100 INSTRUCTIONAL STRATEGIES

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INSTRUCTIONAL STRATEGIES

Research has shown that visual and or dramatic methods have a larger impact then learning that is solely verbal (Marzano, 2007). Instructional methods to consider when planning your lesson include:

METHOD	EXPLANATION
1. Active Reading	Good readers utilize 6 common ways to actively read – marking the text, asking questions, making predictions, asking clarifying questions, visualizing, and comparing & contrasting information.
2. Alternative Assessments	"Assessment" can refer to end-of-unit tests or projects, quizzes and graded class assignments as well as informal progress checks throughout each day A wide variety of possibilities, including: a. Use of different checklists or rubrics, or similar rubrics with adapted scales b. Use of different tests/assessments c. Adapt existing test/assessment so that specific parts of the test only have to be completed by specific groups of students d. Allow a student to respond to test questions orally instead of in writing, or typing on a computer instead of writing by hand e. Allow a student to respond by demonstrating the skill/ creating a project that demonstrates the concept (For example, a student may use a light bulb, battery and some wire to build an electric circuit rather than drawing a diagram or writing a paragraph about it.) **Assess what is most important for the student to know.** Is is more important that he know what a circuit is or more important that he can write a description? f. **Minimal Prep Time Version:** Include as part of the assessment several questions of varying complexity or focused on different aspects of the concept, and then allow students to make some choices about which ones they answer. (Example: Students are required to answer question 1 but can choose from questions 2-4 for their second response.) http://www.fortheteachers.org/instructional_strategies/#monitor_progress
3. Alternative Assignments/Assessments for Student	• Accepting alternate forms of reports: o Oral reports o Tape-recorded report

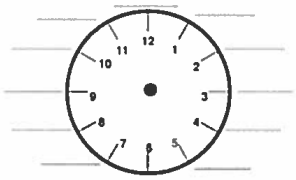
difficulties – writing composition	○ Tape of an interview ○ Collage, cartoon, or other art ○ Maps ○ Diorama, 3-D materials, showcase exhibits ○ Photographic essay ○ Panel discussion ○ Mock debate ○ Review of films and presentation of an appropriate one to the class • Have the student dictate work to someone else (an older student, aide, or friend) and then copy it himself • Allow more time • Shorten the written assignment (preparing an outline or summary) • Provide a sample of what the finished paper should look like to help him organize the parts of the assignment • Provide practice using: ○ Story starters ○ Open-ended stories ○ Oral responses (try some oral spelling tests) http://www.readingrockets.org/article/how-adapt-your-teaching-strategies-student-needs
4. Alternative Assignments/Assessments for Students difficulties -reading	• Find a text written at lower level • Provide highlighted material • Rewrite the student's text • Tape the student's text • Allow a peer or parent to read text aloud to student • Shorten the amount of required reading • Look for same content in another medium (movie, filmstrip, tape) • Provide alternative methods for student to contribute to the group, such as role playing or dramatizing (oral reading should be optional) • Allow extra time for reading • Omit or shortening the reading required • Substitute one-page summaries or study guides which identify key ideas and terms as the reading assignment • Motivate the student, interesting him • Provide questions before student reads a selection (include page and paragraph numbers) • Put the main ideas of the text on index cards which can easily be organized in a file box and divided by chapters; pre-teaching vocabulary • Type material for easier reading • Use larger type • Be more concrete-using pictures and manipulatives • Reduce the amount of new ideas

	• Provide experience before and after reading as a frame of reference for new concepts • State the objective and relating it to previous experiences • Help the student visualize what is read http://www.readingrockets.org/article/how-adapt-your-teaching-strategies-student-needs	

5. Alternative Assignments/Assessments for Students difficulties -verbal expression	• To accept an alternate form of information sharing, such as the following:
	  o Written report
	  o Artistic creation
	  o Exhibit or showcase
	  o Chart, graph, or table
	  o Photo essay
	  o Map
	  o Review of films
	  o Charade or pantomime
	  o Demonstration
	  o Taped report
	• Ask questions requiring short answers
	• Provide a prompt, such as beginning the sentence for the student or giving a picture cue
	• Give the rules for class discussion (e.g., hand raising)
	• Give points for oral contributions and preparing the student individually
	• Teach the student to ask questions in class
	• Specifically teach body and language expression
	• Wait for students to respond — don't call on the first student to raise his hand
	• First ask questions at the information level — giving facts and asking for facts back; then have the student break in gradually by speaking in smaller groups and then in larger groups	

6. Alternative Assignments/Assessments for Students difficulties -writing legible	• Use a format requiring little writing
	  o Multiple-choice
	  o Programmed material
	  o True/false
	  o Matching
	• Use manipulatives such as letters from a Scrabble™ game or writing letters on small ceramic tiles
	• Reduce or omit assignments requiring copying
	• Encourage shared note-taking
	• Allow the use of a tape recorder, a typewriter, or a computer
	• Teach writing directly
	  o Trace letters or writing in clay
	  o Verbalize strokes on tape recorder	

	○ Use a marker to space between words ○ Tape the alphabet to student's desk ○ Provide a wallet-size alphabet card ○ Provide courses in graph analysis or calligraphy as a motivator • Use graph paper to help space letters and numbers in math • Use manuscript or lined ditto paper as a motivation technique (brainstorm the advantages of legibility with the class) http://www.readingrockets.org/article/how-adapt-your-teaching-strategies-student-needs
7. Alternative Assignments/Assessments for Students with listening difficulties	Before the lesson: • Pre-teach difficult vocabulary and concepts • State the objective, providing a reason for listening • Teach the mental activities involved in listening — mental note-taking, questioning, reviewing • Provide study guides/worksheets • Provide script of film • Provide lecture outlines During the lesson: • Provide visuals via the board or overhead • Use flash cards • Have the student close his eyes and try to visualize the information • Have the student take notes and use colored markers to highlight • Teach the use of acronyms to help visualize lists (Roy G. Biv for the colors of the spectrum: red, orange, yellow, green, blue, indigo, violet) • Give explanations in small, distinct steps • Provide written as well as oral directions • Have the student repeat directions • When giving directions to the class, leave a pause between each step so student can carry out the process in his mind • Shorten the listening time required • Provide written and manipulative tasks • Be concise with verbal information: "Jane, please sit." instead of "Jane, would you please sit down in your chair." http://www.readingrockets.org/article/how-adapt-your-teaching-strategies-student-needs
8. Anchor Activities	Anchor Activities (or Sponge Activities) are designed for students to work on either immediately at the beginning of class time or after their class work has been completed, so that their instructional time is maximized. These activities are intended to review or extend learning of the subject matter, not to be busy-work. Activities may be designed for students to complete independently or

	in small groups. You may choose to assign particular students to particular tasks or to allow them to choose, when appropriate. All tasks should be relevant to the concepts being developed in class, but some may be more complex than others; there are times when students need the opportunity to do something that is low-stress and less demanding. They include: A. Art Projects B. Brain Teasers C. Content Review D. Critical Thinking Questions E. Flash Cards F. Graphic Organizers G. Interest Centers H. Journal Writing I. Learning Contracts J. Logic Puzzles K. On-Line Activities L. Pre-Assessment Activities M. Reflection Tools N. Silent Reading O. Word Puzzles http://www.fortheteachers.org/instructional_strategies/#monitor_progress
9. Anticipation Guide	Anticipation Guides allow the reader to make predictions about text that will be read by eliminating possibilities that are unlikely. It is a way to prepare a reader prior to a reading assignment by asking them to react to a series of statements related to the content of the material.
10. Appointment Clocks	a. Used to quickly put students in pairs or small groups  b. Make a copy of the clock for each student. The names of other students go at each hour mark around the clock so that asking students to find their "1 o'clock" partner puts the students in pairs, for example. c. Allow students to choose partners for some times on the clock, but decide some of the partners ahead of time so that you know, for example, that the 2 o'clock partners are students with similar skills in reading or that the 5 o'clock partners have similar interests. http://www.fortheteachers.org/instructional_strategies/#monitor_progress

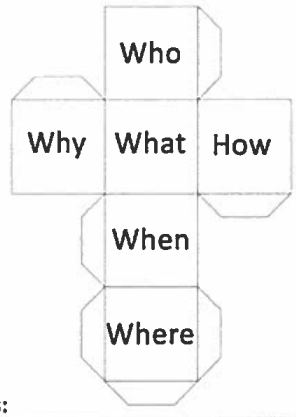
<table>
<tr><td>11. Assigned Questions</td><td>Assigned questions are prepared by the teacher, and answered by students. Students discuss their responses among one another and/or with the teacher.</td><td></td></tr>
<tr><td>12. Author's Chair</td><td>Author's Chair is the final step in the writing process. A time and place is allotted to writers who wish to share their final products with an audience. The student's writing piece has already gone through revising and editing, and the publishing process. The author and fellow classmates gather together to provide the writer with positive feedback. The student in the author's chair reads selected piece of their writing. Peers then have an opportunity to positively respond to what was read.</td><td></td></tr>
<tr><td>13. Balanced Literacy</td><td>Balanced Literacy incorporates the skills of reading, writing, thinking, speaking and listening for all students. It's major components include:

<table><tr><th>READING</th><th>WRITING</th></tr><tr><td>Modeled Reading (Read Alouds)
Shared Reading
Guided Reading
Independent Reading</td><td>Modeled Writing
Shared Writing
Guided Writing
Independent Writing</td></tr></table></td><td></td></tr>
<tr><td>14. Book Talks</td><td>Book talks, provide an opportunity for students to share and/or discuss books they have encountered. They may have been books they have read, have been read to them or about which they have heard or read. The book talk provides the student with a forum for sharing informative text, share and exchange newly discovered ideas related to what was read, and share recommendations.</td><td></td></tr>
<tr><td>15. Brainstorming</td><td>Brainstorming is a process that allows for the free flow of ideas. A topic/question is introduced and relevant words and phrases are accepted without criticism or judgment. It works to generate a wide variety of ideas, that can they be evaluated as relevant to the subject.</td><td></td></tr>
<tr><td>16. Case Studies</td><td>Case studies are accounts of actual events relevant to the topic of study. They prompt the learner to apply their own knowledge and research the unknown while all the while analyzing the events from a variety of perspectives. They promote the use of higher order thinking skills coupled with problems solving. When used the teacher facilitates the use of the case study while the students learn by doing in a student centered environment.</td><td></td></tr>
<tr><td>17. Categorizing</td><td>Categorizing is the act of grouping ideas, items, words, skills, according to a criteria/feature that is common to all members of the set. Categorizing allows students to determine similarities and differences of the items being categorized.</td><td></td></tr>
<tr><td>18. Cheat Notes</td><td>Give each student an index card and have them prepare notes for a quiz or test. The teacher may decide if students will be able to use these cards during the quiz/test.</td><td></td></tr>
<tr><td>19. Circle the Sage</td><td>The instructor polls the students looking for special knowledge on a certain topic. Those with the knowledge spread out around the room. (They are the sages.) The other students (no two from the same team) circle the sage, take</td><td></td></tr>
</table>

