

NORTH AMERICAN DIVISION
Office of Education

Handbook



Integrated Units of Study Handbook
Grades 5-8
March 2004

ACKNOWLEDGMENTS

North American Division of Seventh-day Adventists

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INTRODUCTION

Definition

The North American Division Integrated Units of Study is an instructional model which integrates several curriculum subject areas around a central theme. Each unit in the program incorporates weekly topics, daily components, key points, inquiries, and social action. Rather than each subject being taught in a separate period, the content material correlates to the unit theme and is interwoven into each subject area.

Curriculum and Essential Learnings

Each unit integrates instruction in Directed Reading, Language Arts, Science, and Social Studies. Students also incorporate social skills development, character building, and service experiences throughout the unit. The North American Division Curriculum Guides provides the basis for instruction in these subjects. The essential learnings for grades 5-8 provide the instructional goals and objectives. Teachers should assess the prior knowledge of students and the skill level of the activity. Monitoring should continue throughout the year to assess the need for additional skill and/or content lessons. The essential learnings from the NAD Curriculum Guides are outlined at the beginning of each unit.

Role of Textbooks and Other Sources

The material presented in each unit forms the core of the Integrated Units Curriculum. North American Division adopted textbooks provide valuable resources and should be provided in the classroom. In addition, teachers are strongly encouraged to provide a variety of other source materials such as the Internet, e-mail, hypermedia, CD-ROMS, literature trade books, and newspapers.

START-UP and TEACHER ORGANIZATION

Board/Parent Involvement and Communication

Teachers desiring to incorporate the North American Division Integrated Units of Study into the curriculum should present the concept to the local school board and parents prior to implementing the program. School board and parental acceptance of the program is key to its success. The teacher should provide a rationale for adopting the program, describe the key components, provide an overview of a typical day's lesson, and explain the method of assessing student performance. One-on-one conferencing with parents and/or board members may be helpful in providing additional explanation and approval of this program. The teacher should not proceed with implementing this curriculum until there is significant buy-in by these two groups.

Pacing

This program is designed to utilize a $2\frac{1}{2}$ to 3 hour block of time each day. The first four days of a week are designed to include specific instructional lessons, assignments, and projects. On the fifth day, students should complete the previous four days' lessons, work on special projects or their portfolio, or complete other subjects.

Planning

The **unit overview** should provide the basis for planning the unit. Essential learnings and unit length will be covered in the unit overview. A description of the unit theme and community experience is also included in the overview. A **Materials List** which describes what additional materials are needed during the unit is also included in the overview. The **Portfolio Table of Contents** alerts the teacher as to what assignments will be included in the student portfolio.

Student Assignment Sheets provide direction for each day's lessons. The *Student Assignment Sheet* begins with a quotation that reinforces the unit theme. Some units include the Opening Slate which is a question that challenges students to respond to the unit theme and/or quotation of the day. Each day begins with a MUGS assignment which is a daily oral language exercise. The *Student Assignment Sheet* lists the assignment code, description, and date due. It also notes whether this assignment will be a part of the student portfolio. There is also a place for students to note when the individual assignment is completed. The *Student Assignment Sheet* should be copied and distributed to each student.

Each daily lesson includes lesson material that is directly related to the Student Assignment Sheet. These pages are designed to be copied and given directly to the student.

Teacher Key or Teacher Resource pages are marked with a key watermark. This provides a signal to the teacher that these pages are not to be reproduced for the student, but is for teacher use. The teacher key gives answers or possible



responses to student work pages. Teacher Resource pages are for teacher use in directed teaching instruction. Each daily lesson should be carefully studied to ensure proper use of each assignment.

Teacher Resources are items the teacher may wish to have on hand for his/her own reference. Essential resources include the following:

Covey, Sean, The 7 Habits of Highly Effective Teens: The Ultimate Teenage Success Guide, Simon and Schuster, 1998.

Kagan, Spencer, Cooperative Learning, Resources for Teachers, Inc. 1994.

Marzano, Robert J. and Debra J. Pickering, Dimensions of Learning Teacher's Manual, 2nd edition, Association for Supervision and Curriculum Development, 1998.

Sebranek, Patricia, Verne Meyer, and Dave Kemper, Write Source 2000, Write Source, 1995.

Management of Time & Materials

In addition to providing time for completion of the Student Assignment Sheet, the teacher needs to provide time each day for students to manage their personal reading log, for the class to listen to the read-aloud book, and for students to complete the journal assignment. A brief description of each item is provided below:

Reading Log: Literature trade-books linked with the unit theme will be incorporated into the instruction. The teacher will need to have a selection of these on hand for student use. The first lesson of each unit will include suggested trade-book titles. The teacher may include additional books that relate to the unit theme.

Students will record silent reading time in their Personal Reading Log. A sample format is included in the Appendix p. 58. The teacher may want to have each student design a cover for the Personal Reading Log.

A 15-20 minute block of time should be provided each day for students to complete the silent reading activities. Throughout the unit, the Student Assignment Sheet includes a Reading Log Check to remind students to record silent reading time. Students will need the Personal Reading Log for the portfolio assignment at the end of the unit. The reading log will serve as a reference for students as they write the Reflection Summary connecting the reading to the unit theme.

Read-Aloud Book: Each teacher should select a book to read aloud to the students at the beginning of each unit. There should be a brief description given to the students as to why the book was chosen and how it is linked to the unit theme. Approximately 15 minutes per day should be devoted to the read aloud activity. The teacher should end the read aloud activity by utilizing different techniques that will allow the students to discuss and share a summary of the day's reading.

Journal Writing: Most daily Student Assignment Sheets end with a journal activity. The activity will link the daily topic to a journal writing activity. The teacher should make provision for some type of book for the students to use for journal writing. The journal should be used for individual, reflective comments to the teacher. The teacher may wish to write a response to these comments.

Saving Student Work throughout the unit is an important management component of the program. The student may wish to include work completed throughout the unit in his/her Portfolio. Suggested methods for saving student work includes file-folders, boxes, or a notebook. The student's literature trade-book, reading log, and journal will also need to be stored.

SUBJECT INTEGRATION & OVERVIEW

Unit Themes (Units available as of March 2004)

Each unit integrates instruction around a common theme. The teacher is encouraged to introduce the unit theme to the students in a meaningful way.

Jump Start provides an introduction to the type of learning students encounter in the Integrated Units Program. The learning methods used, portfolio creation and presentation, and assessments are introduced and practiced. Throughout this mini-unit, students will learn the skills necessary to use the program in a meaningful way.

Tell Me a Story is designed to study the empowering effect of literacy on the individual's ability to make informed life decisions and to manage his/her own learning most effectively. Students will examine significant writings, historical and religious, to develop a first-hand appreciation for the beauty and power of meaningful written language.

Loaves and Fishes leads students to probe the issues contributing to hunger. Students will explore food production, food distribution and nutrition as it relates to feeding the world's population. The causes and effects of politics, environment, and diet will be analyzed. Through the community experience, students will be encouraged to make a positive contribution to the problem of world hunger.

Make It Count explores Biblical principles for decision making. Focus will be given to responsible choices and management of natural abilities, finances, and personal energy. Students will begin to discover their spiritual gifts, write a mission statement, wellness summary, and family budget - all leading to a personal life plan.

Earth Guard focuses on Christian Stewardship in the use and preservation of natural resources. This will be facilitated by the focused study of natural biomes at the local, national, and global levels. The unit highlights the interrelationship of human society and the environment.

SOS is a study of natural disasters. In addition to the exploring this topic from the scientific view, students will increase their knowledge of world geography and the impact of disasters on the worlds economy. The work of the Adventist Church through ADRA is emphasized in this unit. Students will apply their understanding of disasters through their involvement in a creative summary activity.

Movers and Shakers offers students the opportunity to learn about the characteristics and leadership qualities in people that make a difference in the world. The people studied have made a variety of contributions to society, explorers, scientists, humanitarians, political leaders, and social reformers. The final week of the unit will be spent looking closely at the leadership qualities of Jesus and what He expects of His followers.

Directed Reading

Each unit is infused with directed reading activities. There are basically seven types of reading activities involved in each unit:

Teacher Selected Literature Book is chosen by the teacher and linked to the unit theme. It is read aloud by the teacher with a brief class discussion following the reading. The teacher varies the discussion technique (Think-Square-Share, 3 Minute Pause, Random Call, etc.)

Student Selected Literature Book is chosen by the student and linked to the unit theme. The teacher provides a selection of appropriate books selected from the school library, classroom library, or public library. Each unit has a suggested literature list. The students choose a book of interest and read it silently when directed to do so by the teacher.

Personal Reading Log (Appendix p. 52) is where student's log silent reading progress. The teacher periodically checks the log to monitor student progress throughout the unit. This is a part of the unit portfolio.

Directed Reading Selections are taken from either the Seventh-day Adventist *Life Reading Series* or current publications. They are linked to the unit theme.

Directed Reading Responses are usually in the form of comprehension questions, but may also develop specific skills listed in the curriculum guide.

