize and extend to other activities.

NOTES:

- Make sure that you generate statements, not questions.
- Anticipation guides, visual organizers and written summaries are tools to help students read for meaning. (Prereading) (Assisting) (Reflecting)

EXAMPLE: (copy the Mouse story)

SAMPLE QUESTIONS:

The Mouse at the Seashore

Before you read the story, read the statements below.

A Mastery statement is a sentence that is trying to say what other sentences in the story say.

Mastery Sentences Wanted

- ___ 1. The mouse thought he ought to go to the ocean.
- ___ 2. His parents said the trip would be much too dangerous.

Understanding Statements

An understanding statement tries to say what a lot of the story is about. Sometimes in stories it is important to know why things happen. At the end of this story the mouse feels happy and contented. I wonder why?

Read the list of events below and write a “C” next to those events that you think helped cause the mouse to feel happy at the end.

- ___ 1. The mouse’s parents did not want him to make the trip.
- ___ 2. The mouse wanted to see the ocean.

Self-Expressive Statements

Self-expressive statements try to say what the whole story means.

“The Mouse at the Seashore” is a fable. Fables are stories that use animals to teach us how to behave in order to be happy. Fables have morals. These sentences say clearly what the story is trying to teach.

Read through the list of moral statements below and put a check mark next to those that you feel fit with the story.

- ___ 1. Always obey your mother and father.
- ___ 2. One must do what one feels is right.

Interpersonal Statements

Interpersonal statements try to say how the story felt.

Directions: Often authors want us to feel a certain way when we finish reading their stories. Sometimes we feel that way and sometimes we feel differently. Think back over the story. Think about what the author said and what you felt. Then, in column A put a check mark next to those feelings you experienced. Put another check in column B if you think the author wanted you to feel that way. Be ready to talk about your responses.

My feelings

A

Author’s Intent

B

- 1. Peace and contentment
- 2. A sense of wonder

FOR ADDITIONAL INFORMATION SEE:

Teaching Styles and Strategies, Manual #2, pp. 88-98.

THE MOUSE AT THE SEASHORE

A mouse told his mother and father that he was going on a trip to the seashore.

“We are very alarmed!” they cried. “The world is full of terrors. You must not go!”

I have made my decision,” said the mouse firmly. “I have never seen the ocean, and it is high time that I did. Nothing can make me change my mind.”

“Then we cannot stop you,” said Mother and Father mouse, “but do be careful!”

The next day, in the first light of dawn, the mouse began his journey. Even before the morning had ended, the mouse came to know trouble and fear.

A cat jumped out from behind a tree.

“I will eat you for lunch,” the cat said.

It was a narrow escape for the mouse. He ran for his life, but he left a part of his tail in the mouth of the cat.

By afternoon the mouse had been attacked by birds and dogs. He had lost his way several times. He was bruised and bloodied. He was tired and frightened.

At evening the mouse slowly climbed the last hill and saw the seashore spreading out before him. He watched the waves rolling onto the beach, one after another. All the colors of the sunset filled the sky.

“How beautiful!” cried the mouse. “I wish that Mother and Father were here to see this with me.”

The moon and the stars began to appear over the ocean. The mouse sat silently on the top of the hill. He was overwhelmed by a feeling of deep peace and contentment.