	notes on the information they are presenting, and question them. Then, the group reforms and each explains what they have learned. If there is a disagreement, it is aired as a group with the whole class, and it is resolved there.	
20. Cloze	Cloze is a technique whereby, a text is presented and words critical to the understanding of the topic are left out. Students then apply their knowledge by inserting words that have the text make sense according to the topic being studied. The technique can be used to assess knowledge and understanding of the topic, the reading process, vocabulary and critical thinking. **A variety of _____ strategies are used to provide _____ to students.**	
21. Compare & Contrast	Comparing and Contrasting determines similarities and differences. It can be presented in text format or in a chart. Many times teachers have students read a given text and then compare and contrast the content by listing the similarities and differences. Comparing and contrasting allows the students to identify the critical attributes of the topic. A "T" chart is the most common form of graphic organizer used to compare and contrast. Additionally a 2 or a 3 circle Venn diagram can also be used to identify similarities and differences when comparing and contrasting.	
22. Computer Assisted Instruction	Fathered by the work of the behaviorist, B.F. Skinner, whose programmed learning was popular in the 1960's, Computer-Assisted instruction (CAI) refers to any computer generated instruction or remediation program where students work at the computer with a program that delivers learning in smallest most manageable amounts, is self-paced and delivers immediate feedback. It will usually begin with a pre-assessment that will determine the student's starting point in the learning. If the student answers a question incorrectly the program will automatically provide the correct answer and practice in the sub skills that lead to remediation. The program records the student's progress and can offer data on student accomplishment of sub skills and how the student compares to other students in the class, school, or nationally.	
23. Concept Attainment	Based on the work of the noted cognitive psychologist, Jerome Bruner, Concept Attainment is a teacher centered activity involving the use of critical thinking to determine the critical attributes of a given example of an idea or concept. This indirect process of inquiry leads to the identification of the concept or idea being taught. Before beginning the activity the teacher should determine: The name of the concept 2. The concept definition or rule 3. Conceptual attributes 4. Examples of the concept 5. Relationship of the concept to other concepts Steps in Use of Concept Attainment Strategy:	

	1. Select and define a concept 2. Select the attributes 3. Develop positive and negative examples 4. Introduce the process to the students 5. Present the examples and list the attributes 6. Develop a concept definition 7. Give additional examples 8. Discuss the process with the class 9. Evaluate	
24. Concept Formation	Concept formation is how people organize and classify items, ideas and events, usually to solve problems. It is a classification activity in which students classify items by their characteristics. Students examine the characteristics of items to explore ideas by making connections and seeing relationships between items of information, in order to recognize commonalities and relationships, generalizations, and the organization of data along with its supporting data. The process of using concept formation begins with the presentation of information and/or data regarding a concept provided by either the teacher or the student. Students then identify the similarities and differences while naming them under a specific label.	
25. Concept maps / Webbing	A concept map, also known as webbing is a web diagram for exploring knowledge about a given topic/concept. A concept map begins with a central circle that contains the concept being examined; Linking ideas are then labeled with lines indicating the connection to the central idea and other links. They assist in developing an understanding of the connecting skill, structures and strategies connected to the main concept	
26. Cooperative Learning	Cooperative learning is an instructional method that incorporates social learning experiences with academic activities. Teachers facilitate activities where groups of students at differentiated levels of ability, modalities and interest work together on specific learning activities through which they increase their knowledge, understanding and use of a concept. Each team member works both as an individual and as part of the greater team. Thus gaining a sense of both personal and group achievement. The five defining elements of cooperative learning as listed by Marzano include: 1. Positive Interdependence 2. Face-To-Face Interaction 3. Individual Accountability 4. Social Skills 5. Group Processing Cooperative Activities include: Jigsaw - Groups with five students are set up. Each group member is assigned some unique material to learn and then to teach to his group members. To help in the	

	learning students across the class working on the same sub-section get together to decide what is important and how to teach it. After practice in these "expert" groups the original groups reform and students teach each other. (Wood, p. 17) Tests or assessment follows. **Think-Pair-Share** - Involves a three step cooperative structure. During the first step individuals think silently about a question posed by the instructor. Individuals pair up during the second step and exchange thoughts. In the third step, the pairs share their responses with other pairs, other teams, or the entire group. ***Three-Step Interview*** (Kagan) - Each member of a team chooses another member to be a partner. During the first step individuals interview their partners by asking clarifying questions. During the second step partners reverse the roles. For the final step, members share their partner's response with the team. **Round-Robin Brainstorming** (Kagan) - Class is divided into small groups (4 to 6) with one person appointed as the recorder. A question is posed with many answers and students are given time to think about answers. After the "think time," members of the team share responses with one another round robin style. The recorder writes down the answers of the group members. The person next to the recorder starts and each person in the group in order gives an answer until time is called. **Three-minute review** - Teachers stop any time during a lecture or discussion and give teams three minutes to review what has been said, ask clarifying questions or answer questions. **Numbered Heads Together** (Kagan) - A team of four is established. Each member is given numbers of 1, 2, 3, and 4. Questions are asked of the group. Groups work together to answer the question so that all can verbally answer the question. Teacher calls out a number (two) and each two is asked to give the answer. **Team Pair Solo** (Kagan) - Students do problems first as a team, then with a partner, and finally on their own. It is designed to motivate students to tackle and succeed at problems which initially are beyond their ability. It is based on a simple notion of mediated learning. Students can do more things with help (mediation) than they can do alone. By allowing them to work on problems they could not do alone, first as a team and then with a partner, they progress to a point they can do alone that which at first they could do only with help. **Circle the Sage** (Kagan) - First the teacher polls the class to see which students have a special knowledge to share. For example the teacher may ask who in the class was able to solve a difficult math homework question, who had visited Mexico, who knows the chemical reactions involved in how salting the streets help dissipate snow. Those students (the sages) stand and spread out in the room. The teacher then has the rest of the classmates each surround a sage, with no two members of the same team going to the same sage. The sage explains what they know while the classmates listen, ask questions, and take notes. All students then return to their teams. Each in turn, explains what they learned. Because each one has gone to a different sage, they compare notes. If there is disagreement, they stand up as a	

	team. Finally, the disagreements are aired and resolved. **Partners** (Kagan) - The class is divided into teams of four. Partners move to one side of the room. Half of each team is given an assignment to master to be able to teach the other half. Partners work to learn and can consult with other partners working on the same material. Teams go back together with each set of partners teaching the other set. Partners quiz and tutor teammates. Team reviews how well they learned and taught and how they might improve the process. **Structured problem solving**- Groups are given a problem to solve within a specified time. All members must agree and all must be able to explain the solution. **Send-a-problem**- Several groups generate solutions to problems. The problem is clipped to the outside of a folder, and all solutions from that group are written down and placed inside the folder. The folder is passed to a different group who reads the problem but not the solutions. They write their solutions and put them inside the folder. A third group selects the two best solutions and amends them as necessary. **Drill review pairs**- Groups of four split into pairs. The pairs are given two problems. One member is the explainer and one is the accuracy checker. After one problem is complete, they switch roles. When both problems are complete, the group of four reforms. If they are in agreement to the solution, they repeat the process with more problems. If there is disagreement, the problem is reviewed and a consensus is reached.
27. Cubing	• Six commands or questions, written on the sides of a cube. Students roll the cube and respond. Cubes may be used to differentiate by readiness or interest.  o **Ideas:**

	▪ **Describe, Compare, Contrast, Apply, Predict, Imagine** – Use with any two or three things/concepts/ideas (people from history, current events, mathematical formulas, elements from the periodic table, geometric shapes, countries, chocolate bars – the possibilities are endless! ▪ **Who, What, When, Where, Why, How** – Have students come up with questions about a current topic of study. Students can exchange questions with others to answer. ▪ **Sample Cubing Lesson:** Primary Reading – Concepts of Print ▪ Create two or three different cubes, each with questions at different levels of complexity. Assign students to work in small groups and respond (on paper or out loud) to the questions on their assigned cube. ▪ Use to determine where each student will start when rotating through multiple activities, to randomly create student groups for an assignment o **Minimal Prep Time Version:** Write the six commands/questions on the board, numbered 1-6. Have the students roll a dice to determine which one to respond to. • **CUBING TEMPLATE MAY BE FOUND AT:** http://www.fortheteachers.org/Strategies%20files/Cube%20Template.pdf http://www.fortheteachers.org/instructional_strategies/#AlternativeAssessment	
28. Debate	Debating is a structured contest of argumentation of opposing views between individuals or teams. Debate involves 6 skills that students must learn to use and deliver during the actual debate event: analysis, reasoning, evidence, organization, refutation, and delivery. Debate participants must research the given topics and apply the information and data found. Participants must learn to use their knowledge to think critically and respond strategically to their opponents' response. The structure of the debate is governed by pre-determined rules. The debate is judged by an independent panel who declares one individual or team a winner. The use of debate is appropriate in middle school and above.	
29. Didactic Questions	Didactic questions are usually factual questions that begin with:	

	What _____? Where_____? When_____? How_____? They are convergent in nature, meaning that they tend to have a single answer which demonstrates lower order thinking such as knowledge and comprehension.
30. Drill & Practice	Drill and practice is a strategy teachers use to promote retention. A small amount of selected material is presented for the practice session. Students must have an understanding of the underlying concept being taught for the being practiced to have meaning. This will allow the practice material to have a meaningful place in the larger picture of the concept being taught. Use of drill and practice is most often see used to learn mathematics facts, spelling words, vocabulary, scientific terms, symbols and data.
31. Essays	Distinguishing between types of essays is simply a matter of determining the writer's goal. Does the writer want to tell about a personal experience, describe something, explain an issue, or convince the reader to accept a certain viewpoint? The four major types of essays address these purposes: ***1. Narrative Essays: Telling a Story*** In a narrative essay, the writer tells a story about a real-life experience. While telling a story may sound easy to do, the narrative essay challenges students to think and write about themselves. When writing a narrative essay, writers should try to involve the reader by making the story as vivid as possible. The fact that narrative essays are usually written in the first person helps engage the reader. "I" sentences give readers a feeling of being part of the story. A well-crafted narrative essay will also build towards drawing a conclusion or making a personal statement. ***2. Descriptive Essays: Painting a Picture*** A cousin of the narrative essay, a descriptive essay paints a picture with words. A writer might describe a person, place, object, or even memory of special significance. However, this type of essay is not description for description's sake. The descriptive essay strives to communicate a deeper meaning through the description. In a descriptive essay, the writer should show, not tell, through the use of colorful words and sensory details. The best descriptive essays appeal to the reader's emotions, with a result that is highly evocative. ***3. Expository Essays: Just the Facts*** The expository essay is an informative piece of writing that presents a