Literature Circle is where students discuss the directed reading assignment in groups. Each person in the group performs a certain designated role.

Literature Circle Response is the individual activities students complete after participation in the Literature Circle discussion.

The rationale for including each of the above elements in the Integrated Units program is found in research data concerning reading instruction. "Teachers should provide a balance among large group, small group, partner, and individual activities. Students should be provided with a schedule that allows for the following: planning time, work periods, story time, silent reading time, journal/log writing, evaluation time, writing workshops, discussion haring time, review time." (Macon, Bewell, and Vogt, *Responses to Literature, International Reading Association, Inc.*, 1991)

Language Arts

Each day's lesson begins with a language arts daily oral language activity. This activity is called MUGS and stands for *Mechanics, Usage, Grammar Sentences*. The students should begin each day by completing this activity.

Language Arts Focus (LAF) lessons are provided throughout each unit. Lessons include various aspects of the writing process, developing interviewing skills, drama, grammar, research, and poetry. Several lessons include **Journal** writing. Each student should have a journal for the completion of these activities.

Science and Social Studies

Science lessons cover plants, weather, the scientific process, health and the environment. Social Studies lessons include United States history and geography, citizenship, world cultures, and physical geography. A hands-on, research based approached is utilized.

Social Skills Development

Social skills are developed throughout each unit by the use of Christ-like Quality (CLQ) and, incorporated with a few units, Habit of Mind (HOM).

Christ-Like Quality provides lessons on social skill development. Skills necessary for working successfully in groups and independently are emphasized.

Habit of Mind, based on *The 7 Habits of Highly Effective Teens: The Ultimate Teenage Success Guide* by Sean Covey, seeks to encourage students to improve their self-image, make character-building choices, deal with peer pressure, achieve their life goals, etc.

Community Experience

The community experience activities provide opportunities for students to create and implement Christian-service outreach projects. This student-centered approach to community service encourages students to make Christian service a life-long, integral part of their lives.

Teaching Techniques

A wide-variety of teaching techniques form the basis for learning in the integrated units program. Focus on cooperative learning, small group activities predominates. *Jump Start* provides introduction to the teaching techniques to both the teacher and students. A brief description of each technique is provided in this handbook. A fuller description and accompanying materials are included in the Appendix for many of these techniques.

Brainstorming is a group problem-solving technique that involves the spontaneous contribution of ideas from all members of the group. All ideas are to be accepted without value judgement. 4S Brainstorming (Appendix p. 25) is a common teaching technique.

Concept Attainment (Appendix p. 27-29) is where students are given a set a attributes that are used to sort a set of exemplars into subsets.

Concept Formation (Appendix p. 30) is where students identify items that belong together from a teacher provided data set. The group records the name for each category, the items in the category, and the attributes for each category.

Continuum: Students are presented with two opposite viewpoints or choices and select the place on the continuum - between the choices - which most clearly represents their personal view.

Cooperative Learning (Appendix p. 32-33) is a teaching technique that is built upon 6 key concepts. First, students are in small teams that allow equal, active participation in the learning experience. Second, students have the will to cooperate. Third, the teacher uses management tools that encourage a smooth

running cooperative classroom. Fourth, Students learn social skills that will allow them to work together effectively. Fifth, the PIES principles are followed: Positive Interdependence, Individual Accountability, Equal Participation, and Simultaneous Interaction. Sixth, instructional strategies prescribe how students interact over the content. (Adapted from Spencer Kagan, *Cooperative Learning*, Resources for Teachers, Inc. 1994)

Simple cooperative learning strategies include:

Corners: Students pick a corner, write its number, go there, interact with others at the same corner choice in a teacher-specified manner. (Appendix p. 34)

Jigsaw Problem Solving: Each team member has a portion of the answer and must put information together to solve the problem. (Appendix p. 35)

Numbered Heads Together: Students interact to ensure that all in team have proper answer. Teacher calls a number and student with that number responds to the question. (Appendix p. 50)

Pairs: Students work in pairs to generate ideas or answers. (Appendix p. 51)

Rally Table: Students working in pairs take turns writing, drawing, pasting, etc. (Appendix p. 57)

Rotating Review: Team members discuss topic, chart their thoughts; rotate to next chart to discuss and chart thoughts. (Appendix p. 61)

Roundtable: Team members take turns talking. (Appendix p. 62)

Teams Game Tournament (TGT): Game where students work in groups to answer questions. (Appendix p. 73-76)

Think-Pair-Share (TPS): Students think about response to a question, discuss that answer in pairs, and then share either their own or partner's answer with class. (Appendix p. 77)

Think-Pair-Square (TPSq): Substituting team discussion for the last step of a Think-Pair-Share. Students think about response to a question, discuss answer in pairs, and then share in the group. (Appendix p. 77)

Think-Square-Share (TSqS): Students share answers with teammates rather than with the class as in TPS. (Appendix p. 77)

Either-Or: Students are forced to choose between two alternatives.

Graphic Organizers are visual frames that represent and organize learning information. Graphic organizers feature visual and active learning while stretching students thinking skills.

Concept Mapping: Graphic organizer that shows the relationships among concepts. (Appendix p. 14)

T-Chart: Chart where students describe concept by "looks like" and "sounds like" comparisons. Other comparison terms may be used. (Appendix p. 65-68)

Venn Diagram: Comparison/Contrast organizers where like details from different concepts are visually intersected. (Appendix p. 78)

Webbing: Graphic organizer strategy that provides a visual picture of how words or phrases connect to a topic. (Appendix p. 79)

Human Bar Graph: Students physically line up next to the area in which they fit.

Know/Want to Know/Learn (KWL): Students respond to these three questions: What do I know? What do I want to know? What did I learn?

Know/Learn/Difference (KLD): Students respond to these three questions: What do I know? What did I learn? What difference did I make?

Random Call: The teacher selects students at random to respond to questions.

Ranking: Students rearrange three or more possible choices in order of preference or priority.

Rhyming Peg Word: A simple system used to remember information that is or can be organized in a list format. (Appendix p. 60)

Scientific Method: A method for the testing of scientific theory. (Appendix p. 64)

Taba Inductive Strategy: Teaching strategy for the inductive thinking process includes concept formation, interpretation of data, and application of principles. (Appendix p. 69-72)

Voting is used in values discussions. Students respond with a thumbs-up or thumbs-down to a statement. Then random call is used to give students the opportunity to explain why they voted the way they did.

TECHNOLOGY

Many activities in the Integrated Units Curriculum are designed to be used with current technology, i.e. e-mail, Internet, CD-Rom, and hypermedia software. If these technologies are not available in the classroom the teacher will need to provide alternative methods for students to complete the activities.

ASSESSMENT

Assessing Progress

Teachers are to monitor student progress closely throughout the year. Student work will be assessed on a regular basis, using a variety of tools, such as authentic assessment, rubrics, portfolios, journals, and objective teaching.

Authentic Assessment

Assessment that allows students to demonstrate learned skills in a real-life situation. An authentic assessment of a student's letter-writing ability might be having the student write a letter to his/her grandparent.

Grading

These units of study allow teachers to utilize a wide-variety of grading systems. The teacher may choose pass/fail, satisfactory/needs improvement/unsatisfactory or the letter grade system. The teacher must determine the performance criteria for whatever grading system is utilized. A weighted rubric for translating portfolios items into letter grades is included in the appendix.



Rubrics

Rubrics are a list of criteria to use for assessment when an artifact cannot be assessed objectively. Student performance can usually be increased by allowing them to see the rubric before starting the project.

Student Portfolios

Students create a portfolio for each unit. This portfolio is a collection of artifacts that demonstrate learning growth in a wide variety of skills throughout a time period. Portfolios usually contain student work chosen by both the student and teacher and include a reflection sheet on the chosen artifacts. Each unit has a Portfolio Sheet that identifies items to be included in the student portfolio. Students should be encouraged to create a portfolio that is a reflection of his/her work and demonstrates personal creativity in the creation of the portfolio.

GLOSSARY

ACRONYMS

ADRA	Adventist Development and Relief Agency
CE	Community Experience
CLQ	Christ-like Quality
GO	Graphic Organizer
HOM	Habit of Mind
IMR	Infant Mortality Rate
KLD	What do I know ? What did I learn ? What difference did I make?
KWL	What do I know ? What do I want to know? What did I learn ?
LAF	Language Arts Focus
LSI	Learning Styles Inventory
MUGS	Mechanics, Usage, Grammar Sentences
RS	Rubric Score
TGT	Teams Game Tournament
TPS	Think-Pair-Share
TPSq	Think-Pair-Square
TSqS	Think-Square-Share
TW	Time Waster
UNICEF	United National International Children's Emergency Fund
WBF	(LF-5C)****Please look up in student assignment
WML	Weekly Materials Link

Artifact is anything - an assignment, photograph, video, project, etc., - that demonstrates competence in a specific task. Students should save multiple artifacts in order to have a large selection to choose for the portfolio.

Authentic Assessment demonstrates the student's ability to apply what they have learned to real-world situations.

