BLOOM'S TAXONOMY

What Is It?
Bloom's Taxonomy is a classification of educational objectives used for developing higher level thinking skills. It is a process-oriented model that allows teachers to present ideas and concepts at many different levels to meet the needs of a variety of learners.

How Is It Used?
When developing learning tasks and activities around Bloom's Taxonomy, it is important to include at least one activity from each of the six levels of the taxonomy.

- *Knowledge*
  - requires learning information
  - consists of memorizing or identifying facts
  - provides the basis for greater understanding

  Questions that ask students to define, describe, label, locate, recite, select, memorize, recognize, name, state, identify, or repeat utilize the knowledge level of Bloom's taxonomy.

- *Comprehension*
  - requires understanding information
  - focuses on the meaning and intent of the material

  Whenever students are asked to restate, paraphrase, rewrite, convert, give examples, illustrate, summarize, explain, locate, express they are employing comprehension level skills.

- *Application*
  - requires using information.
  - gives student practice in the transfer of their learning to other situations

  Some action verbs associated with the application level are apply, modify, dramatize, translate, demonstrate, and construct.

- *Analysis*
  - requires examining specific parts of information to "see" the underlying ideas
  - utilized before decisions are reached and problems are attacked

  Analyze, classify, distinguish, subdivide, separate, differentiate, examine, calculate, compare/contrast are verbs that could be used to express the analysis level of Bloom's taxonomy.

- *Synthesis*
  - requires doing something new and different with information
  - involves the ability to put parts and elements together in a new form

  Students who combine, compose, design, organize, invent, develop, plan, or create are using synthesis level skills.

- *Evaluation*
  - requires judging information using some criteria or standard

  Asking students to evaluate, recommend, summarize, debate, criticize, or judge challenges them to incorporate the evaluation level in their thinking process.
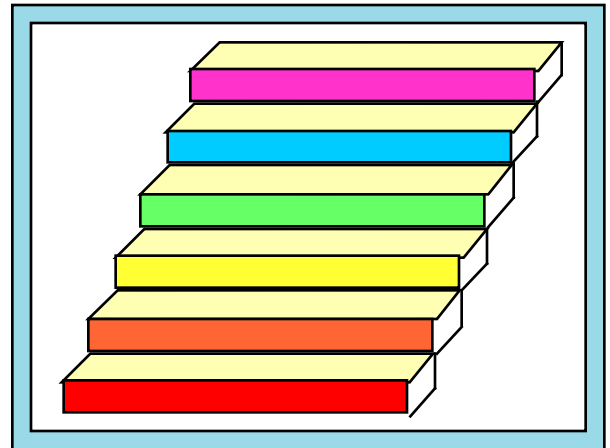
After the preparation of an activity is complete, teachers should look closely at the tasks assigned by reviewing the verbs (what the students are asked to do) to ensure that each level of Bloom's Taxonomy has been addressed.

What Are The Benefits?
- helps students develop higher level thinking skills
- increases the permanent acquisition of learning
- prepares students to be successful on the FCAT

Information gathered from:
- Bellanca, James and Robin Fogarty, *Catch Them Thinking: A Handbook of Classroom Strategies*, ©1986, Skylight Publishing, Inc., Palatine, IL
- Forte, Imogene, and Sandra Schurr, *Integrating Instruction in Math: Strategies, Activities, Projects, Tools and Techniques,* © 1996, Incentive Publications, Inc., Nashville, TN
- Schurr, Sandra, *Dynamite in the Classroom: A How-to Handbook for Teachers,* © 1989, National Middle School Association, Columbus, OH

Created by the Department of Program Development and Alignment, The School Board of Broward County, Florida, 2000
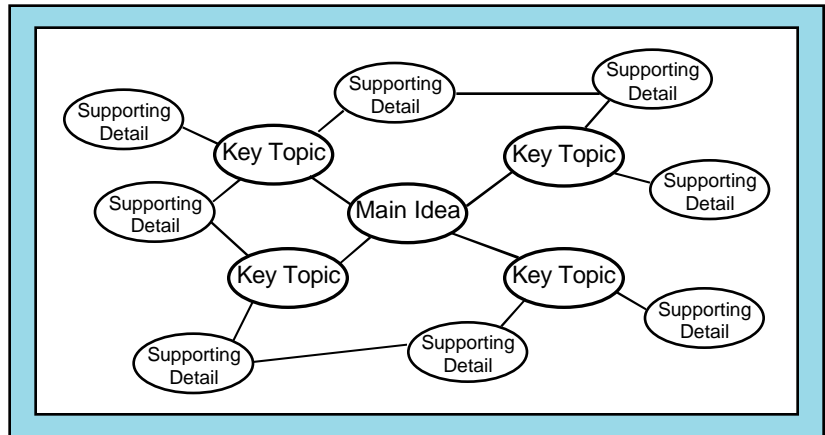
CONCEPT MAPPING

What Is It?
Concept mapping, also known as mind mapping, is a graphic organizer strategy that shows the relationships among concepts. Usually the concepts are circled and the relationships are shown by connecting lines with short explanations. Concept maps help students see relationships or the ways that two objects or ideas are connected. There are usually multiple connections. Some are factual and concrete; others are more abstract or symbolic.