	balanced analysis of a topic. In an expository essay, the writer explains or defines a topic, using facts, statistics, and examples. Expository writing encompasses a wide range of essay variations, such as the comparison and contrast essay, the cause and effect essay, and the "how to" or process essay. Because expository essays are based on facts and not personal feelings, writers don't reveal their emotions or write in the first person. ***4. Persuasive Essays: Convince Me*** While like an expository essay in its presentation of facts, the goal of the persuasive essay is to convince the reader to accept the writer's point of view or recommendation. The writer must build a case using facts and logic, as well as examples, expert opinion, and sound reasoning. The writer should present all sides of the argument, but must be able to communicate clearly and without equivocation why a certain position is correct. Research: Begin the essay writing process by researching your topic, making yourself an expert. Utilize the internet, the academic databases, and the library. Take notes and immerse yourself in the words of great thinkers. 2. Analysis: Now that you have a good knowledge base, start analyzing the arguments of the essays you're reading. Clearly define the claims, write out the reasons, the evidence. Look for weaknesses of logic, and also strengths. Learning how to write an essay begins by learning how to analyze essays written by others. 3. Brainstorming: Your essay will require insight of your own, genuine essay-writing brilliance. Ask yourself a dozen questions and answer them. Meditate with a pen in your hand. Take walks and think and think until you come up with original insights to write about. 4. Thesis: Pick your best idea and pin it down in a clear assertion that you can write your entire essay around. Your thesis is your main point, summed up in a concise sentence that lets the reader know where you're going, and why. It's practically impossible to write a good essay without a clear thesis. 5. Outline: Sketch out your essay before straightway writing it out. Use one-line sentences to describe paragraphs, and bullet points to describe what each paragraph will contain. Play with the essay's order. Map out the structure of your argument, and make sure each paragraph is unified. 6. Introduction: Now sit down and write the essay. The introduction should grab the reader's attention, set up the issue, and lead in to your thesis. Your intro is merely a buildup of the issue, a stage of bringing your reader into the

	essay's argument. *(Note: The title and first paragraph are probably the most important elements in your essay. This is an essay-writing point that doesn't always sink in within the context of the classroom. In the first paragraph you either hook the reader's interest or lose it. Of course your teacher, who's getting paid to teach you how to write an essay, will read the essay you've written regardless, but in the real world, readers make up their minds about whether or not to read your essay by glancing at the title alone.)* 7. Paragraphs: Each individual paragraph should be focused on a single idea that supports your thesis. Begin paragraphs with topic sentences, support assertions with evidence, and expound your ideas in the clearest, most sensible way you can. Speak to your reader as if he or she were sitting in front of you. In other words, instead of writing the essay, try *talking* the essay. 8. Conclusion: Gracefully exit your essay by making a quick wrap-up sentence, and then end on some memorable thought, perhaps a quotation, or an interesting twist of logic, or some call to action. Is there something you want the reader to walk away and do? Let him or her know exactly what. 9. MLA Style: Format your essay according to the correct guidelines for citation. All borrowed ideas and quotations should be correctly cited in the body of your text, followed up with a Works Cited (references) page listing the details of your sources. 10. Language: You're not done writing your essay until you've polished your language by correcting the grammar, making sentences flow, incorporating rhythm, emphasis, adjusting the formality, giving it a level-headed tone, and making other intuitive edits. Proofread until it reads just how you want it to sound. Writing an essay can be tedious, but you don't want to bungle the hours of conceptual work you've put into writing your essay by leaving a few slippy misppallings and pourly wordedd phrazies.
32. Experiments	An **experiment** is a methodical procedure carried out with the goal of verifying, falsifying, or establishing the validity of a hypothesis. Experiments provide insight into cause-and-effect by demonstrating what outcome occurs when a particular factor is manipulated. Experiments vary greatly in their goal and scale, but always rely on repeatable procedure and logical analysis of the results TYPES OF EXPERIMENTS

	CONTROLLED A controlled experiment generally compares the results obtained from an experimental sample against a *control* sample, which is practically identical to the experimental sample except for the one aspect whose effect is being tested (the independent variable). NATURAL The term "experiment" usually implies a controlled experiment, but sometimes controlled experiments are prohibitively difficult or impossible. In this case researchers resort to *natural experiments* or *quasi-experiments*. Natural experiments rely solely on observations of the variables of the system under study, rather than manipulation of just one or a few variables as occurs in controlled experiments. FIELD Field experiments are so named in order to draw a contrast with laboratory experiments, which enforce scientific control by testing a hypothesis in the artificial and highly controlled setting of a laboratory. Often used in the social sciences, and especially in economic analyses of education and health interventions, field experiments have the advantage that outcomes are observed in a natural setting rather than in a contrived laboratory environment
33. Explicit Teaching	Explicit teaching is focused on specific learning outcomes. The content is divided into objectives that teach specific sub-skills and includes providing information, modeling and guided as well as independent practice. Modeling is an especially important aspect in that the teacher demonstrates the thinking process involved the model by performing a "Think aloud" while modeling. Topics and contents are broken down into small parts and taught individually. It involves explanation, demonstration and practice. Children are provided with guidance and structured frameworks. Topics are taught in a logical order and directed by the teacher.
34. Field Trips	Any structured activity that takes students outside the classroom to a new location is a field trip. Field trips offer students the opportunity to see an event, connect with an authority of the subject being studied, view artifacts, or view a performance that is not available in the classroom. A field trip takes a tremendous amount of planning and additional work during the trip. Students must receive instruction to prepare them for the event so that they understand the purpose, know what they should be observing and lastly know what will be expected of them in regards to the learning when they have returned to the classroom. Districts have many requirements that must be fulfilled in order to gain

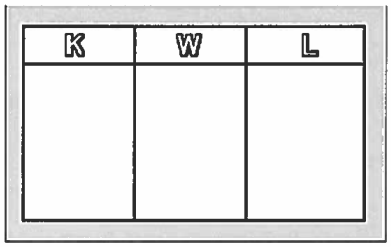
	permission to take a field trip.	
35. Fish Bowl	To prepare for the actual fishbowl dialogue, ask the fishbowl students to sit in a circle in the middle of the room. Your class or workshop participants, or the "observers," should sit in a larger circle around the fishbowl students. **Instructions:** The following steps will set the ground rules, then initiate and process the dialogue for the student fishbowl activity: 1. One important ground rule must guide the participation of the observers: During the course of the fishbowl, observers are not allowed to speak. Their job is to listen and learn from the fishbowl students. Mention that the observers will have an opportunity to discuss any issues that emerge in later processing dialogue. 2. If possible, assign one of the fishbowl students the role of facilitator. It will be her or his responsibility to ask questions, facilitate the fishbowl discussion, and make sure everyone has an opportunity to talk. If necessary, you can play the role of facilitator. 3. The topics to be discussed by the fishbowl can be developed to be relevant to your course or workshop. For the most part, fishbowl participants should have an opportunity to take the conversation where they want - or need - it to go. If it becomes necessary to push the conversation along, possible prompts include the following: o What are your favorite things about school? o What aspects of your school do you feel should be improved? o What can your teachers do to help you learn better? o Share a story about when one of your teachers did something that made you feel especially included in the learning process. o Share a story about when you felt you were especially excluded from your own learning process. o Who is your favorite teacher? Why? o Who is your least favorite teacher? Why? o What do you feel is the role of school in your life? o What do you feel should be the major goals of schools? 4. Make sure everybody in the fishbowl has an opportunity to talk. 5. Allow the fishbowl discussion to continue for at least 30 minutes. You can allow it to continue longer if time permits. 6. When the fishbowl discussion winds down, divide the combination of your participants and the fishbowl students into small groups of 6-10. This will provide the observers an opportunity to ask for clarification on comments made during the fishbowl. Instruct the observers that they are not to invalidate or question the students' experiences or perspectives. They should use the small group discussions only to learn more from the fishbowl students. Allow at least 30 minutes for small group discussions. 7. After small group discussions, call everyone back together. This will be the final processing discussion. A variety of questions can guide this conversation: o To the observers: Was it difficult to not respond to the fishbowl students' comments during the fishbowl? Why? o To the fishbowl students: How did it feel to share your feelings about school, knowing that these teachers were listening closely? o To the fishbowl students: Do you usually have opportunities to share your perspectives on school and your education? o To the observers: Did you hear anything from the fishbowl that surprised you? To wrap up the exercise, pose a final question, giving everyone an opportunity to answer: What is one thing you have learned from this experience?	

	http://www.edchange.org/multicultural/activities/fishbowl.html	
36. Focused Imaging/Visualization	Focused Imaging/visualization is the process of creating a mental image or intention of what you want to happen or feel. A form of covert active participation, it is a teaching technique that teachers can use to promote learning and enhance creativity. Creating a mental image is the first step in gaining an understanding of a person, place or concept. Many athletes have used visualization techniques in order to learn how perform a skill before they can actually do it. In teaching it mentally focuses the learner and actively involves the student. Some phrases that can be used to elicit a visualization are; "Think about. . . " "Consider . . ." "In your mind's eye picture. . ."	
37. Four Sides	✓ On each wall of the classroom, post signs that say: "Strongly Agree," "Agree," "Disagree," "Strongly Disagree" ✓ Present students with a statement related to a concept or topic currently being studied ✓ Have students respond to the statement by moving and standing under the sign that represents their opinion ✓ Give the students 1-2 minutes to discuss with in their groups why they chose that place to stand ✓ Optional: Have students partner with someone from another side and try to persuade them to change their opinion ✓ Small groups for an activity can be formed by having the students work with the others who chose the same side or by taking one person from each side to create groups of four with differing viewpoints. http://www.fortheteachers.org/instructional_strategies/#AlternativeAssessment	
38. Graphic Organizers	A graphic organizer is a visual representation used to visually represent the relationships and patterns between the ideas and facts presented in a lesson. Story maps, advanced organizers and webs are all forms of graphic organizers. They may be used before, during and after the presentation of information. Before they assist in eliciting and assessing prior knowledge. During instruction they assist the learning in organizing their thoughts and seeing relationships and patterns. After instruction they can be used to assist students in summarizing what has been learned. As a scaffolding tool they should be used to insure initial understanding of the concept and then their use should fade such that the student is able to perform the skill or use the strategy without the assistance of the physical organizer.	
39. Guided Reading	Guided reading is a strategy in which teachers select small groups of students to teach specific skills. Student groups are flexible, meaning that the member selection is designated by the need to learn the specific skill being	

	taught. The text used to illustrate the skill/strategy being taught are called leveled readers, that is to say that each students is given a book appropriated their instructional level. Book levels are pre-determined and can be found on many web sites. Teachers use both observations and a process called "Running Records" as tools to determine students' instructional needs. Running records are a one-on-one assessment of a child's reading level by assessing students decoding accuracy and the types of errors made while reading. For additional information see authors Fountas and Pinnell.	
40. Heads Together	• Works especially well for students already working in small groups, especially if they are sitting at a table or cluster of desks together o **How It Works:** 1. Present a question to the class. Announce "Heads Together!" 2. Students stand up and lean in toward the others in the small group – literally heads together! 3. In their group, students discuss answers to the question 4. After a minute or two, announce "Heads Apart!" 5. Students end their discussion and sit back down. 6. Follow up with whole group discussion and continue with the lesson. • **Benefits:** o Every student participates o Standing up – that little bit of physical activity – can be enough to increase student engagement and get their focus back on the work at hand o Leaning together helps keep the noise level down while so many student groups are having conversations at once o Can be used as needed with no prior planning – If a lesson is dragging, if students are distracted, tired, or not paying attention, use this strategy to get them back on track and refocused. http://www.fortheteachers.org/instructional_strategies/#AlternativeAssessment	
41. Heterogeneous Grouping	Heterogeneous grouping allows for the classroom distribution of a wide variety of different abilities in both the cognitive and affective domains.	
42. Homogeneous Grouping	Homogeneous grouping permits the grouping students in a classroom where there is a grouping of students within a narrow range of cognitive and affective abilities.	
43. Interdisciplinary Approach	An interdisciplinary approach to teaching involves the application of more than one academic discipline/subject to a central theme, issue, question, problem, or topic. It creates connections between the disciplines so that the learner acquires knowledge and connects that knowledge across a broad range of contents. It creates learning across the curriculum and integrates a	