Brainstorming is a group problem-solving technique that involves the spontaneous contribution of ideas from all members of the group. All ideas are to be accepted without value judgement.

Bridge Statement links one activity to another.

Concept Attainment is where students are given a set of attributes that are used to sort a set of exemplars into subsets. (Appendix p. 27-29)

Concept Formation is where students identify items that belong together from a teacher provided data set. The group records the name for each category, the items in the category, and the attributes for each category. (Appendix p. 30)

Concept Mapping: Graphic organizer that shows the relationships among concepts. (Appendix p. 31)

Continuum: Students are presented with two opposite viewpoints or choices and select the place on the continuum - between the choices - which most clearly represents their personal view.

Cooperative Learning is a teaching technique that is built upon 6 key concepts. First, students are in small teams that allow equal, active participation in the learning experience. Second, students have the will to cooperate. Third, the teacher uses management tools that encourage a smooth running cooperative classroom. Fourth, Students learn social skills that will allow them to work together effectively. Fifth, the PIES principles are followed: Positive Interdependence, Individual Accountability, Equal Participation, and Simultaneous Interaction. Sixth, instructional strategies prescribe how students interact over the content. (Appendix p. 32-33)

Corners: Students pick a corner, write its number, go there, interact with others at the same corner choice in a teacher-specified manner. (Appendix p. 34)

Daily Components: Each daily lesson is composed of various parts that relate to the theme. Examples include MUGS, CLQ, HOM, Community Experience, Directed Reading, Journal, Language Arts Focus, Processing, Science, and Social Studies.

Either-Or: Students are forced to choose between two alternatives.

Graphic Organizers are visual frames that represent and organize learning information. They feature visual & active learning while stretching thinking skills.

Human Bar Graph: Students physically line up next to the area in which they fit.

Jigsaw Problem Solving: Each team member has a portion of the answer and must put information together to solve the problem. (Appendix p. 35)

Journal is used for personal reflections and comments between the teacher and students. Student writes a response to a specific question or topic. The teacher may wish to respond to the student's writing. The teacher determines the journal style. Journal options may be specific or general. (Appendix p. 36)

Know/Learn/Difference (KLD): Students respond to these three questions: What do I know? What did I learn? What difference did I make?

Literature Circle: Small, temporary discussion groups who are responding to the same story, poem, article, or book. Prior to reading, each member is assigned a specific responsibility for the upcoming discussion and take notes while reading that relate to that responsibility. The Literature Circle has regular meetings with discussion roles rotating each session. Circle members plan to share highlights of their reading with the wider class community upon completion of the section.

Note Taking (Cornell Method): Student folds a sheet of notebook paper in half, length wise. Notes are taken in the left-hand column. Student writes a question based on the notes in the right-hand column. Student studies by folding notes under, asking self the questions, and then checking.

Numbered Heads Together: Students interact to ensure that all in team have proper answer. Teacher calls a number and student with that number responds to the question. (Appendix p. 50)

Pairs: Students work in pairs to generate ideas or answers. (Appendix p. 51)

Portfolio is a collection of artifacts that demonstrates learning growth in a wide variety of skills throughout a specified time period. Artifacts are chosen by both the teacher and student. Reflection sheets are created for the artifacts included in the portfolio. (Appendix p. 53-54)

Rally Table: Students working in pairs take turns writing, drawing, pasting, etc. (Appendix p. 57)

Random Call: The teacher selects students at random to respond to questions. (Appendix p. 58)

Ranking: Students rearrange three or more possible choices in order of preference or priority.

Read Aloud Book is a book chosen by the teacher and read aloud to the class by the teacher. It should be related to the unit theme.

Readers Theater is adapting a story to be read aloud in parts. It is similar to a play, but there are no movements, costumes, or sets. Choral reading is generally included. The narrator part can be read together by those without other specific parts.

Rhyming Peg Word: A simple system used to remember information that is or can be organized in a list format. (Appendix p. 60)

Rotating Review: Team members discuss topic, chart their thoughts; rotate to next chart to discuss and chart thoughts. (Appendix p. 61)

Roundtable: Team members take turns talking. (Appendix p. 62)

Rubrics are a list of criteria to use for assessment when an artifact cannot be assessed objectively. Student performance can usually be increased by allowing them to see the rubric before starting the project. (Appendix p. 63)

Scientific Method is a method for testing the scientific theory. (Appendix p. 64)

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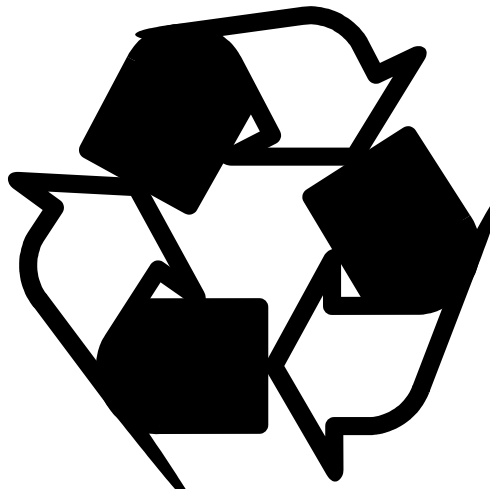
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Venn Diagram: Comparison/Contrast organizers where like details from different concepts are visually intersected. (Appendix p. 78)

Voting is used in values discussions. Students respond with a thumbs-up or thumbs-down to a statement. Then random call is used to give students the opportunity to explain why they voted the way they did.

Webbing: Graphic organizer strategy that provides a visual picture of how words or phrases connect to a topic. (Appendix p. 79)

APPENDIX



4S Brainstorming

Cooperative Learning Strategy

Brainstorming releases creativity by removing impediments to creative thinking. In 4S Brainstorming, each student is assigned a role and corresponding function. Ideas should be recorded in a way that lets students see and build on each other's ideas. Student roles include:

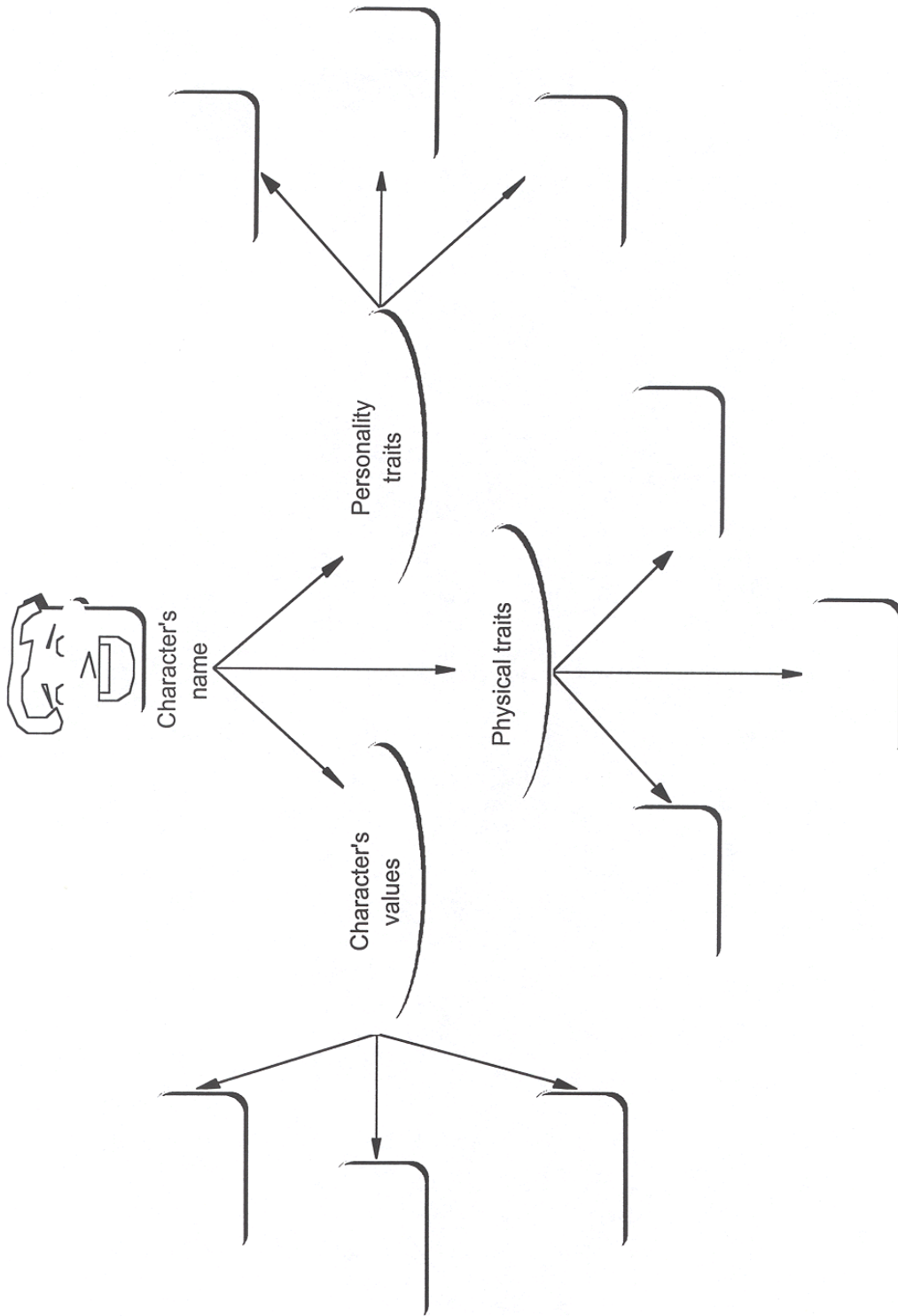
Speed Captain puts on the time pressure. He/she says things like, "Let's get more," "Let's hurry."