How Do You Use It?
The teacher selects a main idea and writes it in an oval in the center of the paper. Around the main idea, the key topics are written. The key topics are connected to the main idea with a line. Supporting details are filled in around the key topics. The details are connected to any key topics that are appropriate. The connecting lines show the relationship between the ideas. The links between ideas may be labeled with verbs or short phrases.

Students might use a concept map for note taking from a reading assignment or lecture, to explore new ideas, or to plan a course of action. Many writers use a web as a pre-writing task to generate and organize ideas.

What Are The Benefits?
/ helps students visualize how ideas are connected and how knowledge is organized
/ shows relationships among ideas
/ gathers information in a random, but organizing manner
/ improves comprehension and problem-solving skills

ESOL Strategy
In the Broward County Multicultural/Foreign Language/ESOL Department's *ESOL Instructional Matrix*, **Semantic Webbing/Mapping** is listed as B6 in the "Visuals: Graphic Organizers" section. This strategy provides LEP students with a visual picture of how words or phrases connect to a concept or a topic. The instructor lists the target topic or concept, and builds a web-like structure (by circling and connecting the words) of words, phrases and verbs that students dictate as being connected with the central topic. Class discussion may follow, with the instructor as the facilitator, to argue against or to defend the perceived relationships of the dictated words to the topic, and eventually a consensus is reached as to what the class believes constitutes a "web" for that concept.

Information gathered from:
- Bellanca, James, *The Cooperative Think Tank: Graphic Organizers to Teach Thinking in the Cooperative Classroom*, © 1990 IRI/Skylight, Inc. Palatine, IL
- *Florida Curriculum Frameworks*, © 1996 State of Florida, Department of State
- *Multicultural-Foreign Language-ESOL Education Department Handbook*, © School Board of Broward County, Florida

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CORNERS

What Is It?

Corners is a cooperative learning strategy designed to allow students to better know and accept themselves and others. Through this classbuilding strategy in which differences are understood and appreciated, students come to "celebrate diversity." Corners is also used in a manner similar to jigsawing for learning about a topic and sharing that learning.

How Do You Use It?

To use Corners to elicit diverse points of view, announce the category of the corners. Number each corner and post a visual in the corner if possible. Any category that allows for individual differences can be the focus of the corner. For example, if the Civil War is being studied, the students could pick their corner based on who they would prefer to have been—a Confederate general, a Union soldier, an abolitionist, or a plantation owner. Give the students a few moments of silent think time to clarify for themselves their preference, not just go to a corner that a friend prefers. Next, students go to their corners and pair up to share reasons for their choice with a partner. They then form groups of four within the corner and students in the group paraphrase their partner's reasons from the paired listening. Finally, students play a paraphrase game in which they must listen carefully to the reasons of the other corner groups in order to be able to correctly paraphrase them.

Corners may also be used to assign groups to different corners to examine a particular topic. The students discuss various points of view concerning the topic, draw conclusions, and determine the best way to present their findings to the class. See Jigsaw for more information.

ESOL Strategy

In the Broward County Multicultural/Foreign Language/ESOL Department's *ESOL Instructional Matrix*, **Corners** is listed as C5 in the "Interactive Strategies Cooperative Learning Activities" section. The Corners strategy is designed to optimize the learning of the assigned task and to share that learning with other students. The teacher assigns small groups of students to different corners of the classroom. They discuss various solutions, perspectives and points of view concerning a pre-selected issue, and decide on a presentation format. Finally small groups present to the class.

What Are The Benefits?

/ elicits diverse points of view
/ develops communication skills, especially listening and paraphrasing
/ allows opportunities for shy students to function positively in small groups

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FAT AND SKINNY QUESTIONS

What Is It?
Fat and Skinny Questions is a strategy for students to use when gathering information about a topic. Fat questions require much thought, discussion, and explanation. Fat questions take time to think through and answer in depth. Skinny questions require simple yes, no, maybe, a one-word answer, or a nod or shake of the head. Skinny questions take up no space or time. Little information is obtained from the answer to a skinny question.

How Do You Use It?
The following activity can be used to teach students the difference between fat questions and skinny questions.

Conceal an object in a box. Pass the box around and have students use their senses to gather information about the contents of the box. Ask students to "guess" what is in the box and record their ideas on a chart.

Draw a grid on the board or on chart paper. Tell the students that they are going to ask questions about the contents of the box and then rate the questions as either "fat" or "skinny" questions.

Explain that "fat" questions take up more space; they require "fat" answers that give more information than "skinny" questions. "Skinny" questions can be answered in one word, such as yes or no.