	variety of opportunities for critical thinking. Develop a plan and use the Interdisciplinary Concept Model (Jacobs and Borland 1986) as a guide. 1. Choose a topic-concepts such as observations, patterns, light, revolution, humor, flight, pioneers, the future, and world hunger have proven highly effective (Jacobs). 2. Brainstorm for ideas that can be organized onto an interdisciplinary concept model. This model has the theme in the center and the subject areas are explored in relation to the theme. 3. Guiding questions are developed to serve as scope and sequence. The questions are general and should transcend discipline lines (Jacobs p.60). After the questions have been developed the activities that explore the questions can be developed. Hayes Jacobs (1989) recommends that Bloom's Taxonomy can be used to develop a matrix that ensures higher-level thought processes. 4. There are also activity plans that can be used to develop activities. • Unit: Habitat: Do birds come to our park? • Knowledge: Identify birds in our park • Comprehension: Observe bird behavior • Application: Chart the species • Analysis: Compare the behavior • Synthesis: Build a birdfeeder • Evaluation: Appraise its effect
44. Jigsaw	In its simplest form, the Jigsaw instructional strategy is when: 1. Each student receives a portion of the materials to be introduced; 2. Students leave their "home" groups and meet in "expert" groups; 3. Expert groups discuss the material and brainstorm ways in which to present their understandings to the other members of their "home" group; 4. The experts return to their "home" groups to teach their portion of the materials and to learn from the other members of their "home" group In more detail, and written from a teacher's perspective, to conduct a Jigsaw in your classroom: 1. Assign students to "home" teams of 4 or 5 students (generally their regular cooperative learning teams). Have students number off within their teams. 2. Assign study topics to "home" team members by giving them an

	assignment sheet or by listing their numbers and corresponding roles on the board. 3. Have students move to "expert" groups where everyone in the group has the same topic as themselves. 4. Students work with members of their "expert" group to read about and/or research their topic. They prepare a short presentation and decide how they will teach their topic to their "home" team. You may want students to prepare mini-posters while in their "expert" Groups. These posters can contain important facts, information, and diagrams related to the study topic. 5. Students return to their "home" teams and take turns teaching their team members the material. I find it helpful to have team members take notes or record the information in their journals in some way. You may want them to complete a graphic organizer or chart with the new information. 6. Involve the class in a whole-group review of all the content you expect them to master on the assessment. Administer an individual assessment to arrive at individual grades.	
45. Journal Writing	Journals can be used throughout the day, at different times of the day and for different purposes. 1. Decide what type of journal you want to use in your classroom. Think about the purpose of the journal and how will you use it. 2. Prepare materials. Your students' journals may be loose leaf notebooks or folders. Individual pages should be contained in some way so that they are not lost over time. 3. Model initial entries. Using an overhead projector or classroom chart, work together to write a sample response. Students can copy the class response in their own journal or write one of their own. 4. Schedule time for regular journal use. Students are all engaged in the act of writing and this enables individuals to generate ideas, observations and emotions. While you should not grade or correct the writing in journals – only finished pieces should be used for grading – you could comment on your students' writing. Offer suggestions, constructive remarks, questions, and encouragement whenever possible. Sometimes students will respond to the teacher's comments. One of the biggest problems with writing journals is that some students use them simply as a way to record the day's events. They slip into the routine of writing diary entries without reflection or real purpose. You can reduce this by encouraging your students to **write about a variety of topics** and take what they feel are the better entries and develop them into finished pieces.	

46. Jumble Summary	On a paper or overhead transparency present randomly ordered numbered key words, phases or sentences. Set a timer for 8 minutes and have students order them in the correct, logical order to demonstrate understanding of the lesson. e.g. – steps in solving an equation, events in a timeline, events in a plot sequence, stages in a cycle.
47. KWL	• On the chalkboard, on an overhead, on a handout, or on students' individual sheets, three columns should be drawn. Know – Want to Know - Learned • Before reading, students fill in the Know column with everything they already know about the topic. This helps generate their background knowledge. • Then have students predict what they want to learn or what they might learn about the topic, which might follow a quick glance at the topic headings, pictures, and charts that are found in the reading. This helps set their purpose for reading and focuses their attention on key ideas. • Alternatively, you might have students put in the middle column what they want to learn about the topic. • After reading, students should fill in their new knowledge gained from reading the content. They can also clear up misperceptions about the topic which might have shown up in the Know column before they actually read anything. This is the stage of meta-cognition: did they get it or not? 
48. Learning Centers	Learning centers are designated activities that provide an engaging way for students to work independently of the teacher in small groups, pairs, or individually to reinforce and extend classroom learning. Learning centers for middle school students are designed with the middle-level student in mind. **TYPES OF STATIONS** (can use combinations of these) • Rotating (rotate students through activities, or rotate activities through groups of students) • Individualized Stations (students/groups only use the stations they need or

	to which they are assigned) • Sequential Learning Stations (students must work through the activities in a particular order and proceed with mastery) • Thematic Stations (all activities set up to support a specific unit of study) • Enrichment Stations (stations that can be selected after assigned stations are completed) **HOW OFTEN:** • Daily (1-2 stations a day) • Once a week ("Fun Fridays") • 2 times a week • 3 times a week • Every three weeks • Once a reporting period (six/nine weeks) • At the end of a unit of study • Sample Schedules (FA, ML, Stations, Wrap-up) **HOW TO GROUP STUDENTS:** • group by need/skill • group by activity • group by literature • group by interest • group by learning styles • random grouping (# drawn, students wearing red, etc.) • self-selected grouping (students select their own groups) • flexible grouping (change groups as needed for any/all of the above) **TYPES OF ACTIVITIES** • file folder games/activities • envelope games/activities • magnetic games/activities • interactive bulletin boards • box games/activities • gift bag games/activities • computer games/activities • listening center activities • self-correcting activities • activity menus • tiered assignments 4 *Copyright © 2007 by Blevins Enterprises.* • commercial learning centers/activities (see bibliography) • commercial ELA games (QUIET: Scrabble™, Upwords™, Wordigo™, Word Sweep™, Word Thief™, Quiddler™, Words Galore™, Boggle™, NOISY:

	IDEAS FOR DECORATING ACTIVITIES/STATIONS • computer, clipart, shapes, etc. • stickers • cartoons • teen magazine pictures • candy wrappers • fast food wrappers • advertisement pictures • scrapbook paper • die-cut shapes • wrapping paper • student artBlurt, Buzz Word™, Scattorgories™, Outburst Jr. ™, Word Sense™, Nameits™, Smart Mouth™, A-Z Game™, http://www.fortheteachers.org/instructional_strategies/#AlternativeAssessment	
49. Learning Centers/Stations	• Centers/Stations can be used to arrange various activities and assignments by level of difficulty or by interest. Set up several learning stations around the classroom with several activities from which student may either have free choice or may have to complete a list of activities. **Ideas:** • **By Academic Skill Level:** Set up 3-4 experiments that deal with the same concept, but that vary in complexity. Lower-level students may work on the experiment with fewer steps while higher-level students work on a more complicated task. • **By Learning Style:** Set up stations focused on the same concept but designed for different modalities. Auditory learners may listen to a recording of text while visual learners examine maps and posters and kinesthetic learners use manipulatives. • **By Interest:** Set up stations focusing that provide additional information about and enrichment of specific components of the concepts being studied. Allow students to choose which component they spend their time working on.	
50. Learning Contracts	Learning contracts provide a method of individualizing instruction and developing student responsibility. They permit individual pacing so that students may learn at the rate at which they are able to master the material. Learning contracts can be designed so that students function at the academic levels most suitable to them and work with resource materials containing concepts and knowledge that are appropriate to their abilities and experiences. Although this method focuses on the individual, learning contracts also provide an opportunity for students to work in small groups. The teacher may select this approach for some students to support them as	

	they learn to work independently. When a student is first beginning to use learning contracts, the teacher provides learning objectives, identifies a choice of resources, and sets some basic time parameters for the project. As students become more experienced with learning contracts, the teacher may choose to involve them in setting the learning objectives. Learning contracts usually require that students demonstrate the new learning in some meaningful way, but students are provided choice in the selection of a method or activity. Learning contracts can be highly motivating for students. As they become skillful in making appropriate choices and as they begin to assume more responsibility for their own learning, they become increasingly independent, learn to use resources to their advantage, and take pride in their ability to teach themselves and share their new learning with others.
51. Learning Logs	There is some overlap between portfolios and learning logs, in fact, both journals and learning logs frequently provide artifacts for the student portfolio. The most valuable result of learning logs is that as students write to learn, they also learn to recognize their own and other's good work. Both learning logs and journals assist the learning process. Journals are free flowing, subjective relying on opinion and personal experience. Learning logs are concise, objective factual and impersonal in tone. Logs can include problem-solving entries from mathematics or science, observations from lab experiments, questions about lectures or readings, lists of books students have read or would like to read and homework assignments. The following questions could be used to guide students in making thoughtful entries in their learning logs: • What did I do in class today? • What did I learn? • What did I find interesting? • What questions do I have about what I learned? • What was the point of today's lesson? • What connections did I make to previous ideas of lessons? **How can I adapt it?** • **Writing about Mathematics** Students write an explanation to another student of how to do a math problem. They should include the why of the solution as well as the how. • **Writing about History** Students place themselves in a historical period or event and write about it from the point of view of someone who is there. In their

	responses, students focus on the what, where, why, how, when, and what if. Or students write a dialogue between themselves and a historical personage, focusing on the same details. • **Focused Writing** Focused writing is an excellent way to begin a collaborative session. Students write non-stop for five minutes on a specific topic they are studying. The purpose is for students to find out what they know about the topic, to explore new ideas, and to find out what they need to learn about the topic.	
52. Literature Circles	1. Select members for the Literature Circles (discussion groups). 2. Assign roles for the members of each circle. 3. Assign reading to be completed by the circles inside or outside of class. 4. Select circle meeting dates. 5. Help students prepare for their roles in their circle. 6. Act as a facilitator for the circles. Some roles may be: • discussion director - develops questions for the group to discuss • passage picker or literary luminary - chooses a selection that the group rereads and discusses because it is interesting, informative, the climax, well written.... • vocabulary enricher - chooses words that are difficult or used in an unfamiliar way • connector - finds a connection between the story and another book, event in their personal life or the outside world • illustrator - draws a picture related to the reading • summarizer - prepares a brief summary of the passage read that day • travel tracer - tracks the movement when the characters move a lot • investigator - looks up background information related to the book The teacher will determine what roles should be used depending upon the age and ability of the students as well as the reading selections. **How can I adapt it?**	
53. Menus	• List of assignments, activities, or projects a student will work on during a set amount of time (e.g. - one class period, one week, one	

	unit). Students may choose the order which they complete the work. **Menu Format:** o **"Main Course" Items:** Assignments that the student is required to complete o **"Side Dish" Items:** Students choose 2-3 assignments from a list of options o **"Dessert" Items:** Optional items that students may choose for additional enrichment or practice • Agenda format may be structured more loosely, such as the low-prep example below • Like Learning Contracts, Menus/Agendas can be used to practice time-management as well. Provide students with a blank calendar have students schedule days/class periods when they will work on each part of the contract in order to meet the final due date. Students working on the same part of the contract during the same class period may have the option of working together.	
54. Mind Mapping	To make a mind map, start in the center of the page with the main idea, and work outward in all directions, producing a growing and organized structure composed of key words and key images. Key features are: • Organization • Key Words • Association • Clustering • Visual Memory - Print the key words, use color, symbols, icons, 3D-effects, arrows and outlining groups of words • Uniqueness - every Mind Map needs a distinctive center • Conscious involvement Mind Maps help organize information. This can allow students to develop a strategy for note-taking, creative writing, report writing, studying the easy way, studying as a group, meetings, think tanks and can alleviate writer's block. The Process • Teacher models the process with prompted contributions e.g. a mind map for 'Myself' • Children extend their ability to make contributions • Children begin to work through the process with increasing independence perhaps with the support of the main/smaller branches	