Super Supporter makes sure all ideas are encouraged with no evaluation of ideas. The Super Supporter says things like, "All ideas are great; Another fantastic idea."

Silly Chief encourages the inclusion of silly ideas. Silly ideas help in the flow of ideas, keeps the tone creative, and increases the range of ideas. The silly idea can lead to an idea which is a part of the final solution. The Silly Chief may say something like, "Let's have a crazy idea."

Synergy Guru encourages teammates to build on each others ideas. The Synergy Guru says things like, "Let's combine those two," or "Let's change that one to"

Character Map Graphic Organizer



Concept Attainment

Students are given a set of attributes that are used to sort a set of examples into subsets. Exemplars should be examined one at a time and sorted one attribute at a time.

For instance, a student is given a list of animals: lizards, fish, and birds. The attributes are: has hair, is a carnivore, has good night vision, frequently lives in a house with people. If the exemplars are lions, cats, cows, dogs, horses, whales, lizards, snakes, goldfish, parrots, parakeets, then "has hair" sorts into dogs, cats, lions, whales. Adding "is a carnivore" sorts into cats, lions, and dogs. Adding "has good night vision" sorts into cats and lions, while "frequently lives in a house with people" would include dogs and cats. The only animal on this list that has all four attributes is the cat.

Depending on the length of the list students may discover more attributes or discover a category.

Concept Attainment Recording Sheet

Name: _____

Date: _____

1. I think the positive exemplars have the following attributes:

- | | |
|----------|----------|
| A. _____ | E. _____ |
| B. _____ | F. _____ |
| C. _____ | G. _____ |
| D. _____ | H. _____ |

2. My team thinks that the positive exemplars have the following attributes:

- | | |
|----------|----------|
| A. _____ | H. _____ |
| B. _____ | I. _____ |
| C. _____ | J. _____ |
| D. _____ | L. _____ |
| E. _____ | M. _____ |
| F. _____ | N. _____ |

3. What is the rule for the concept: _____

4. Name the concept: _____

Concept Attainment Recording Sheet

Page 2

5. Find 5 examples of this concept and write them here:

6. Make 5 original examples:

7. Meet with a team member and have them read your original examples and evaluate them to see if they contain the critical attributes of your concept.

Concept Formation

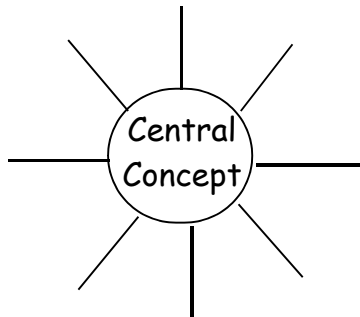
Student Assignment Sheet

- Review the data set that has been provided by your teacher. (On occasion you may be asked to brainstorm your own data set, but this is not done often.)
- Write down the instructions from the teacher. The teacher will provide the guidelines and limitations for the classification task. This will include:
 - ▶ The number of groups to form.
 - ▶ A minimum amount of items for each group.
 - ▶ The number of attributes for each group. (Remember that attributes are the reasons to place an item into a specific group.)
- Begin the classification process. Start by identifying two or three items that “belong” together. These may change, but it gets your group started. Be sure to keep track of the attributes for each group as you classify.
- Record the following information:
 - ▶ The name for each category.
 - ▶ The items in each category.
 - ▶ The attributes for each category.
- Be prepared to share your work with the classroom.
- Evaluate your classification skills using the evaluation form provided by the teacher.
- Be prepared to have your work evaluated by the teacher. This does not happen each time, but you do not know at the beginning if this is the time.

Concept Map

Graphic Organizer Strategy

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. The teacher selects the main idea. Then the teacher and students identify a set of concepts associated with the main idea. Concepts are ranked in related groups from most general to most specific. Related concepts are connected and the links labeled with verbs or short phrases.



Cooperative Learning

Cooperative Learning is a teaching technique that is built upon 6 key concepts. First, students are in small teams that allow equal, active participation in the learning experience. Second, students have the will to cooperate. Third, the teacher uses management tools that encourage a smooth running cooperative classroom. Fourth, students learn social skills that will allow them to work together effectively. Fifth, the PIES principles are followed: Positive Interdependence, Individual Accountability, Equal Participation, and Simultaneous Interaction. Sixth, instructional strategies prescribe how students interact over the content.

Each person in a cooperative learning group has a specific responsibility (or job). These jobs may include: Materials Manager, Reader, Checker, Recorder, Coach, Encourager. The teacher may want to use the Cooperative Group Job Cards on the following page to assist in distributing cooperative group jobs.

There are many cooperative learning strategies described throughout this handbook. Please review the handbook and/or appendix for descriptions of the specific strategies.

Cooperative Learning - 2

Cooperative Group Job Cards

MATERIALS MANAGER <ul style="list-style-type: none">• Gather all research books and other supplies	READER <ul style="list-style-type: none">• Read information from resources aloud to the group.• Check to be sure everyone is listening.
CHECKER <ul style="list-style-type: none">• Check to be sure that all members agree on the group's answer or information selected for a project.• Make sure that each member can explain the answer or information and tell why it was selected.	RECORDER <ul style="list-style-type: none">• Fill out any forms.• Write information as group members dictate
COACH <ul style="list-style-type: none">• Check to be sure that everyone agrees on the instructions, asking for help if there's a disagreement.• See that all members have an equal chance to participate and don't waste time.	ENCOURAGER <ul style="list-style-type: none">• Give lots of praise and encouragement to members as group works.

Corners

Cooperative Learning Strategy

This technique allows students to know and accept themselves and others more. Any individual difference can be the focus. Students go to the corner of the room representing their choice, share reasons for their choice with a partner in the corner, and play a paraphrase game where they listen carefully to the reasons of the other groups in order to carefully paraphrase them.

1. **Announce corners.** Teacher presents the question with four possible answers. Teacher announces which corner students should go to for each answer.
2. **Think and Write Time.** Students have time to clarify for themselves their preference. Students write the number of their preferred corner on a slip of paper.
3. **Students Group in Corners.** Students move to preferred corner and pair with another student to discuss reason for preference. Students then get in groups of four within the corner and paraphrase partner from paired listening. Teacher asks students from one corner to tell the whole class reasons for that choice, until each corner has a chance to share.
4. **Students Paraphrase.** Each corner paraphrases the other three corners reasons for choosing their corner.
5. **Teams Review.** Students return to cooperative group teams and each team is called upon to identify reasons supporting each group's choice.

Jigsaw Problem Solving

Cooperative Learning Strategy

This is a cooperative learning strategy in which everyone becomes an “expert” and shares his or her learning so that eventually all group members know the content.

The students in each group should:

1. Read the material they have been assigned.
2. Determine the most important pieces of information in the material.
3. Decide how to teach fellow team members about the information and the most important points in it.
4. Teach team members. Members should be allotted an equal amount of time to teach their portion of the material.
5. Be prepared for an assessment activity to be given by the teacher.

Expert Jigsaw Problem Solving

The students in each group should:

1. Read the assigned material.
2. Determine the most important pieces of information.
3. Decide how to teach fellow team members the information and important points.
4. Form *expert* groups. The student teams up with those from other teams who have been assigned the same material to review and work together on number 3. Each will then return to team and teach team members.
5. Return from *expert* groups and teach team members material student is responsible for.
6. Be prepared for an assessment activity to be given by the teacher.

Additional jigsaw options are included in Spencer Kagan's *Cooperative Learning*, Resources for Teachers, Inc. 1994.



Journal Options

1. Answer the following three questions:
 - ▶ What went well today?
 - ▶ What didn't go well today?
 - ▶ What would you do differently?
2. What was the most amazing or interesting thing you learned today? Why?
3. When you open your "memory time capsule" in the future, what will you remember from today? Why?
4. Create a graphic organizer which synthesizes (pulls together) all of your learning from today.
5. Answer the following three questions:
 - ▶ What worked well in your group today?
 - ▶ What didn't work well?
 - ▶ What can you do to help your group work more effectively?
6. Compose a greeting for your answering machine that reflects on of the Christ-Like Qualities or Habit of Mind.
7. How do the current lessons make you feel connected to other people around the world?

Literature Circle Jobs

Any or all of these jobs may be used in a Literature Circle. Sample guide sheets are included in the following pages.