	Fat	Skinny

Have students share their ideas with a partner and then decide on one "fat" question they want to ask about the contents of the box. They must be prepared to explain why they think it is a "fat" question. Record the students' questions on the grid. From the questions and their respective answers, students gather facts about the contents of the box until they know what is in the box. Open the box and reveal its contents.

Ask students to decide if questions are "fat" or "skinny" and why they think so. Remind students that "fat" questions require more thinking than "skinny" questions. Record the marks on the grid as they decide.

Students are asked to gather information all the time. When gathering information, students generally formulate questions about the topic under study. If students are able to formulate fat questions as well as skinny questions, the information they collect will be more in-depth, thorough, and substantive.

To provide practice for students in generating fat and skinny questions, ask them to create one fat and one skinny question about a story, newspaper editorial, magazine article, movie, or textbook. Another way to provide practice is to ask students to create fat and skinny interview questions for interviewing a famous historical figure.

What Are The Benefits?
- encourage students to think more thoroughly about a topic
- help students gather more complete and meaningful information about a topic
- stimulate thinking on a topic for which multiple or complex responses are beneficial

Information gathered from:
- Fogarty, Robin and Kay Opeka, *Start Them Thinking: A Handbook of Classroom Strategies for the Early Years*, ©1988 Skylight Publishing, Inc., Palatine, IL
- Lazear, David, *Seven Ways of Teaching: The Art of Teaching with Multiple Intelligences*, © 1991 IRI/Skylight Publishing, Inc., Palatine, IL
- Bellanca, James, *The Cooperative Think Tank II: Graphic Organizers to Teach Thinking in the Cooperative Classroom*, © 1992 IRI/Skylight, Inc., Palatine, IL

FISH BONE

What Is It?
The Fish Bone is a graphic organizer designed to help students identify separate causes and effects. The Fish Bone is a thinking tool commonly used in business by problem-solving teams to identify possible causes of a problem. The Fish Bone can be used when looking at possible options when planning a course of action or in analyzing the cause of a particular consequence, result, or effect.

How Do You Use It?
- In the head of the fish, write the Effect/Problem.
- At the end of each major bone, ask students for categories of possible causes. Some possible categories are machine, method, materials, manpower.
- Off the major bones, write the possible causes suggested by students.
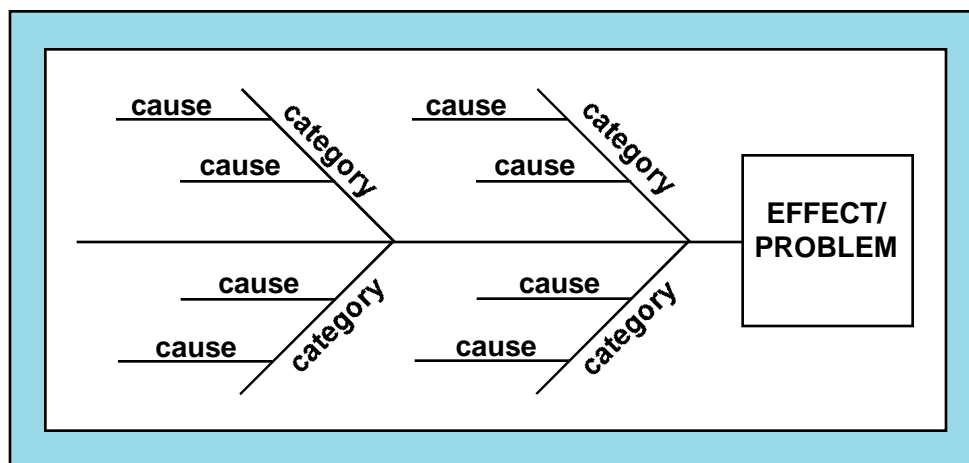
As students volunteer ideas of possible causes, ask them to identify the category into which their idea falls. Record their ideas on the organizer. Do not judge student responses. Following a full class discussion, allow students to argue placement of the ideas and to make changes. If placement of an idea is difficult, students may list an item in as many categories as needed.

After the class discussion, have each student select three items from the total list that he or she believes are the most likely causes of the problem. Have each student rank their selections. Students form groups to compile a list of causes. Allow groups to discuss which items from the list are most important. After the discussion, each group selects the three causes they thought were the most likely. Each student is allowed to vote three times. The votes are tallied to determine the top three choices. Each group prepares an argument to support the selection of the three causes and then presents its argument to the class. A whole class discussion follows the presentations to discuss the differences in the conclusions. Have each group decide how it would gather factual data to support its cause-effect selection. The plan should describe *what* data they would collect and *how* they would collect it.

As students become more comfortable using the Fish Bone, elicit discussions that encourage students to talk about why they made certain decisions, how they organized their thinking, and which parts of their thinking were more precise.