	Improving Your Mind Maps • Use single words or simple phrases for information • Print words • Use color to separate different ideas • Use of symbols and images • Use shapes, circles and boundaries to connect information • Use arrows to show cause and effect	
55. Mini Lessons	A mini lesson is a short lesson with a narrow focus that provides instruction in a skill or concept that students will then relate to a larger lesson that will follow. A mini lesson typically precedes reading workshop or writing workshop, but it can serve as an introduction to a social studies, science, or math lesson. Mini lessons can be used to teach particular skills, extend previous learning, create interest in a topic and generate questions, or introduce strategies. ***When Should It Be Taught?*** The mini lesson serves as a lead-in to a larger lesson in just about any subject area and can be as short as 5 minutes or as long as 15 minutes. ***What Does It Look Like?*** The mini lesson may be taught to a whole class, a selected small group, or individual students. The mini lesson should be short and focused on one strategy, skill, or concept. Teachers introduce the topic; demonstrate the strategy, skill, or concept; guide student practice; discuss the topic; volunteer more examples; and talk about what was taught. At the end of the mini lesson, teachers should give directions for the next activity, the literacy centers, or independent assignments.	
56. Modeling	It is important that the visual **input of *modeling* be accompanied by the verbal input of *labeling* the critical** attributes of what the makes the model correct. When modeling always tell what it is and what it is not. 4 STEPS TO GOOD MODELING 1. The teacher models and labels the critical attributes. 2. The teacher models and the student assist. 3. The student's model and the teacher assist (guided practice). 4. The students create a model of their own (independent practice)	
57. Multiple Intelligences	Dr. Howard Gardner, a psychologist and professor of neuroscience from Harvard University, developed the theory of Multiple Intelligences (MI) in 1983. The theory challenged traditional beliefs in the fields of education and cognitive science. According to Howard Gardner, human beings have nine different kinds of intelligence that reflect different ways of interacting with	

the world. Each person has a unique combination, or profile. Although we each have all nine intelligences, no two individuals have them in the same exact configuration -- similar to our fingerprints

1. **Linguistic Intelligence**: the capacity to use language to express what's on your mind and to understand other people. Any kind of writer, orator, speaker, lawyer, or other person for whom language is an important stock in trade has great linguistic intelligence.

   2. Logical/Mathematical Intelligence: the capacity to understand the underlying principles of some kind of causal system, the way a scientist or a logician does; or to manipulate numbers, quantities, and operations, the way a mathematician does.

   3. Musical Rhythmic Intelligence: The capacities to think in music; to be able to hear patterns, recognize them, and perhaps manipulate them. People who have strong musical intelligence don't just remember music easily, they can't get it out of their minds, and it's so omnipresent.

   4. Bodily/Kinesthetic Intelligence: the capacity to use your whole body or parts of your body (your hands, your fingers, your arms) to solve a problem, make something, or put on some kind of production. The most evident examples are people in athletics or the performing arts, particularly dancing or acting.

   5. Spatial Intelligence: the ability to represent the spatial world internally in your mind -- the way a sailor or airplane pilot navigates the large spatial world, or the way a chess player or sculptor represents a more circumscribed spatial world. Spatial intelligence can be used in the arts or in the sciences.

   6. Naturalist Intelligence: the ability to discriminate among living things (plants, animals) and sensitivity to other features of the natural world (clouds, rock configurations). This ability was clearly of value in our evolutionary past as hunters, gatherers, and farmers; it continues to be central in such roles as botanist or chef.

   7. Intrapersonal Intelligence: having an understanding of yourself; knowing who you are, what you can do, what you want to do, how you react to things, which things to avoid, and which things to gravitate toward. We are drawn to people who have a good understanding of themselves. They tend to know what they can and can't do, and to know where to go if they need help.

   8. Interpersonal Intelligence: the ability to understand other people.

	It's an ability we all need, but is especially important for teachers, clinicians, salespersons, or politicians -- anybody who deals with other people. **9. Existential Intelligence**: the ability and proclivity to pose (and ponder) questions about life, death, and ultimate realities.	
58. Narratives	Students can "tell what happened" by introducing the situation (who, where, and when); relaying events in a logical order (firstly, after that, next, etc.); and concluding by giving the last important event (e.g., at last ...). 1. The story should have an introduction that clearly indicates what kind of narrative essay it is. Is it an event or recurring activity, a personal experience, or an observation? It should have a conclusion that makes a point. 2. You should describe the person, the scene, or the event in some detail. The use of dialogue is fine as long as long as you avoid using too much. 3. The occasion or person described must be suggestive in that your description and thoughts lead the reader to reflect on the human experience. 4. The point of view in narrative essays is usually first person. The use of "I" invites your readers into the story. 5. The writing in your essay should be lively. Try to describe ideas and events in new and different ways.	
59. Oratory/Pubic Speaking and Speech Writing	Begin by **brainstorming** with students the reasons for writing and practicing formal speech. The easiest and perhaps most effective way to do this is to have them brainstorm or list on paper five occasions where they might now (or in the future) be asked to give a speech. Another great warm-up activity is called Table Topics. This is impromptu speaking where random topics are placed on small pieces of paper into a box. Students in turn come up and choose a topic from the box and then speak for one minute about it. Students are timed and if the time is exceeded, the timer lets the speaker know that the time is up by starting the audience clapping. Now that you have warmed students up to the need for preparing a speech, it's time to get them busy with the actual task of writing a speech. **Planning and Writing the Speech**: When students have given careful thought to their subject, their audience, their own personality, and the occasion, they are ready to plan and write the speech itself. Purpose - Students should first select their general purpose. Do they wish to	

	present factual information only, or to inform? Do they wish to change beliefs or actions, or persuade? Or do they wish to amuse, or to entertain? With their general purpose in mind, they should prepare a brief statement of their specific purpose The main ideas - The next step should be to select the main ideas, or main divisions, of the subject as stated in the specific purpose. In informative speeches, the main ideas should define the specific purpose by answering the questions Who? What? Where? When? Why? And how? In persuasive speeches, the main ideas ought to be the principal reasons for the desired belief or action. In entertaining speeches, the main ideas should be the divisions of the subject that can be amusing to the audience. Supporting material - After selecting the main ideas, they should choose supporting material. This includes such things as description, narration, comparisons, examples, testimony, statistics, visual aids (charts, diagrams, demonstrations, slides, maps, motion pictures, photographs, samples, or working models), and repetition (restatement of important ideas to increase the chance that they will be remembered). The selection of main ideas and supporting material completes the body (main part) of the speech. Introduction - Students should next plan the introduction. This usually has two parts, the opening and the statement of the specific purpose. In the opening, speakers catch the attention of their audience and arouse interest in their subject. They can do this by telling a joke or story, or by providing a fact or statistic. They may refer to an event, or to the present occasion, place, or audience (with humor or congratulations). They may quote something or ask a question. In their statement of specific purpose, they tell the audience precisely what they intend to do in their speech and what value this topic has for the audience. Conclusion – Next is the preparation of a conclusion. In informative speeches, this part should be a summary of the main ideas and specific purpose. In persuasive speeches, the conclusion should combine a summary with a final appeal to the audience to accept the arguments offered. Entertaining speeches usually end on a point of great amusement, without any type of formal conclusion. Outline - After all these steps, the students should prepare an outline. An outline is simply a listing of the ideas to be elaborated upon in the order in which they will occur. **Delivering the speech**: Students may deliver their talks directly from the outline, or they may use the outline as the basis for a written speech. Skilled speakers usually prefer to speak from the outline, without writing the whole

	speech down. A speech that is delivered from an outline, without being memorized, is said to be delivered extempore, or extemporaneously. Extempore speeches should not be confused with impromptu speeches. These types of speeches are made without any previous preparation, often without notice. If students are properly prepared, they should feel at ease in front of an audience. They should relax and speak in a natural voice. They should stand erect, make eye contact with individuals in the audience, and speak loudly enough to be heard easily. In addition, speakers should vary the pitch and volume of their voice and their rate of speech to avoid being singsong or dull.
60. Peer Partner Learning	Students work together as partners, one functioning as a "doer" and the other as a "helper". The doer performs a task or answers questions; the helper observes and provides feedback and helping information. The doer is the student and the helper takes on the role of teacher. Later, the partners reverse roles.
61. Picture Books and Illustrator Studies	**Before Instruction:** a. Consider the developmental stage of the students. What do they already know and do as viewers? What do they not know or do as viewers? What is their background knowledge? 2. Based on knowledge of the students, and skills they need to develop, what criteria and guidelines will help students focus their learning? What key information or concepts do students need to know to fully participate in this activity? What mini-lesson(s) might be needed for students to prepare for this activity? c. Clearly identify the task; and select, read and pre-review the key resources. What is the task? (For example, do you want the students to focus on one key page or image, or all the images in a book? Will students focus on color, shape, or texture?) What strategies will students need to use to participate in a meaningful, purposeful way? What supports should be offered to students throughout the process? What guiding questions would direct, re-focus, and support children through this process? **During Instruction:** a. State the purpose so students pay attention to the images as you read the book aloud. Identify viewing targets before reading the book. You may wish to post them to reinforce them and orient students to view for particular purposes. Ideas for viewing targets are listed below.

Suggested Terms

Style: realistic (depicts life closely, as a photograph)
representational (uses stylized images to stand for characters and story elements)

Visual Elements:
- Line (straight, curvy, diagonal, repeated-- patterns)
- Shape (curved or straight-edged, repeated-- patterns)
- color (hue, tint, shade, combinations, intensity)
- Textures (soft, hard, sharp, etc.)
- Scale (the size of images, and of particular shapes within the image)
- Composition (foreground, background -- How are the pieces related?)
- Medium (What materials and techniques were used to produce the image?)