<p>ILLUSTRATOR: The illustrator draws a sketch, cartoon, diagram, flow chart, or stick-figure scene. This can be of something that's discussed specifically in the book or of something that the reading reminded you. It can even have word labels. This will then be shown to the group so that they can connect it to the reading.</p>	<p>DISCUSSION DIRECTOR: This job is to develop a list of questions that the group might discuss about the reading for the week. These questions should help people talk over the big ideas and share their thoughts and reactions.</p>
<p>ARTFUL ARTIST: The artist's job is to make a representation, even three dimensional, of a character, setting, problem, exciting event, surprising element, animal, or your idea of what happens next. This will be shared with the group.</p>	<p>LITERARY LUMINARY: The luminary locates a few special sections of the reading that would sound well read aloud and that might motivate people to want to read the selection.</p>
<p>PASSAGE MASTER: The passage master picks parts of the reading that he thinks should be revisited through reading aloud. He should tell why he chose the part.</p>	<p>INVESTIGATOR: The investigator digs up some background information on any topic related to the reading, such as the geography, culture, or history of the setting, biographical information on the author, etc.</p>
<p>WORDSMITH: The wordsmith looks for special words in the story. These words may be new, interesting, different, strange, colorful, unique, etc. The group will later discuss the words that were chosen.</p>	<p>TRAVEL TRACER: The travel tracer tracks carefully where the action takes place during the reading, including the setting. He may want to make a graphic or map.</p>
<p>CONNECTOR: The connector finds connections between his/her reading and the world he/she lives in. This means connecting the reading to his/her own life, the happenings in the school, or community.</p>	<p>SUMMARIZER: The summarizer prepares a brief summary of the reading. He should give a quick two minute statement giving the key points, highlights, or main ideas.</p>

Literature Circle Jobs - 2

Artful Artist

Name: _____

Reading: _____

Date of Circle: _____

Your job is to draw anything about the story that you liked. It doesn't have to be a literal interpretation of the story, it can be related to your thoughts as you read. You can also choose to create a three-dimensional representation, but remember your time limitations. You can choose from these ideas or one of your own devising:

- | | |
|------------------------|--|
| ✓ A character | ✓ A problem |
| ✓ An exciting event | ✓ An animal |
| ✓ The setting | ✓ Your idea of what happens next
(after the end of the reading) |
| ✓ A surprising element | |

Create your work on a separate piece of paper and use any necessary materials. Think outside of the box.

When your group reconvenes, allow each member to share what your work makes them think, or the connections to the reading they see in your work. When each has had the opportunity to share, you can share with them your thoughts behind the work.

Literature Circle Jobs - 3

Connector

Name: _____

Reading: _____

Date of Circle: _____

Your job is to find connections between your reading and the world you live in. This means connecting the reading to your own life, to the happenings around the school or in your community, to similar events at other times and places, to other people or problems that you are reminded of. You might also see connections between this reading and other writings on the same topic, or by the same author. There are no right answers here - whatever the reading connects **you** with is worth sharing.

Some connections I found between the reading and other people, places, events, and/or authors:

1. _____

2. _____

3. _____

Literature Circle Jobs - 4

Discussion Director

Name: _____

Reading: _____

Date of Circle: _____

Your job is to develop a list of questions that your group might discuss about the reading for the week. Don't worry about the small details: your task is to help people talk over the big ideas in the reading and share their thoughts and feelings, and concerns as you read. List possible questions below, during or after your reading or you may use some of the general questions to develop topics for your group.

Possible discussion questions or topics for today:

1. Why question: _____
2. What question: _____
3. How question: _____
4. What if question: _____
5. What would you do . . . _____
6. _____

General Questions:

- ◆ What was going through your mind while you read this?
- ◆ How did you feel about the main character in the reading?
- ◆ What were the moral or value elements at the core of the reading?
- ◆ Can someone summarize the reading briefly?
- ◆ Did the reading remind you of any real life experiences?
- ◆ Did you find yourself relating to any of the characters in the reading?
- ◆ What questions did the reading generate in your mind?
- ◆ List the three most important elements/events in the reading.

Literature Circle Jobs - 5

Illustrator

Name: _____

Reading: _____

Date of Circle: _____

Your job is to draw some kind of picture related to the reading. It can be a sketch, cartoon, diagram, flow chart, or stick-figure scene. You can draw a picture of something that's discussed specifically in your book, or something that the reading reminded you of, or a picture that conveys the message of the reading. Any kind of drawing or graphic is okay - you can even label things with words if that helps. **Make your drawing on a separate sheet of paper.**

Presentation Plan: When the Discussion Director invites your participation, you may show the picture without comment to the others in the group. One at a time, they will speculate what your picture means, to connect the drawing to their own ideas about the reading (remember these responses may not match your own thoughts as you created the graphic representation and that is fine). After everyone has had the opportunity to say something, you get the last word: tell them what your picture means, where it came from, or what it represents to you.

Literature Circle Jobs - 6

Investigator

Name: _____

Reading: _____

Date of Circle: _____

Your job is to dig up some background information on any topic related to the reading for the week. This might include:

The geography, weather, culture, or history of the book's setting.

Information about the author, his/her life, and other works.

Information about the time period portrayed in the book.

Pictures, objects, or materials that illustrate elements of the book.

The history and derivation of words or names used in the book.

This is not a formal research paper. The idea is to find one bit of information or material that helps your group understand the book better. Investigate something that interests you - something that struck you as puzzling or curious while you were reading.

Ways of Gathering Information

The introduction, preface, or "about the author" section of the book

Library books and magazines

On-line computer search or encyclopedia

Interviews with people who know the topic.

Other books, magazines, etc. you have read

Literature Circle Jobs - 7

Literary Luminary

Name: _____

Reading: _____

Date of Circle: _____

Your job is to locate a few special sections of the reading that you think your group would need/like to hear read aloud. The idea is to help your group remember interesting, important, entertaining, or powerful passages or paragraphs. You will make the decision on what paragraphs or passages will be used and then jot down plans for how they should be shared. You can read the passages aloud yourself, ask someone else to read them, or have people read them silently and then have the Discussion Director lead a discussion of them.

	Location	Reason for Selection	Plan for Usage
1.	Page _____	_____	_____
	Paragraph _____	_____	_____
2.	Page _____	_____	_____
	Paragraph _____	_____	_____
3.	Page _____	_____	_____
	Paragraph _____	_____	_____
4.	Page _____	_____	_____
	Paragraph _____	_____	_____
5.	Page _____	_____	_____
	Paragraph _____	_____	_____

Possible reasons for picking a passage to be shared: Important, Controversial, Thought-provoking, Informative, Well-written, Surprising, Confusing, Funny, Exciting, Other _____

Literature Circle Jobs - 8

Passage Master

Name: _____

Reading: _____

Date of Circle: _____

Your job is to pick parts of the reading that you think should be revisited through reading aloud. These can be chosen because they are:

- ___ a good part
- ___ an interesting part
- ___ an example of good writing
- ___ a humorous part
- ___ a tense part
- ___ exceptionally descriptive

Page	Paragraph	Why I liked it
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Literature Circle Jobs - 9

Summarizer

Name: _____

Reading: _____

Date of Circle: _____

Your job is to prepare a brief summary of the reading for the week. The other members of the group will be counting on you to give a quick (one or two minute) statement that conveys the gist, the key points, the main highlights, and the essence of the reading. If there are several main ideas or events to remember you can use the numbered slots below.

Summary:

Key Points:

1. _____
2. _____
3. _____
4. _____

Literature Circle Jobs - 10

Travel Tracer

Name: _____

Reading: _____

Date of Circle: _____

When you are reading a story, article, or book where the characters move around a lot and the scene changes frequently, it is important for everyone in your group to know where things are happening and how the setting may have changed. Your job is to track carefully where the action takes place during the reading. Describe each setting in detail, either in words or with an action map, or diagram you can show to your group. Be sure to give the page locations where the scene is described.

Describe or sketch the setting (you may use another sheet of paper)

Where the action **began**:

Page where it is described _____

Where the **key events** happen:

Page where it is described _____

Where the events **end**:

Page where it is described _____

Literature Circle Jobs - 11

Wordsmith

Name: _____

Reading: _____

Date of Circle: _____

Your job is to look for special words in the story. You should look for words that are: New, Different, Strange, Interesting, Difficult, Colorful, Important, Unique, Bankable (A **bankable** word is one that you think each person should learn and use because of its power to make your written and oral language more effective).

When you find a word that you want to talk about, mark it with a Post-It note or write it down here:

Word	Page	Why I picked the word
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

When your group reconvenes, help your group members talk about the words you have chosen. Things you can discuss:

- How does this word fit the story?
- Does anyone know what the word means?
- Do we need to look it up in the dictionary?
- Shall we look it up in the thesaurus?
- What type of feeling does the word convey?
- What color does the word make you think of?
- Can we draw the word?

Literature Circle Ranking

Name: _____

Reading: _____

Date of Circle: _____

Rank your performance as a member of your group on a scale of 1 - 5: _____

1 = I was not prepared prior to the Literature Circle and had not read the assigned material. I did not take an active role in the activity.