What Are The Benefits?
- / helps students organize their thoughts as they analyze causes and effects
- / provides opportunities for students to use evaluative thinking skills
- / requires students to listen to other ideas, synthesize information, and take a position on an issue

ESOL Strategy
In the Broward County Multicultural/Foreign Language/ESOL Department's *ESOL Instructional Matrix*, **Charts** is listed as B3 in the "Visuals: Graphic Organizers" section. The use of charts or other visual aids allow teachers to demonstrate relationships between ideas and concepts. Teachers should use visual displays in the lessons and assignments to support the oral or written message. The provision of additional contextual information in the form of a visual should make the comprehension task easier.

Information gathered from:
- Bellanca, James, *The Cooperative Think Tank: Graphic Organizers to Teach Thinking in the Cooperative Classroom*, © 1990 IRI/Skylight, Inc., Palatine, IL
- Bellanca, James and Robin Fogarty, *Blueprints For Thinking in the Cooperative Classroom*, © 1991 Skylight Publishing, Inc., Palatine, IL
- Bellanca, James & Robin Fogarty, *Catch Them Thinking: A Handbook of Classroom Strategies*, © 1986 IRI/Skylight, Inc., Palatine, IL
- *Multicultural-Foreign Language-ESOL Education Department Handbook*, School Board of Broward County, Florida

JIGSAW

What Is It?
Jigsaw is a cooperative learning strategy that enables each student of a group to specialize in one aspect of the learning unit. Students meet with members from other groups who are assigned the same aspect, and after mastering the material, return to the original group and teach the material to the group members .

How Do You Use It?
Students are divided into groups and each group member is assigned a section or a portion of the material selected for study. Next, each student meets with the member of other groups who have the same assigned section, forming a new group. This new group learns together, becomes an expert on their portion of the assigned material, and then plans how to teach the material to members of the original groups.

Students later return to their original groups, whose members are each now an expert in one of the different areas of the topic being studied, and teach their area of expertise to the other group members.

What Are The Benefits?
/ builds a depth of knowledge
/ discloses a student's own understanding and resolves misunderstanding
/ builds on conceptual understanding
/ develops teamwork and cooperative working skills
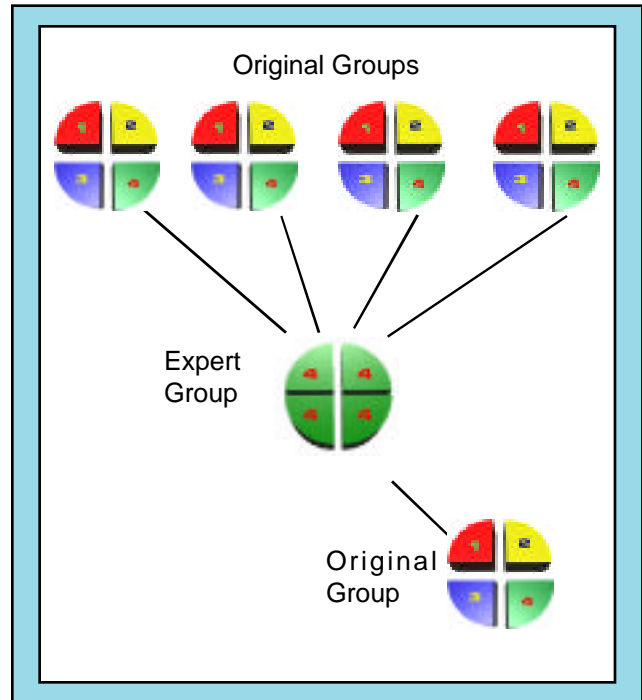
Original Groups

Expert Group

Original Group

ESOL Strategy
In the Broward County Multicultural/Foreign Language/ESOL Department's *ESOL Instructional Matrix*, **Jigsaw** is listed as C4 in the "Interactive Strategies Cooperative Learning Activities" section. Jigsaw is a cooperative learning strategy in which participants become "experts" about a topic or sub-topic, and share their learning within a group setting so that eventually all members learn the content. LEP students can learn the material much more effectively since they must also become teachers of the content they have learned.

K-W-L
Know—Want to Know—Learned

What Is It?

K-W-L is an introductory strategy that provides a structure for recalling what students know about a topic, noting what students want to know, and finally listing what has been learned and is yet to be learned.

K	W	L

How Do You Use It?

As students prepare to develop a project, the teacher lists on the board under the heading **K**, "What We **Know**" all the information students know or think they know about the topic. Then the teacher lists all the information students want to know about the topic under **W**, "What We **Want** to Know."

Students research and read background material on the topic, keeping in mind the information they had listed under "What We Want to Know."

After completing the activity, the students confirm the accuracy of what was listed and identify what they learned, contrasting it with what they wanted to know. The teacher lists what the students learned under **L**, "What We **Learned**."

What are the Benefits?