Visual Effects:
- What mood is created in this/these image (s)?
- What elements produced these effects? (Find proof in the images)
- Which elements work together?
- What elements did this illustrator predominantly use?
- What aspects are unique to this illustrator?

b. Find examples of viewing targets before reading the story. Discuss the style, the elements, and the effects achieved by the visual elements.

c. Identify the author's written content, use of language, textual form (rhyme, poetry, patterned language, narrative, expository, etc.), literary devices (i.e. alliteration, simile, metaphor, etc.), aspects of plot, characters and setting. Which aspects define this writing style

d. Inter-textual Links:
Discuss how the words mesh with the images. You may choose to re-read the book, or re-read and re-view key pages to clarify understandings.

Key Questions to Summarize:

What are the major attributes of the visual text? (Main idea?)
What are the major attributes of the written text? (Main idea?)
What does the visual text contain that is not present in the written text?

	What does the written text contain that is not present in the visual text? What aspects correlate, are similar or overlap between the written and visual texts? How do the two meaning systems work together? What aspects differ greatly between written and visual texts? What is the combined effect of the visual and written texts? (Option: Consider the alignment of visual and written texts in different genre-- for example, fiction versus non-fiction material.) **After Instruction:** Extensions: Offer students opportunities to read and view other works by the same (or different) illustrators. You may wish to post key terms that emerged during the lesson, to assist individual students to read and view independently. Offer a variety of viewing engagements in the classroom, both guided and independent. Invite students to bring other illustrated books that employ similar or different styles, and share them with the class.
62. Picture Word Inductive Model	Words are 'shaken out' or listed by the poster by the students. The words are categorized and read as a class over a series of days. Each class writes and reads sentences using the words. Then, depending on the grade level, the sentences are categorized and formed into paragraphs. The students then write paragraphs. The strength of using this strategy from K to grade 6 is that it will help build students' vocabulary and writing abilities. Kindergarten begins the foundation and all of the other grades add more content and skill development through grade 6.
63. Probable Passage	• Choose eight to fourteen words or phrases from the story and write them on an overhead or the chalkboard. The words should include ones that reflect the characters, setting, problem, and outcomes, as well as some unknown words that are critical to the theme of the selection. • Divide class into groups of three and present with a Probable Passage worksheet that includes boxes that are labeled "Characters," "Setting," "Problem," "Outcomes," and "Unknown Words." In addition to these boxes, there are lines designated for writing a gist or prediction statement. Finally, there is a "Question" section that encourages the group to write down what they hope to find out during the reading. 3. Working as a group, the students discuss all of the words and phrases and decide into which box to put each one. As many of these

	as possible should be used, but it is not necessary to place all of them in a box. It is important to remind the class that the "Unknown Words" are ones that the meanings are not known, not just those that the group can't decide into which box they should go. 4. The gist or prediction statement is written, as well as the questions. 5. When the worksheets are finished, each group shares the results and reads their gist statement aloud. 6. Brainstorm as a class what they want to discover when reading the selection. 7. Read the text. 8. After reading, compare the Probable Passages and discuss into what categories the author would have placed the words. Also, students can reflect how using this strategy helped in understanding the text	
64. Problem Solving	***Reflective Problem Solving*** follows a series of tasks. Once you have broken the students into groups, the students define the problem, analyze the problem, establish the criteria for evaluating solutions, propose solutions and take action. *Define the Problem*: List all the characteristics of the problem by focusing on the symptoms, things affected, and resources or people related to defining the problem. In the end, pair down the thinking to a clear definition of the problem to be solved. *Analyze the Problem*: Use the evidence you collected in step one to decide why the problem exists. This step is separate from defining the problem because when the steps are done together it is possible to prejudge the cause. *Establish Criteria*: Set a clear objective for the solution. If the problem is too hard, break the objectives into two categories – musts and wants. Don't discuss solutions yet, just what criteria a solution must meet. *Propose Solutions*: Brainstorm as many different solutions as possible. Select the one that best meets the objectives you stated as a part of the criteria for a solution. *Take action*: Write a plan for what to do including all resources you will need to complete the plan. If possible, implement the plan. ***Creative Problem Solving*** uses the same basic focus, but the process is less geared towards solutions and more towards a focus on brainstorming. The focus is on creating ideas rather than solving a clear existing problem. Sometimes the problem is pre-defined, and the group must focus on understanding the definition rather than creating it.	

	Orientation: Similar to defining the problem, orientation also focuses on being sure the group is prepared to work together. The group might take the time to agree upon behaviors or ways of saying things in addition to setting the context and symptoms of the issues. The group generates a series of headings that group the topics they must address. *Preparation and Analysis*: Decide which headings are relevant or irrelevant. The group focuses on similarities and differences between ideas and works on grouping them into like categories. The group asks how and why a lot, and focuses on the root cause of the problem in a way that is similar to analyzing the problem. *Brainstorm*: The group generates as many potential solutions as possible. At this point, all ideas are considered to be good ones. *Incubation*: Before deciding which solution is the best, the group should leave the problem for as much time as reasonable. Often several days or a week is ideal depending on the ages of the students. Leave enough time to develop distance but not long enough for students to lose the gist of their earlier work. *Synthesis and Verification*: Start by establishing the criteria for a good solution, then look at all the brainstormed solutions and try to combine them to create the solution with the greatest numbers of positives and the smallest numbers of negatives.	
65. QARs	The question–answer relationship (QAR) strategy helps students understand the different types of questions. By learning that the answers to some questions are "Right There" in the text, that some answers require a reader to "Think and Search," and that some answers can only be answered "On My Own," students recognize that they must first consider the question before developing an answer. ***How to use question–answer relationship*** 1. Explain to students that there are four types of questions they will encounter. Define each type of question and give an example. Four types of questions are examined in the QAR: o **Right There Questions**: Literal questions whose answers can be found in the text. Often the words used in the question are the same words found in the text. o **Think and Search Questions**: Answers are gathered from several parts of the text and put together to make meaning. o **Author and You**: These questions are based on information provided in the text but the student is required to relate it to their own experience. Although the answer does not lie	

	directly in the text, the student must have read it in order to answer the question. o **On My Own:** These questions do not require the student to have read the passage but he/she must use their background or prior knowledge to answer the question. 2. Read a short passage aloud to your students. 3. Have predetermined questions you will ask after you stop reading. When you have finished reading, read the questions aloud to students and model how you decide which type of question you have been asked to answer. 4. Show students how find information to answer the question (i.e., in the text, from your own experiences, etc.).	
66. RAFT	The RAFTs Technique (Santa, 1988) is a system to help students understand their role as a writer, the audience they will address, the varied formats for writing, and the expected content. It is an acronym that stands for: • Role of the Writer - Who are you as the writer? Are you Sir John A. Macdonald? A warrior? A homeless person? An auto mechanic? The endangered snail darter? • Audience - To whom are you writing? Is your audience the Canadian people? A friend? Your teacher? Readers of a newspaper? A local bank? • Format - What form will the writing take? Is it a letter? A classified ad? A speech? A poem? • Topic + strong Verb - What's the subject or the point of this piece? Is it to persuade a goddess to spare your life? To plead for a re-test? To call for stricter regulations on logging? Almost all RAFTs writing assignments are written from a viewpoint different from the student's, to another audience rather than the teacher, and in a form different from the ordinary theme. Therefore, students are encouraged to use creative thinking and response as they connect their imagination to newly learned information. **How Can I Do It?** ***Step one:*** Explain to the students how all writers have to consider various aspects before every writing assignment including role, audience, format, and topic. Tell them that they are going to structure their writing around these elements. (It may be helpful to display the elements on chart paper or a bulletin board for future reference). ***Step two:*** Display a completed RAFTs example on the overhead, and discuss	

	the key elements as a class. ***Step three:*** Then, demonstrate, model, and "think aloud" another sample RAFTs exercise with the aid of the class. Brainstorm additional topic ideas, and write down the suggestions listing roles, audiences, formats, and strong verbs associated with each topic. ***Step four:*** Assign students to small, heterogeneous groups of four or five or pairs and have them "put their heads together" to write about a chosen topic with one RAFTs assignment between them. ***Step five:*** Circulate among the groups to provide assistance as needed. Then have the groups share their completed assignments with the class. ***Step six:*** After students become more proficient in developing this style of writing, have them generate RAFTs assignments of their own based on current topics studied in class.
67. Read & Paraphrase	Paraphrasing while reading isn't just essential to concrete tasks like putting book shelves together. It's critical for every kind of reading you do. **Paraphrasing acts as a comprehension check.** If you can paraphrase what you've read, you have understood the material. And make no mistake, if you don't paraphrase, it's easy to deceive yourself on that score. When the author's words are right in front of your eyes, you can convince yourself you've understand their meaning. But if you take those words away and can't recap what they say in words of your own, guess what, you haven't really understood the author's message. And that's not something you want to find out right before a test. You need to know that *while* you are reading, so you can 1. re-read the passage more slowly 2. mark it for a later re-reading or 3. ask someone for help understanding the author's words. Equally important, **paraphrasing gives your brain a chance to store what you have learned from your reading in long-term memory**. While you are looking for word substitutes that allow you to paraphrase, your brain is re-processing what you have just read. It's the double processing of new information that makes paraphrasing such a useful learning strategy with three important benefits: 1. It forces you to re-think and, therefore, better understand the material.