2 = I was not prepared prior to the Literature Circle, but had read the assigned material. I only provided a minor enhancement to the activity through my comments.

3 = I was partially prepared for the Literature Circle and had read the assigned material. I provided a few significant enhancements to the activity through my comments.

4 = I was prepared for the Literature Circle and had read the assigned material, however, I could have been more effectively prepared. I provided some real significant enhancements to the activity through my comments.

5 = I was prepared thoroughly for the Literature Circle and had read the assigned material. I was able to perceptively enhance the activity in a very significant way through my comments.

Literature Circle Summary

Individual Summary

Name: _____

Reading: _____

Date of Circle: _____

1. List your favorite two lines or paragraphs from the reading:

2. WHY was this passage your favorite. Be specific!

3. What was the reading about, both literally and figuratively?

Numbered Heads Together Cooperative Learning Strategy

Numbered Heads Together is a structure for Whole-Class-Question-Answer that increases student participation. The four steps consist of:

1. **Students Number Off.** Each student in a team has a different number. Number Three answers when Number Three is called, Number Four when Number Four is called, etc.
2. **Teacher Asks a Question.** The teacher directed question is formulated as a directive. Instead of saying, "What are the steps in the writing process?" the teacher says, "Make sure everyone on the team can tell the steps in the writing process."
3. **Heads Together.** The students in each team put their heads together and determine the team response to the question.
4. **Teacher Calls a Number.** The teacher calls a number at random and the students in each team with that number raise their hands. One of the raised hands is called to answer the question.

Pairs

Cooperative Learning Strategy

Pairs, sometimes called **Turn to Your Neighbor**, is perhaps the simplest cooperative technique. The procedure works like this:

1. The teacher poses a question.
2. The students form pairs.
3. The pairs discuss the question.
4. The teacher calls a name at random to answer the question.

Personal Reading Log

Name _____

When you begin a new book, note the title, author, copyright date, and publisher. After that the title is sufficient.

Date	Title	Pages Read	Connection to Theme (in what you read today)

Portfolio Artifact Reflection Sheet

- A. This artifact was selected because . . .
- B. This artifact shows I have learned the following (skills, thinking process, content) because . . .
- C. The qualities about this artifact I like most are . . .
- D. I enjoyed the following aspects of this project . . .
and the reasons I did are . . .
- E. If I did this project, or a similar one, in the future, I would do the following things differently, because of the learning experience I had this time . . .

Portfolios Assessment Weighted Rubric

Criteria	Indicators	1	2	3	4	Score
Form	Spelling, Grammar, Sentence Structure	2-3 errors	1-2 errors	0 errors	0 errors and a high level of writing	___ x 3 =
Visual Appeal	Cover, Artwork, Graphics, Neatness,	Missing 2 elements	Missing 1 element	All 3 elements are included	All 3 elements are creatively & visually appealing	___ x 4 =
Organization	Completeness, Timeliness, Table of Contents	Missing 2 elements	Missing 1 element	All 3 elements demonstrate a high level of organization	All 3 elements demonstrate a higher level of organization	___ x 5 =
Knowledge of Key Concepts	Key Concepts, Evidence of Understand- ing, Application	Evidence of key concepts included in portfolio	Evidence of basic level of understanding of key concepts	Evidence of ability to apply knowledge	Evidence of ability to apply knowledge to new situations	___ x 6 =
Reflections	Depth of Reflections, Ability to self-assess, Correct number required	Missing 2 or more reelections; Reflections poorly done	Missing 1 reflect on; many do not show much depth	Reflections show ability to self-assess	Reflections show insightfulness and ability to self-assess	___ x 7 =

Comments _____

Scale:

A = _____

B = _____

C = _____

D = _____

Final Score/100 _____

Final Grade _____

Processing the Content Options

Teacher: Please fill in the blanks with your choice before giving option to students.

1. Use *Think-Pair-Share* and reflect, identify, and list the three most useful ideas you have learned today. Share these with a partner and explain why you felt those ideas were most useful.
2. Process the Content using *Think-Pair-Share* and the prompt below:
 - ◆ What was new to you today about _____?
3. Use *Random Call* to have several students share their most useful ideas and reasons for those choices.
4. List the three most _____ things you learned today.
 - ◆ Important
 - ◆ Interesting
 - ◆ Useful
 - ◆ Difficult
 - ◆ Unfamiliar
 - ◆ Surprising
5. If today were turned into a _____, what would it be?
 - ◆ Song
 - ◆ Season
 - ◆ Celebrity
 - ◆ Number
 - ◆ Sport
 - ◆ Car
 - ◆ Animal
6. If you could choose three things from today to put in your memory time capsule to open a year from now, what would you choose?
7. How do the current activities make you feel connected to other people around the world?
8. What categories in the budget have you prayed about? Choose one story to share.

Processing the Process Options

Direct the students to use *Think-Square-Share* and answer one of the following option questions.

1. Can you think of any situations (world, nation, community, church, school, home) where this week's Christ-Like Quality could possibly help solve a conflict?
2. Did you need to use this week's Christ-Like Quality at any time today? When? Why? Can you think of examples from your life when you needed to use this week's CLQ?
3. What is the hardest thing for you in this week's CLQ. Why do you think this is hard for you to do?
4. How did you do at practicing this week's Christ-Like Quality?
5. Is this week's Christ-Like Quality easier or harder for you than other social skills? Why?
6. What went well in your group today? What didn't go well? What can you do differently to help your group work more effectively?
7. Were you able to use this week's Christ-Like Quality today? When? Can you think of examples from your life when you could have used this same skill?
8. What did you like about today's teaching technique and activities? What did you dislike? How did it help you learn?
9. How well did your group use today's Christ-Like Quality? How can you improve?
10. Why is it sometimes hard to apply this week's Christ-Like Quality? How can you improve?
11. What is your favorite way to learn? (Graphic Organizer, Concept Attainment, Jigsaw, etc.) Why?
12. Choose a TV program or a movie that illustrates one of the Christ-Like Qualities or Habit of Mind. Identify the CLQ or HOM.

Rally Table

Cooperative Learning Strategy

1. Students work in pairs in groups of four.
2. Students pass a paper up and back writing down answers to a problem which has many answers.
3. When time is called, students compare their answers with those of the other pair in the team.

Random Call

Cooperative Learning Strategy

Random Call is a technique the teacher can utilize to ensure that a variety of students are responding in class discussions.

1. Teacher writes each student's name on a 3x5 card.
2. Teacher asks a question.
3. Students think.
4. Teacher draws a card and calls on that student.
5. Students responds.
6. Teacher returns the card to the deck.

Research Organizer
Graphic Organizer

Name _____

Title _____

Source(s) _____

Information I learned:

- 1. _____

- 2. _____

- 3. _____

- 4. _____

Conclusion(s):

Rhyming Peg Word

The Rhyming Peg Word method is a simple system that can be used to remember information that is, or can be organized, in a list format. It begins with visualizing the following rhymes:

1 is a bun
2 is a shoe
3 is a tree
4 is a door
5 is a hive
6 is a pile of sticks
7 is heaven
8 is a gate
9 is a line
10 is a hen

The words bun, shoe, tree, door, hive, sticks, heaven, gate, line, and hen are easy to remember because they rhyme with the numbers 1 through 10. If you want to put information in Slot #1 of the framework, you would do so by forming a mental image of the information you want to remember that also includes a bun, because bun is the "pegword" for the first slot of the framework. For example, assume you want to put the following information about Christopher Columbus into Slot #1.

- He landed in the new world in 1492
- He sailed with three ships
- The popular opinion was that he would sail off the end of the world.

To form a mental image of this information that includes the pegword bun, you might imagine a bun sailing across the ocean. Christopher Columbus would be standing at the bow of the bun. Two other buns would also be sailing behind him. Then you picture the end of the world with water rushing off of it like a waterfall. You can also put the date in the picture. You might say to yourself, "Columbus landed in the New World in 1492. He sailed with three ships."

Rotating Review

Cooperative Learning Strategy

1. At the close of a unit, chart paper is posted with a topic from the unit printed at the top of each sheet. There should be one topic for each team that is formed.
2. Each team has a different color marker. They stand by a topic sheet and for "one minute" write down all the information they can about the topic.
3. When the "one minute" is up, the teams rotate to the next topic. They read what was written by previous teams and add what information they can with the "one minute" time limit.
4. The rotation continues until each team has had an opportunity to record information for each topic. If a team disagrees with any previous information, they may mark it with a question mark for later discussion.
5. Individuals are given time to take notes on the information on the charts.

Roundtable and Roundrobin

Cooperative Learning Strategy

Each student takes turns contributing to the group. Each group, or team, has one piece of paper and one pen.

1. The teacher poses a question.
2. The first student on each team writes down his/her response and then passes the paper to his/her left.
3. The second student writes down his/her response and passes the paper to the left.
4. The process continues (without talking) around the table.