/ builds on prior knowledge
/ develops predicting skills
/ provides a structure for learning
/ develops research skills
/ develops communication skills in cooperative groups
/ strengthens teamwork skills

Modifications

Hill, et. al. (1998) have modified the K-W-L chart to include a fourth column at the end, W for "Further Wanderings." In their K-W-L-W chart, this column is for students to pose new questions they have as a result of their research. They also suggest that the first column be filled in individually first and then knowledge and questions from the entire class are pooled second. Throughout the unit, students add to the columns as they encounter new information. Different colored markers or pencils can be used to visually represent new learning. Margaret Mooney suggests adding a fifth column, H, (K-W-H-L-W) for "How" the students intend to gather the information once they've determined what they need to learn. The K-W-L chart (and its modifications) helps students organize their thoughts about a topic.

ESOL Strategy

In the Broward County Multicultural/Foreign Language/ESOL Department's *ESOL Instructional Matrix*, **K-W-L** is listed as D2 in the "Other Interactive Strategies" section. The K-W-L strategy allows students to take inventory of what they already know and what they want to know. Students can categorize information about the topic that they expect to use.
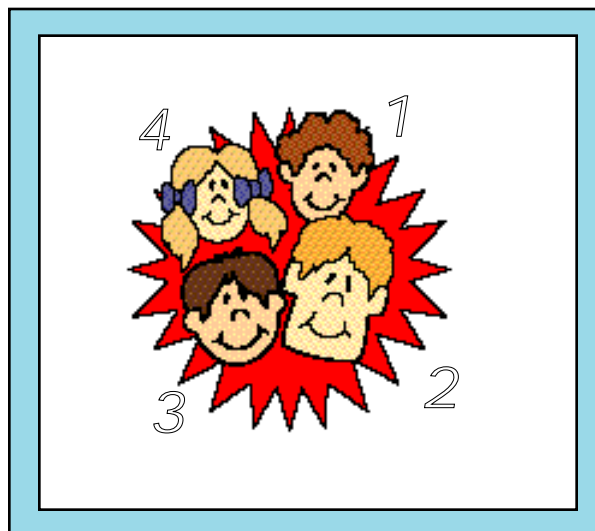

NUMBERED HEADS TOGETHER

What Is It?
Numbered Heads Together is a cooperative learning strategy in which students work together to ensure that each member of a group knows the correct answer to problems or questions asked by the teacher.

How Do You Use It?
Numbered Heads Together consists of four steps.
- Students number off.
  Each student of a group is assigned a different number. If the groups are not equal in number, one of the group members may have more than one number.
- Teacher poses a question.
  The question posed is usually formulated as a directive. Instead of asking, "What mathematical property is used to factor an equation?" the teacher says, "Put your heads together and name the mathematical property that is used to factor an equation."
- Heads together.
  Students in the groups talk to each other, literally putting their heads together. The members of the group check to ensure that everyone knows the answer.
  Teacher calls a number.
  The teacher calls a number at random and the student from each group with that number raises a hand. If each group does not have a hand raised, the teacher should allow more time for discussion among the groups. The teacher then selects one student to answer the question. If the answer is partially correct the teacher may ask, "Is there another Number One who can elaborate on that response?" As a convenience, the teacher may use an overhead spinner to select the number. The spinner frees the teacher from having to remember which numbers have been called.

A variation of Numbered Heads is to have all the students with the number selected come to the board at one time to record the answer, thus assuring that all the groups have the same correct response. If the question is a true-false question, the selected numbered students could respond with a thumbs up for true and a thumbs down for false.

ESOL Strategy
In the Broward County Multicultural/Foreign Language/ ESOL Department's *ESOL Instructional Matrix*, **Numbered Heads Together** would link to C2 in the "Interactive Strategies Cooperative Learning Activities" section. Using small cooperative groups provides students with home language assistance and opportunities to negotiate meaning in the development of second language communication skills in a non-threatening environment.

What Are The Benefits?
/ allows all students to be actively involved
/ fosters positive interdependence among groups
/ develops communication skills

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QUESTIONING STRATEGIES

What Is It?
Questioning Strategies is a teaching strategy to prompt thinking. Using questioning techniques in a variety of different contexts and according to a taxonomy of higher order thinking skills helps students develop the ability to reason.

How Is It Used?
Because of the multipurposes they serve, questions have always been considered the backbone of effective teaching. Teachers generally ask questions to ascertain whether students understand and remember what has been taught and to have students apply what they have learned. It is also important that teachers ask questions that require students to analyze, synthesize, and evaluate the information they are taught (See Bloom's Taxonomy). (By asking questions that inquire about why certain information seemed important, that request reasons, or that ask what inferences can be drawn, teachers invite students to use higher order thinking skills.) Studies show that students exposed to high cognitive level questions score significantly higher on standardized achievement tests than those students who have only been exposed to low order level questions.

The effective teacher will dramatically increase student involvement and interaction if, in addition to exposing students to critical thinking questions, the following strategies are part of the questioning technique.