	2. It tells you when you have not fully understood what you have read. 3. It acts as a memory booster, giving your brain the time to store new information in long-term memory. An accurate paraphrase has to change the words, but it can't alter the meaning	
68. Read Aloud	Read-aloud is an instructional practice where teachers, parents, and caregivers read texts aloud to children. The reader incorporates variations in pitch, tone, pace, volume, pauses, eye contact, questions, and comments to produce a fluent and enjoyable delivery. Reading texts aloud is the single most important activity for building the knowledge required for successful reading (McCormick, 1977). Read Alouds can be used to introduce a unit, or lesson objective; t give meaning to a specific point in a lesson or to assist in providing a thinking point for lesson closure. Teachers can use the text to make reading connections that students might have otherwise missed. A list of recommended books by age can be found at: http://www.readaloudamerica.org/pdfs/2012%20READING%20LIST.pdf	
69. Read, Pause & Reflect	As students read, they will be asked to evaluate their own understanding of the text and to connect the new knowledge to what they already know. In addition, students will be asked to summarize the information several times. This process allows them to know exactly where their comprehension is breaking down – because if they cannot summarize a portion of the text, they probably did not understand it. How to use: • Divide the reading into logical but relatively equal parts. You can do this for students or ask the class to do it. Write the starting and stopping points for each section in the spaces at the top of each square. • Instruct students to stop at the end of each section and develop a statement that summarizes the main point of that section. (**Clarifying** the main idea of the reading) • After determining the main point, students are to generate a question suggested by the reading or their own interest. (**Asking questions** of the text, author, etc.) • Next, have students make a connection between something they already know and the new information contained in the reading. (**Making a connection** – text to self, text to text, or text to world)	

	• Tell students to move to the next segment of the reading after they have completed the main point, question, and connection for the current section of the reading. Divide a sheet of paper into 4 sections. Each section should include the following: Read from _____ to _____ Main Point: Question: Connection
70. Readers' Theater	**What is Readers' Theatre?** Readers' theatre is a joint dramatic reading from a text, usually with no memorization, no movement and a minimum of props. It involves children in oral reading through reading parts in scripts. Unlike traditional theatre, the emphasis in on oral expression of the part - rather than on acting and costumes. **What is its purpose?** It enables students to bring a text to life and together create a powerful interpretation. It offers less confident readers support from peers and provides a genuine social purpose for attentive reading. It also provides students with models for creating 'the voice behind the page' in their own silent reading. Readers' Theatre provides a real context for reading and has obvious benefits for students by increasing their skills as readers, writers, listeners and speakers. Readers' theatre can be used to introduce longer texts that students may then go on to read. In the same way that a television adaptation can push book sales through the roof, readers' theatre can take students into the world of a text and entice them into enthusiastic reading. **How can I do it?** First an appropriate text is selected. Many narrative texts can be adapted for readers' theatre. Picture books are often ideal and fun to use. For longer texts, several narrators can be allocated, characters can be assigned to students who read their speech, and longer descriptive passages that do not suit dramatic reading can be omitted. Alternatively, scripts are sometimes prepared specifically for readers' theatre. Susan Hill and Joelie Hancock suggest starting by demonstrating with repetitive picture books such as Hattie and the Fox by Mem Fox or Who Sank the Boat? by Pamela Allen. The teacher can start by reading the text through

	and then getting the students to join in with the dialogue or for alternate sentences to create a dramatic reading. The degree of preparation depends on the expertise of the readers and the specific purpose of the reading. Some students like to include costume suggestions, music and other props.
71. Readers' Workshop	Reader's Workshop uses several consistent components but there is much variation on how it is implemented in different classrooms. • Mini-lessons on some aspect of literature or a reading strategy. • Independent Reading Time, where students keep a journal and respond to the literature in terms of what they think or how they feel about what they are reading. • Sharing Time where students share with another person their journal entries and the other person gives feedback. During Independent Reading Time, the teacher engages in student conferences on an individual or group basis. Teachers can also engage in guided reading with groups of students who need additional support.
72. Reading Buddies	• Pair each student with another of a different reading level (low with medium, medium with high) for partner reading and discussion • Also, pairing upper grade students with lower grade students, such as having a fourth grade class buddy up with a first grade class, provides reading practice for all students and can be fun and motivating for both groups. http://www.fortheteachers.org/instructional_strategies/#AlternativeAssessment
73. Reading Connections	**Modeling text-to-self connections:** • Tell students that they are making text-to-self connections when they are reminded of something from the text they are reading or listening to and can connect it to something from their own lives. • Tell students that you are going to show them a strategy that good readers use to help them understand stories they read or listen to. • Conduct the activity by - your selected book and writing notes to guide your instruction. • Gather students in a large group and tell them to watch and listen as you read aloud and make text-to-self connections. • Read aloud, model, and verbalize the connections you are making. • Be sure to stop frequently to share your connections. • Be sure to use strategy-related language, for example, "This part where (refer to what happened) reminded me of...." • Give students a turn and record their responses on large chart paper.

	Modeling text-to-text connections: • Tell students that they are making text-to-text connections when they are reminded of something from this text and can relate it to something they have read in another text. • Tell students that you are going to show them another way to make connections to help them become better readers and listeners. • Conduct the activity by selecting two books that offer similar elements as this will help to make the process explicit for students. • Read aloud the selected texts on consecutive days. • Model connections you are making between one book and the one you already read. • Be sure you have pre-read and made notes on the sections of the text you want to refer to. • Be sure to use strategy-related language, for example, "When I read this part of the story where (refer to the part), I thought about...," "This part is just like...," or "This is similar to...." • Give students a turn, and record their responses on large chart paper. **Modeling text-to-world connections:** • Tell students that they are making text-to-world connections when something in the book makes them think about something that is happening or has happened in their neighborhood, community, country, or the world. • Model the process as outlined for making text-to-self and text-to-text connections. • Give students a turn and record their responses on large chart paper.
74. Reciprocal Reading	Reciprocal teaching refers to an instructional activity in which students become the teacher in small group reading sessions. Teachers model, then help students learn to guide group discussions using four strategies: summarizing, question generating, clarifying, and predicting. Once students have learned the strategies, they take turns assuming the role of teacher in leading a dialogue about what has been read. Before Reciprocal Teaching can be used successfully by your students, they need to have been taught and had time to practice the four strategies that are used in reciprocal teaching (summarizing, questioning, predicting, clarifying). One way to get students prepared to use reciprocal teaching: (from Donna Dyer of the North West Regional Education Service Agency in North Carolina) 1. Put students in groups of four. 2. Distribute one note card to each member of the group identifying

	each person's unique role: o Summarizer o Questioner o Clarifier o Predictor 3. Have students read a few paragraphs of the assigned text selection. Encourage them to use note-taking strategies such as selective underlining or sticky-notes to help them better prepare for their role in the discussion. 4. At the given stopping point, the Summarizer will highlight the key ideas up to this point in the reading. 5. The Questioner will then pose questions about the selection: o Unclear parts o Puzzling information o Connections to other concepts already learned 6. The ***Clarifier*** will address confusing parts and attempt to answer the questions that were just posed. 7. The ***Predictor*** can offer predictions about what the author will tell the group next or, if it's a literary selection, the predictor might suggest what the next events in the story will be. 8. The roles in the group then switch one person to the right, and the next selection is read. Students repeat the process using their new roles. This continues until the entire selection is read. (Source: ReadingQuest) 9. Throughout the process, the teacher's role is to guide and nurture the students' ability to use the four strategies successfully within the small group. The teacher's role is lessened as students develop skill.	
75. Reflective Discussion	• Pose a question to initiate discussion. • This question should be an inferential or open-ended question to which there is no single correct answer. • This question should require students to make an inference or assumption, or to interpret what they have observed, heard or read. • The first question should reveal students' understanding of the main theme, message or purpose of the selection. • Additional questions posed by teacher and students should serve to clarify and extend personal interpretations. • Discussions should encourage students to relate events and characters to other selections and to life experiences. • Resulting questions, concerns or issues may be resolved by rereading passages or viewing films a second time.	
76. Research Projects	**Determining the Purpose and Topic:**	

	• Using procedures such as discussing, mapping or webbing, determine students' interests and awareness levels about a topic of study. • List what is known and questions students have about the topic. • Categorize these questions and ideas. • Examine each category to determine subtopics and possible directions for research. • Considering individuals' needs and interests, divide research topics or questions among class members. • Research topics could be undertaken by groups, pairs or individuals. • Brainstorm the sources of information available in the school and in the community. **Gathering the Information:** • Students gather information using a variety of reference material such as information books, magazines, newspapers, encyclopedia, atlases, filmstrips, films or video tapes. • As students initiate their research, the teacher may identify the need for specific instruction on topics such as: o determining main ideas o locating specific facts and details o interpreting information conveyed in resources such as pictures, charts, maps and graphs o detecting opinions and bias o summarizing and paraphrasing information in their own words o recording main ideas and interesting details. • Students could record the information in various ways including using sub-headings or initial questions to categorize information or by recording key words or phrases. • Sources and page numbers should be noted by students to assist in the development of a bibliography at appropriate grade levels. **Organizing the Information:** • Students review the gathered information to ensure that questions have been answered. • Students consider how they will sequence the information. **Sharing Knowledge:** • Students consider potential audiences and how they will share what has been learned. • Suggestions for sharing knowledge include oral or written reports, displays, creating books and charts, or presentations including visual art, music, dance or drama. • Audiences may include other research groups, the class or younger

	students.
77. Response Journals	Response Journals record student feelings, responses, and reactions to reading texts. This strategy encourages students to think deeply about the materials they read and to relate this information to their prior knowledge and experiences. This interaction between reader and text extends the reading experience into the "real life" application of information. Response Journals allow students to reflect on and raise questions about a text. These journals are especially valuable for promoting opinion making, value judgments, and critical thinking. **How can I do it?** 1. Explain the functions of the response journal to students. Stress that the journal is personal—a place to express ideas, feelings, questions, and opinions. Point out that there are no "right answers" in response journals. Successful journals capture high-quality student-text interaction. 2. Provide a model journal for students. Make sure that this model includes observations, questions, critical judgments, opinions, and feelings. Explain that while all of these are appropriate, students should be able to distinguish opinion from observation and critical judgment from feelings. 3. Provide journal sheets or booklets with prompting questions that will help structure student responses. Encourage students to record as many observations as they can. 4. From time to time, organize the class into small groups and allow students to share their journal responses with their peers. Stress again the functions of the journal and the fact that there are no "right" or "wrong" answers.
78. Role Playing	Role playing allows students to take risk-free positions by acting out characters in hypothetical situations. It can help them understand the range of concerns, values, and positions held by other people. Role playing is an enlightening and interesting way to help students see a problem from another perspective.
79. Scaffolding	Scaffolding is an instructional technique whereby the teacher models the desired learning strategy or task, then gradually shifts responsibility to the students.

	What is its purpose? Scaffolding essentially means doing some of the work for the student who isn't quite ready to accomplish a task independently. Like the supports that construction workers use on buildings, scaffolding is intended to be temporary. It is there to aid the completion of a task and it is eventually removed. **How can I do it?** • Task definition • Model performance while thinking out loud - either direct or indirect instruction • Specification and sequencing of activities • Provide prompts, cues, hints, links, partial solutions, guides and structures • Fade when appropriate	
80. Science Fairs	A science fair is an exhibition of student science projects designed to showcase their learning in all areas of science. The science projects are an investigation using the scientific method to discover the answer to a scientific problem. Science Fairs are great activities for students at all grade levels. At the younger grades, the teacher may choose to do science fair projects as a class whereas at the older grade levels, individual projects are encouraged. **What is its purpose?** The purposes of a science fair are many and varied. They are a great opportunity for staff and students to work together on a school wide project and showcase their work to parents and the community. In addition, they are great vehicles for teaching cooperation (most science fair projects are done with a partner) and the scientific method. Finally they are an opportunity for students to hone both their writing and presentation skills **How can I do it?** Get together with your grade-alike teachers or with the school staff to plan for a science fair. Decide on a common place, date, and time. In your planning, be sure to include the school librarian, as the students will need to access resources. Undoubtedly the most difficult part for students when planning for a science fair is choosing their topic. Perhaps the biggest mistake students make when they do a science fair project is that they choose something they do not like! Because these projects require a lot of effort, they should be encouraged to	