For some questions, you may want the group to send the paper around the table only once. For other questions you may want to have the paper go around the table several times, sort of like a silent brainstorm session.

Typically, after the paper has gone around the table, the teacher has plans for sharing the results with the class or another team. Sometimes the teacher will assign a particular follow-up activity based on the list generated during the Roundtable.

*If the same procedure is followed orally, the structure is called **Roundrobin**.*

Rubrics Assessment

A list of criteria to use for assessment when an artifact cannot be assessed objectively. Student performance can usually be increased by allowing them to see the rubric before starting the project.

Example:

Rubric for Cookie Baking

Score each item on a 1 to 5 basis, with 5 being perfect or nearly perfect.

- _____ Student actually baked cookies.
- _____ Student followed recipe accurately.
- _____ Student used measuring devices correctly.
- _____ Cookies are uniform in size.
- _____ Cookies are uniform in shape.
- _____ Cookies are well-done but not burned.
- _____ Student work area is cleaned (all utensils washed, dried, and put away; floors and countertops clean)
- _____ Cookies were stored after cooling.

Scientific Method

A method for the testing of scientific theory. The steps include:

Observation: Curiosity about why something that is observed happens (or why something that is expected does not happen).

Hypothesis: A proposed answer to the question(s) raised in the observation step. The hypothesis is based on observations and research. It is an educated guess.

Procedure: An explanation of how the hypothesis will be tested. Students should think carefully about the conditions of the experiment. For instance, an experiment to see which liquid - water, milk, or soda pop - evaporates most rapidly should not put the saucers where the cat can get them! Students should also be aware that as many factors as possible should remain uniform: each liquid in the above example should start with the same amount and be in identical containers.

Experiment: A test of the hypothesis. An experiment designed to do the test. Often the experiment has two parts, the control group and the experimental group.

Data: Student record of information and observations. This should be done in an organized manner.

Conclusion: A statement of whether or not experimental data supports the hypothesis.

Publish: A report of the findings of the inquiry. This helps other scientists learn about the results. They might repeat the experiment to be sure the conclusion is accurate. Science accepts a hypothesis only after it has been tested and supported by results many times. A theory is a hypothesis that has been tested many times and is supported by data.

T-Chart

Cooperative Learning Strategy

A T-Chart is a graphic organizer that is used to learn and practice a skill. It analyzes this skill and records the components of this skill in two or three categories, such as "What I would see," "What I would hear," and/or "How I would feel."

Building a T-Chart:

1. Write the name of the skill to be learned and practiced at the top of the chart and draw a large T below it.
2. Label the left side of the T *Looks Like* and the right side *Sounds Like*.
3. Think of an example for each of the columns and write that below the crossbar.
4. Ask for other behaviors that operationalize the skill and list those on the left side.
5. Ask for further phrases that operationalize the skill and list those of the right side.
6. Have group members practice both *Looks Like* and *Sounds Like* before the lesson is concluded.

T-Chart - 2

EXAMPLE

Social Skill: Disagreeing in an Agreeable Way

This should be a class discussion. Teachers may allow small groups to first generate lists, but the final poster should be generated by the class.

T-CHART

"Disagreeing in an Agreeable Way"

I SEE

I HEAR

<i>I SEE</i>	<i>I HEAR</i>
<p>It looks like</p> <p>Eye contact with a subtle shake of the head.</p> <p>Smiling when you make your statement.</p> <p>Group members listening carefully to one another's ideas before commenting.</p> <p>Slight shoulder shrug and head shake.</p> <p>Etc.</p>	<p>It sounds like</p> <p>"I understand what you are saying, we might also want to consider..."</p> <p>"I see your point, however ..."</p> <p>"Your point is important, but I wonder if another idea might be ..."</p> <p>"I don't agree because ..."</p> <p>"That's an interesting idea, nonetheless ..."</p> <p>Etc.</p>

T-Chart - 3
Problem/Solution

Problem

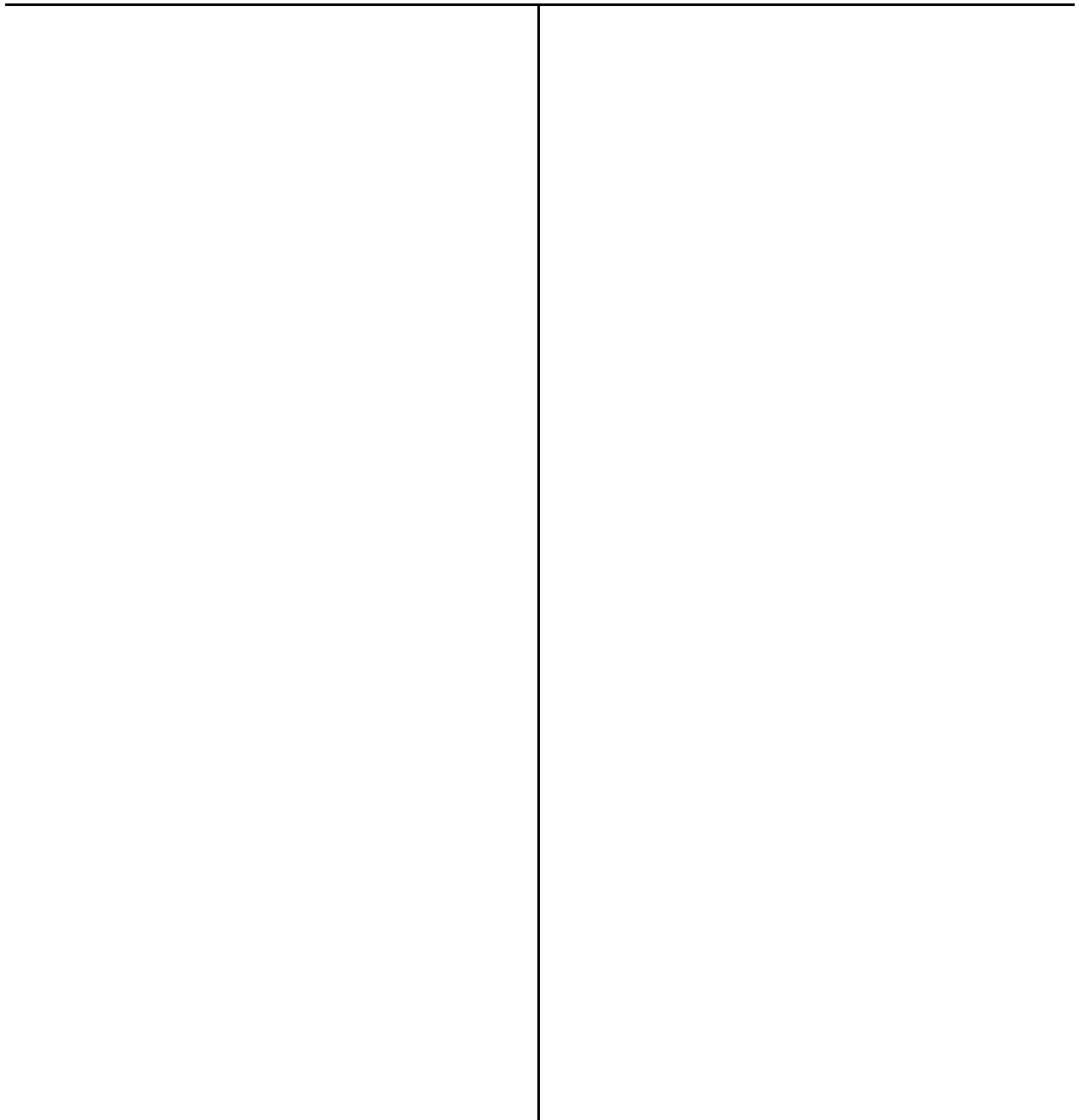
Solution

Problem	Solution

T-Chart - 4
Cause/Effect

Cause

Effect



Taba Inductive Strategy

Assumptions:

1. Thinking develops in a lawful and orderly manner.
2. Thinking can be taught.
3. Strategies can be developed to best teach inductive thinking.
4. Thus, specific strategies should be used to teach the process of individual thinking.
5. Students can learn from logically analyzing their thinking processes (metecognition).

Hilda Taba developed three specific teaching strategies to teach inductive thinking processes: Concept Formation, Interpretation of Data, and Application of Principles. Together these three strategies comprise Taba's Inductive Thinking Strategy.

Phase (Strategy) I: Concept Formation

- A. **Focus Statement:** Concept formation typically begins with a clear **focus statement**. The focus statements includes clear guidelines for the grouping and categorizing processes. This includes number of groups, numbers of items per group, and number of attributes for each group.
- B. **Enumeration of the Data:** Students are presented a data set to work with. This data may have been generated by the teacher, the students, or another source. The data set can consist of anything that students can make meaning from. It can be objects, words, sentences, titles, emotions, reactions to video clips, and so on.
- C. **Grouping of the Data:** During this phase of concept formation, the students are actively engaged with the data and are beginning to construct meaning from it. The teacher does **NOT** have predetermined groups in mind that the students must use. Students are free to use any logical classification

Taba Inductive Strategy - 2

schema that meets the teacher's guidelines in the focus statement. That typically includes number of groups, numbers of items in each group, numbers of attributes for each group. The teacher can limit classification by non-essential attribute. For example, the teacher can instruct the students not to classify by the number of words in a sentence.