- Remember "wait time"
  Wait 3-10 seconds after each question before calling on any responder.
  Wait 3-10 seconds after the last response before introducing a new question.
- Ask "follow-ups"
  Why? Do you agree? Can you elaborate? Can you give me an example? Could you summarize Ann's point?
- Call on students randomly
  Avoid always selecting those with raised hands.
- Establish eye contact and cue students' responses
  Let them know that there is not a single correct answer for some questions.
- Withhold judgement
  Respond to student answers in a non-evaluative manner.
- Allow student questioning
  Let students develop their own questions to further explore a topic.
- Move closer to a student who doesn't usually respond
  Encourage participation by your proximity.
- Value all responses
  If a student's response is incomplete, continue questioning or paraphrase the response and ask for clarification.

What Are The Benefits?
- promotes reflective thinking
- encourages differences in thought processes and learning styles
- allows time for the elaboration and development of ideas
- demonstrates that questions are not just "tests" for right answers but the means of understanding

Information gathered from:
- Bellanca, James and Robin Fogarty, *Catch Them Thinking: A Handbook of Classroom Strategies*, © 1986, Skylight Publishing, Inc., Palatine, IL
- Bellanca, James and Robin Fogarty, *Patterns For Thinking, Patterns For Transer*, © 1991, Skylight Publishing, Inc., Palatine, IL
- Schurr, Sandra, *Dynamite in the Classroom: A How-to Handbook for Teachers*, © 1989, National Middle School Association, Columbus, OH
- Schurr, Sandra, *Prescriptions for Success in Heterogeneous Classrooms*, © 1995, National Middle School Association, Columbus, OH
- Swartz, Robert and Sandra Parks, *Infusing the Teaching of Critical and Creative Thinking Into Content Instruction: A Lesson Design Handbook for the Elementary Grades*, © 1994, Critical Thinking Books and Software, Pacific Grove, CA

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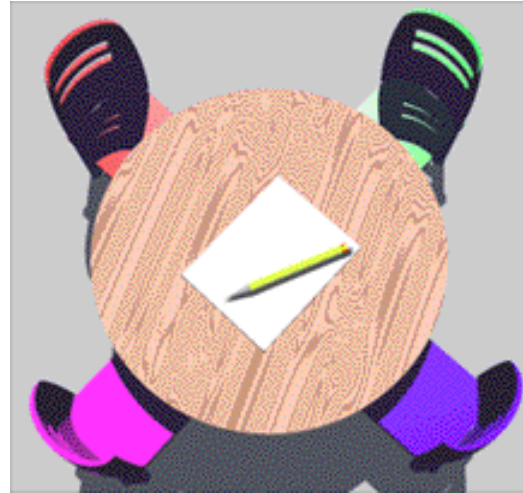
ROUND TABLE/ROUND ROBIN

What Is It?
Round Table and Round Robin are cooperative learning strategies in which students take turns contributing answers in a group. Round table is usually completed in written form; round robin in oral form.

How Do You Use It?
The teacher poses a question or a task that has many possible answers such as listing the items the settlers needed to make the trip West or all possible pairs of numbers that total a given number. In round table there is usually one piece of paper and one pen for each group. One student makes a contribution and then passes the paper and pen to the student seated to the left. The pen and paper literally go around the table. The teacher should monitor the groups to determine that they have adequate time to generate answers. Once the groups have completed the task, each group shares its collective responses with the whole class.

Round robin is an oral counterpart of round table. Students simply take turns stating answers or ideas, without recording them. Round robin can be used with children too young to write or when participation is the goal of the activity.

ESOL Strategy
In the Broward County Multicultural/Foreign Language/ESOL Department's *ESOL Instructional Matrix*, **Round Table/Round Robin** would link to C7 in the "Interactive Strategies Cooperative Learning Activities" section. Using this strategy, students can develop linguistic and academic skills simultaneously. The outcome of their work is both a reflection on how well the group functioned, and an academic assessment tool for the instructor.

What Are The Benefits?
/ allows all students to contribute answers
/ determines what students already know about a concept prior to its introduction
/ creates positive peer response groups
/ useful for reviewing material or practicing a skill

SCAMPER

What Is It?
SCAMPER is an acronym for a series of thinking processes. SCAMPER uses some key words as stimulators or "triggers" for new ideas to help students s-t-r-e-t-c-h their thinking.

How Is It Used?
To use the SCAMPER technique, begin with an open-ended question—one that calls for students to think of many new, and different ideas (e.g., product improvement task). With a particular idea in mind, have students think of ways to change it. The acronym stands for:

S   **Substitute**: What could be used instead?

C   **Combine:** What could be added?

A   **Adapt:** How can it be adjusted to suit a condition or purpose?

M   **Modify:** How can the color, shape or form be changed?
Magnify: How can it be made larger, stronger, or thicker?
Minify: How can it be made smaller, lighter, or shorter?

P   **Put to other use:** What else can it be used for other than the original intended purpose?

E   **Eliminate:** What can be removed or taken away from it?

R   **Reverse:** How can it be turned around or placed opposite its original position?
Rearrange: How can the pattern, order, or layout be changed?

S Substitute	C Combine	A Adapt	M Modify Magnify Minify	P Put To Other Uses	E Eliminate	R Reverse Rearrange

The words given for each letter are certainly not the only words, the "correct," or the "best" words that might be used. Other possibilities for each letter could be used.

When introducing SCAMPER with students, it is usually helpful to begin using only one or two of the letters at a time. It is not necessary to use the letters/words in the order they are listed. "P" (put to other uses) and "M" (modify, magnify or minify) are often successful starting points. Feel free to explore any possibilities that might be suggested by any of the words.

What Are The Benefits?
- encourages students to expand ideas or develop them into complete new possibilities
- fosters creativity when students have trouble coming up with ideas, or when all the ideas seem to be very similar
- helps students expand their observational skills and sharpen their five senses

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THINK/PAIR/SHARE

What Is It?
Think/Pair/Share is a strategy designed to provide students with "food for thought" on a given topic enabling them to formulate individual ideas and share these ideas with another student.

How Do You Use It?
In the Think/Pair/Share design of cooperative interaction, a teacher first poses a question or problem. After giving students sufficient wait time to think through a question and make some personal connections, the teacher instructs the students to form pairs and share their thinking with each other.

Think	**Pair**	**Share**

As students begin to share their ideas, each partner benefits from the other's perspective. A student's learning is enhanced by the articulation of an idea. It's one thing to think about an idea or opinion inside one's own head; it's quite another thing to explain that thinking to someone else. In the sharing, partner's retrace their words, search for telling examples, and clarify the fuzziness in their own thinking. If time allows, one pair of students may share ideas with another pair of students, making groups of four. Sufficient time for discussion and for all students to speak should be allowed.

Think/Pair/Share helps students develop conceptual understanding of a topic, develop the ability to filter information and draw conclusions, and develop the ability to consider other points of view.

ESOL Strategy
In the Broward County Multicultural/Foreign Language/ESOL Department's *ESOL Instructional Matrix*, **Think/Pair/Share** is listed as C6 in the "Interactive Strategies Cooperative Learning Activities" section. The Think/Pair/Share strategy is well suited to help students develop their own ideas as well as build on ideas that originated from co-learners. After reflecting on a topic, students form pairs and discuss, review, and revise their ideas, and eventually share them with the class.

What Are The Benefits?
/ easy to use in large classes
/ gives students time to reflect on course content
/ allows students time to rehearse and embellish information before sharing with a small group or entire class
/ fosters long-term retention of course content

Information gathered from:
- *Florida Curriculum Frameworks*, © 1996 State of Florida, Department of State
- *Multicultural-Foreign Language-ESOL Education Department Handbook*, School Board of Broward County, Florida
- Fogarty, Robin, *Designs for Cooperative Interactions,* © 1990 Skylight Publishing
- Forte, Imogene and Sandra Schurr, *Integrating Instruction in Math: Strategies, Activities, Projects, Tools, and Techniques,* © 1996 Incentive Publications, Inc., Nashville, TN

TIMELINES and SEQUENCE CHARTS

What Are They?
Timelines and Sequence Charts are graphic organizers that can be used to depict sequence and order in a variety of forms. All forms of sequencing involve the same basic process—putting one thing or idea after another according to certain criteria.

Timelines can be used to record and correlate events with given dates. Timelines are frequently featured in text materials to show events in chronological order. The development of cultures, history of countries, or events of a person's life are examples of topics that could be arranged in chronological order. Sequence charts can be used to sequence steps necessary to complete a task or solve a problem. Sequence charts are generally used when specific dates and times are not involved. Describing the process by which acid rain forms is an example of a task that could be organized using a sequence chart.

SEQUENCE CHART
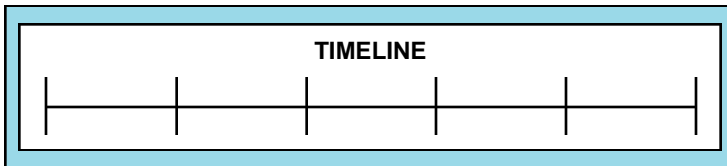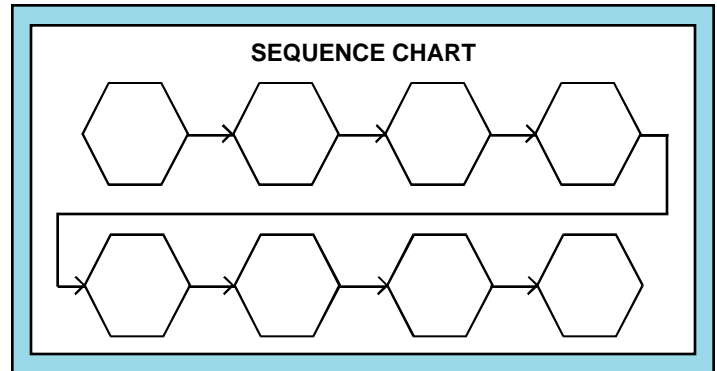
TIMELINE