- D. Labeling of the Groups: Labeling consists of two types. The first takes place while classification is underway. Students begin labeling by listing attributes for each of the groups they are forming, listing the logical reasons why these items belong together. The second type of labeling, naming of the groups, occurs **after** groups are formed and attributes listed.

Phase (Strategy) II: Interpretation of the Data

- A. Identify Critical Relationships: Identifying and exploring (Step B) relationships between the data is often done simultaneously. This may involve comparing and contrasting data, looking for cause and effect, or other types of relationships. Relationships should be explored both within categories and between categories. It is often beneficial to use graphic organizers during these processes to help organize declarative knowledge as it is being constructed.
- B. Exploring Relationships
- C. Make Inferences about the Data: To prepare students for the formal construction of the hypothesis, the teacher should use questioning to help students develop inferences about the data. Try to help students find implications in the data. For example ask, "What does _____ mean?" or "What would you conclude about _____?" or "What picture does this create in your mind?"

Taba Inductive Strategy - 3

Phase (Strategy) III: Application of Principles

- A. Hypothesize or Predict Consequences: During this phase of Taba's strategy, students can be exposed to new data and asked to make predictions or hypotheses based on the knowledge constructed during the concept formation and interpretations of data. Questions useful to this phases include, "What would happen if _____?" and "If _____, then _____?"
- B. Explain or Support Predictions or Hypotheses: Each student must be able to explain the logic behind his or her predictions. This promotes reflection and metecognition.
- C. Verify or Test Hypotheses: During the culmination of Taba's strategy, students either find information to confirm their hypotheses or identify conditions under which their hypothesis would be true.

Taba Inductive Strategy - 4

Teacher Planning Guide for Taba's Inductive Strategy

- A. TOPIC
- What is the topic of the lesson?
- B. DATA SET
- What will the data be?
 - Who will be responsible for enumerating the data? (Presented by the teacher, generated by the students, etc.)
- C. IS THE DATA SET VIABLE?
- Can you see at least one logical classification scheme for the data set?
 - Is there another way to group the same data?
- D. RULES FOR CLASSIFICATION
- What is the minimum number of groups?
 - What is the minimum number of data per group?
 - What is the minimum number of attributes per group?
 - Is a miscellaneous group allowed?
 - Are there any groupings that will be forbidden? (i.e. "You may not group the data based on the spelling or length of words.")
- E. GOALS & OBJECTIVES
- What is your emphasis for this lesson? The emphasis could include, but is not limited to, any of the following skills/processes: classification, inductive reasoning, observation, observational skills, comparing and contrasting, constructing support, verifying hypothesis.
 - List one or two goals for the lesson.
- F. WRITE THE LESSON PLAN

Teams Game Tournament

Cooperative Learning Strategy

Students are given the opportunity to study material. Then the class should be divided into teams. Each team is given a set of questions/responses on a sheet or cards, and the rules of the game.

Basic Schedule of Activities for Teams Game Tournament is:
Teach - Team Study - Tournament

Instructions:

1. Player 1 picks a card from the pile, locates the question on the question sheet that corresponds with the number on the card selected. This would include possible responses if the question is a multiple choice question.

Example: Student A selects a card containing the number 21 on it. The player then finds question number 21 on the question sheet and reads the question, and any possible responses.

2. After the reader has read the question and given their response, the Player to the left has two options:
 - A. An opportunity to challenge. Player B will respond with a different answer.
 - B. Pass
3. After Player B has decided what he/she will do, the Challenge/Pass option passes to the next Player.
4. This process continues around the table until each Player has the opportunity to Challenge or Pass.

Note: Each Player who challenges must have a different response than that of each previous Player.

Teams Game Tournament - 2

5. When the circle has been completed, the first challenge finds the correct answer on the answer sheet.
6. The player who offered the correct response (and remember there will only be one person who has offered the correct answer) receives the card. If anyone challenged, and gave the incorrect answer, they lose a card (if they have one to lose). If no one got the correct response then the card is returned to the bottom of the deck and no cards are lost.
7. For the next round Player B becomes the reader. Player C becomes the reader for the third round and so on.
8. When the game is over (this is determined by the teacher), students will record the number of cards retained at the end of the game.
9. When the game is complete, players will return to their original team and the team will compile the total points earned by the team.
10. The teacher will then give instructions on what to do with the combined score.

Teams Game Tournament - 3

Calculating Tournament Points

For a Four-Player Game

Player	No Ties	Tie for Top	Tie for Middle	Tie for Low	3-Way Tie for Top	3-Way Tie for Low	4-Way Tie	Tie for Low and High
Top Scorer	6	5	6	6	5	6	4	5
High Middle Scorer	4	5	4	4	5	3	4	5
Low Middle Scorer	3	3	4	3	5	3	4	3
Low Scorer	2	2	2	3	2	3	4	3

For a Three-Player Game

Player	No Ties	Tie to Top Score	Tie for Low Score	3-Way Tie
Top Scorer	6	5	6	4
Middle Scorer	4	5	3	4
Low Scorer	2	2	3	4

For a Two-Player Game

Player	No Ties	Tied
Top Scorer	6	4
Low Scorer	2	4

Teams Game Tournament - 4

Game Score Sheet (TGT)

Table # _____			Round # _____			
Player	Team	Game 1	Game 2	Game 2	Day's Total	Tournament Points

Assignment to Tournament Tables

	Team A	Team B	Team C
Tournament Table 1	A-1 High	B-1 High	C-1 High
Tournament Table 2	A-2 Average	B-2 Average	C-2 Average
Tournament Table 3	A-3 Average	B-3 Average	C-3 Average
Tournament Table 4	A-4 Low	B-4 Low	C-4 Low

Think-Pair-Share (TPS)

Cooperative Learning Strategy

1. The question is posed.
2. Students **think** individually about response to the question. Responses may be written down.
3. Students **pair** with another student and share response to question and any ideas that have arisen while thinking about response.
4. As a class **share** ideas and responses. Student may share own or partner's idea.

Think-Pair Square (TPSq)

1. The question is posed.
2. Students **think** individually about response to the question. Responses may be written down.
3. Students **pair** with another student and share response to question and any ideas that have arisen while thinking about response.
4. Students **square** with the other pair in team. Student may share own or partner's idea.

Think-Square-Share (Tsqs)

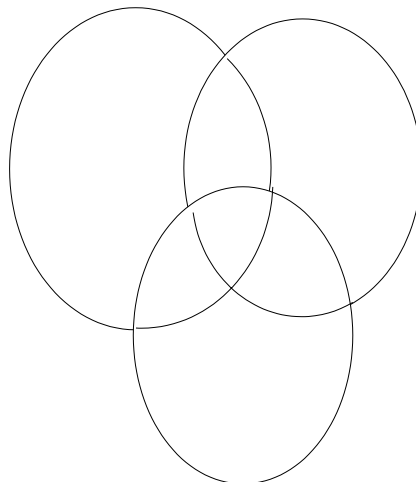
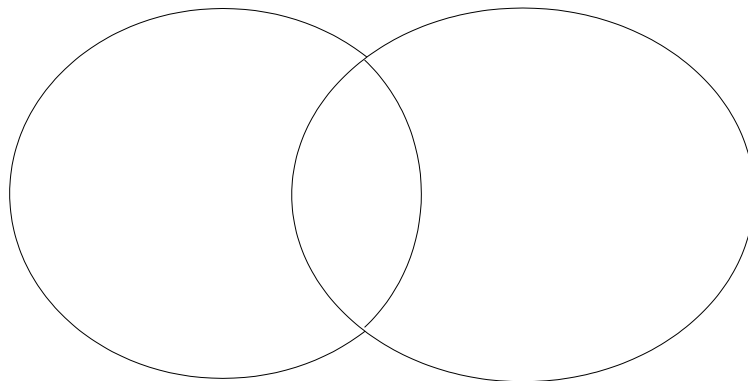
1. The question is posed.
2. Students **think** individually about response to the question. Responses may be written down.
3. Students **square** with team and share ideas with each other.
4. As a class, **share** ideas and responses. Student may share own or other team member's idea

Venn Diagrams

Graphic Organizer Strategy

This is a graphic organizer strategy derived from mathematics for creating a visual analysis for comparison and contrast between things. Examples of the comparison and contrast are concepts, objects, events, and people.

Venn diagrams consist of two or three overlapping circles. Students list unique characteristics of two items or concepts (one in the left part of the circle and one in the right); in the middle they list shared characteristics.



Webbing

Graphic Organizer Strategy

Webbing is a graphic organizer strategy that provides a visual picture of how words or phrases connect to a topic. The teacher lists a topic and builds a web-link structure of words or phrases that students call out as being connected to a topic. Students can also use this strategy individually in the planning process of writing or in studying for a test.