How Do You Use Them?
To skillfully put items in order, students must first determine the purpose of the ordering and then select an ordering scheme that serves that purpose. For a timeline, students must decide the range (years, values, etc.) that the total timeline should cover, select appropriate intervals, and record the items on the timeline in sequential order. For a sequence chart, students must identify a problem to be solved or a task to be completed. Next, they brainstorm events or steps that lead to a solution of the problem or completion of the task. Students select the most important events (six or eight events), and place them in the organizer in sequential order. Once the items have been placed in the organizer, students should analyze the chart to interpret significant trends or conclusions suggested by the sequence.

What Are The Benefits?
/ helps students sequence a series of actions or tasks chronologically
/ requires students to determine the purpose and criteria for ordering
/ helps students analyze steps in a procedure according to cause-and-effect relationships

For more information on sequencing, see **FLOW CHART**.

ESOL Strategy
In the Broward County Multicultural/Foreign Language/ESOL Department's *ESOL Instructional Matrix*, **Timelines** are listed as B10 in the "Visuals: Graphic Organizers" section. This graphic organizer allows learners to organize sequential events chronologically, and also gives meaningful practice in the past and present tenses.

Information gathered from:
- Bellanca, James, *The Cooperative Think Tank: Graphic Organizers to Teach Thinking in the Cooperative Classroom*, © 1990 IRI/Skylight, Inc., Palatine, IL
- Bellanca, James and Robin Fogarty, *Catch Them Thinking: A Handbook of Classroom Strategies*, © 1986 IRI/Skylight, Inc., Palatine, IL
- *Multicultural-Foreign Language-ESOL Education Department Handbook*, School Board of Broward County, Florida
- Swartz, Robert J. and Sandra Parks, *Infusing the Teaching of Critical and Creative Thinking into Content Instruction*, Elementary Grades, © 1994 Critical Thinking Books & Software, Pacific Grove, CA
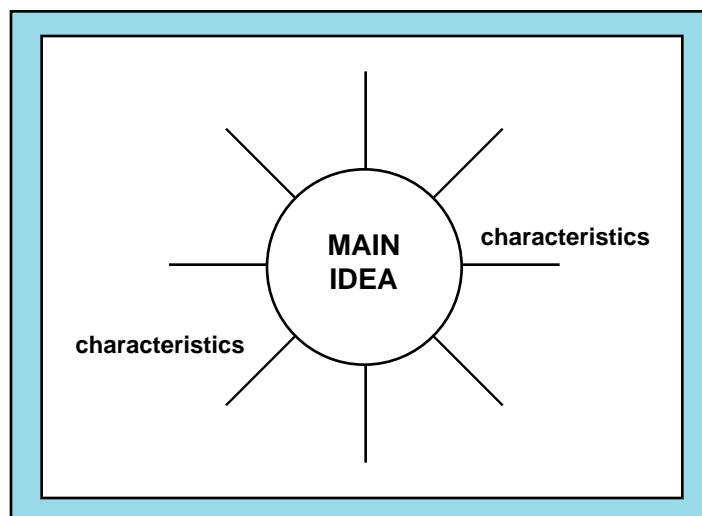
WEBBING

What Is It?
Webbing is a graphic organizer strategy that provides a visual picture of how words or phrases connect to an object, concept, or topic. As students determine the characteristics of an object or idea, they begin to define the object by classifying its characteristics. Students begin to understand how the object or idea is similar or different from others. Webbing helps students clarify concepts.

How Do You Use It?
In the center of the web, list an object or idea that students are to clarify. Students brainstorm words or phrases which describe the object. These are recorded on the spokes of the web. Webs can be used for both review of material already studied or for preview of upcoming material. Students can also use this strategy individually in planning their writing or in studying for a test.

What Are The Benefits?
/ provides opportunities for the visual learner to recall the characteristics of an object or idea and to make connections for later use
/ helps students use and share their prior knowledge
/ helps students identify patterns of information
/ provides students opportunities to think critically about an idea and determine its critical attributes

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ESOL Strategy

In the Broward County Multicultural/Foreign Language/ESOL Department's *ESOL Instructional Matrix*, **Semantic Webbing/Mapping** is listed as B6 in the "Visuals: Graphic Organizers" section. This strategy provides LEP students with a visual picture of how words or phrases connect to a concept or a topic. The instructor lists the target topic or concept, and builds a web-like structure (by circling and connecting the words) of words, phrases and verbs that students dictate as being connected with the central topic. Class discussion may follow, with the instructor as the facilitator, to argue against or to defend the perceived relationships of the dictated words to the topic, and eventually a consensus is reached as to what the class believes constitutes a "web" for that concept.