	choose something they are interested in! Finally they should consult the library and the Internet to find science fair books and project ideas. Note: The YSF (Youth Science Foundation) is Canada's promoter of Regional Science Fairs and sponsors of the Canada Wide Science Fair. It does not allow the use of live animals in science fair displays. Please make students aware of this fact before planning begins. All science fair topics should be written in the form of a question they are trying to answer – i.e. What is the best laundry detergent? Which metals conduct heat? How can soil erosion be prevented?, etc. Students will require class time to research their projects, perform their experiments, write their findings and construct their display. Since any one of these can involve a great deal of time, students should be reminded that much of the work will, by necessity have to be done at home. On the day of the Science Fair, students should setup their display according to a preset plan by the teachers. Other students and parents can view the science fair displays during the daytime. Consideration might be given to having the fair in the evening to accommodate more parents and community members.
81. Science Olympics	**What are Science Olympics?** It is a series of problem solving events that are fun to do and require students to apply their knowledge of science in creative ways. Students work in teams rather than individually. **What is its purpose?** The purpose is to promote science problem solving and teamwork among students. You don't have to be a top student to be creative and have good problem solving skills. The activities are designed so that most students can get involved, be successful, and have fun. **How can I do it?** 1. Be aware that there are basically two kinds of Science Olympics events: a) Pre-Planned Event(s): Students have all the details about the event(s) before the day of competition. For example the event might require one or all of the following: researching for a quiz or the design and construction of a poster, a wooden

	bridge out of toothpicks, or a free-falling egg drop. b) Spontaneous Event(s): The details of these events are only outlined on the day of competition, i.e. science trivia 2. The events selected for the Olympics determine the level of organization that will be necessary. Each event should clearly state its objective, as well as provide the judging criteria, rules and regulations. Try to choose events that are well suited to the participants. Science Olympics is designed to be challenging, educational, and above all, - fun. Making the events too easy would offer little challenge. Events that are too difficult will cause most students to despair or simply to give up. 3. The location of the events is important to the organization of the Science Olympics. Often, the location is dependent on the nature of the events. At the elementary level, it is often easiest to hold the events in one or more classrooms, depending on the number of participants. The teams simply rotate among the classrooms in a predetermined route and for predetermined time periods. 4. The required materials for each event should be minimal so try to make use of everyday household items whenever possible. 4. You may want to provide games, books, music, computers, etc. for any participants who for any reason are unable to compete, for the day would become boring for them after some time. Encourage them to act as an audience or as helpers for the teacher (facilitator). 5. Finally, judging is often an integral part of Science Olympics. If each teacher (facilitator) is responsible for the design, setup and execution of an event, then they also could be responsible for providing the teams with their group score. As teams rotate through the stations, they receive their team score at each event, written and initialed by the teacher. At the conclusion of the Olympics, the teams may gather in the gym or any other large area for presentation of awards. This does not have to be done on the same day as the events. You may wish to save it for the next day, giving you, the judges, and the teachers time to tally the points and be ready for the presentation of winners. It is always a good idea to ask participants, judges and spectators to contribute ideas to your next Olympics. Next year, you should eliminate some events as you add new ones.	
82. Self-Monitoring Strategies	Self-monitoring strategies are plans used to increase independence in academic, behavioral, self-help, and social areas.	

	What is its purpose? In reading, the ability to self-monitor meaning enables students to select and use strategies to improve comprehension. Readers who self-monitor know when their reading makes sense and when it does not. If comprehension is blocked, they know what strategies to use to repair it. Self-monitoring is a significant component of comprehension.	
83. Simulations	A simulation is a form of experiential learning. Simulations are instructional scenarios where the learner is placed in a "world" defined by the teacher. They represent a reality within which students interact. The teacher controls the parameters of this "world" and uses it to achieve the desired instructional results. Simulations are in way, a lab experiment where the students themselves are the test subjects. They experience the reality of the scenario and gather meaning from it. It is a strategy that fits well with the principles of constructivism. Simulations promote the use of critical and evaluative thinking. The ambiguous or open ended nature of a simulation encourages students to contemplate the implications of a scenario. The situation feels real and thus leads to more engaging interaction by learners. They are motivating activities enjoyed by students of all ages. Simulations take a number of forms. They may contain elements of a game, a role-play, or an activity that acts as a metaphor. The chief element is that they have context. Board games such as Monopoly or Careers are a type of simulation. The primary distinctions between a game and a "sim" are the nonlinear nature and the controlled ambiguity. Students must make decisions within its context. Success is usually determined by the industry and commitment of the participants. The goal is not to win but to acquire knowledge and understanding. **Advantages** • Enjoyable, motivating activity • Element of reality is compatible with principles of constructivism • Enhances appreciation of the more subtle aspects of a concept/principle • Promotes critical thinking **Disadvantages** • Preparation time • Cost can be an issue	

	• Assessment is more complex than some traditional teaching methods Guided by a set of parameters, students undertake to solve problems, adapt to issues arising from their scenario, and gain an awareness of the unique circumstances that exist within the confines of the simulation. Some simulations require one day, others may take weeks to complete. Scope and content varies greatly. This being true, specific guidelines change with the activity. Several principles however apply to all. • Ensure that students understand the procedures before beginning. It improves efficacy if the students can enjoy uninterrupted participation. Frustration can arise with too many uncertainties. This will be counterproductive. • Try to anticipate questions before they are asked. The pace of some simulations is quick and the sense of reality is best maintained with ready responses. Monitor student progress. • Know what you wish to accomplish. Many simulations can have more than one instructional goal. Developing a rubric for evaluation is a worthwhile step. If appropriate, students should be made aware of the specific outcomes expected of them.
84. SQ3R	The ***SQ3R*** strategy (which stands for **S**urvey, **Q**uestion, **R**ead, **R**ecite, **R**eview) was developed by Robinson (1961) to provide a structured approach for students to use when studying content material. This strategy has proven to be effective and versatile and can easily be integrated into many content areas and across grade levels. Students develop effective study habits by engaging in the pre-reading, during-reading, and post-reading steps of this strategy. The ***SQ3R*** literacy strategy helps enhance comprehension and retention of information. It is meta-cognitive in nature in that it is a self-monitoring process. **Five Steps to the SQ3R Literacy Strategy** **1. Survey** By surveying the chapter titles, introductory paragraphs, bold face, italicized headings, and summary paragraphs, the reader gets an overview of the material. Surveying also gives enough information to generate individual purposes for reading the text. **2. Question** Purpose questions are often provided at the beginning of the chapter. It not, the reader can turn section headings into questions. The main objective is to have questions for which answers are expected to be found in the passage. **3. Read** The student is to read to answer the purpose questions formulated in Step 2, Question. **4. Recite** Student should try to answer questions without referring to the text or notes. This step helps in transferring information from short-term to long-

	term memory. **5. Review** Students review the material by rereading parts of the text or notes. Students verify answers given during Step 4, Recite. This helps retain information better and gives immediate feedback. The SQ3R is a very versatile literacy strategy that involves the student in processing information before, during, and after reading: 1. Prior to reading — preview text and establish purpose. 2. While reading — monitor one's own comprehension. 3. After reading — summarize and review content. Many students don't know how to study, and this strategy is a perfect way to help them. It works well in many content areas with a variety of types of text.
85. Story Mapping	• Introduce story mapping as a collaborative activity. • Introduce this strategy using a story with an uncomplicated plot. • Read the selection to students. • Encourage students to visualize the characters, settings and events as they listen. • Discuss and chart the main characters and story events. • Review the chart, focusing students' attention on the sequence of main events. • Emphasize what happened first, next, and then . . . . • As students agree upon the order of listed events, number these in sequence. • Individuals or groups could each illustrate one story event. • Display completed illustrations in sequence. • This pattern or framework can be used for retelling the story. • Students can retell the story for their own enjoyment, to a partner, to a small group or to the class. • Story illustrations can be displayed in a vertical or a horizontal sequence, in a circular pattern or as a winding trail that traces the movements of the characters. • Once students become familiar with this procedure, they can create a sequence of illustrations that will provide an outline for storytelling or for writing original stories.

86. Structured Controversy	• Choose a discussion topic that has at least two well documented positions.
	• Prepare materials:
	  o Clear expectations for the group task.
	  o Define the positions to be advocated with a summary of the key arguments supporting the positions.
	  o Provide reference materials including a bibliography that support and elaborate the arguments for the positions to be advocated.
	• Structure the controversy:

	- Assign students to groups of four. - Divide each group into dyads who are assigned opposing positions on the topic. - Require each group to reach consensus on the issue and turn in a group report on which all members will be evaluated. - Conduct the controversy: - Plan positions. - Present positions. - Argue the issue. - Reverse positions and argue the issue from those perspectives. - Reach a decision. **Details** - To avoid problems, clearly communicate to the students the debate rules that will guide the interaction. - Be critical of ideas, not people. - Focus on the best decision, not on "winning." - Encourage everyone's position, even if you do not agree. - Use paraphrasing when you are not clear about what someone said. - Try to understand both sides of the issue.	
87. Structured Overview	There are three main ways in which Structured overview can be used. One is verbal summary at the start of a new concept. The teacher starts by highlighting the new ideas to be learned in a few simple sentences. Then the relationship between these ideas and the ones the students already know is discussed. The structured overview takes the role of an advanced organizer. Another type of Structured Overview is a written summary. The approach is the same as the verbal summary, but students have a written record of the ideas. Generally a combination of verbal and written Structured Overview is more effective than either type alone. The final method is a visual Structured Overview. Venn diagrams of concepts, semantic maps, semantic organizers, webs, and charts are all methods visual Structured Overview. When accompanied by explanation, visual overviews are often very effective at helping student connect ideas.	
88. Student difficulties - spelling	- Dictate the work and then asking the student to repeat it (saying it in sequence may eliminate errors of omitted syllables) - Avoid traditional spelling lists (determine lists from social needs and school area needs) - Use mnemonic devices ("A is the first capital letter," "The capitol building has a dome")	

	• Teach short, easy words in context:
	  o On and on
	  o Right on!
	  o On account of
	• Have students make flashcards and highlight the difficult spots on the word
	• Give a recognition level spelling test (asking the student to circle correct word from three or four choices)
	• Teach words by spelling patterns (teach "cake," "bake," "take," etc. in one lesson)
	• Use the Language Master for drill
	• Avoid penalizing for spelling errors
	• Hang words from the ceiling during study time or posting them on the board or wall as constant visual cues
	• Provide a tactile/kinesthetic aid for spelling (sandpaper letters to trace or a box filled with salt or cereal to write in)
	
	http://www.readingrockets.org/article/how-adapt-your-teaching-strategies-student-needs

89. Think Alouds	Think-alouds have been described as "eavesdropping on someone's thinking." With this strategy, teachers verbalize aloud while reading a selection orally. Their verbalizations include describing things they're doing as they read to monitor their comprehension. The purpose of the think-aloud strategy is to model for students how skilled readers construct meaning from a text.
	
	1. Begin by modeling this strategy. Model your thinking as you read. Do this at points in the text that may be confusing for students (new vocabulary, unusual sentence construction).
	2. Introduce the assigned text and discuss the purpose of the Think-Aloud strategy. Develop the set of questions to support thinking aloud (see examples below).
	  o What do I know about this topic?
	  o What do I think I will learn about this topic?
	  o Do I understand what I just read?
	  o Do I have a clear picture in my head about this information?
	  o What more can I do to understand this?
	  o What were the most important points in this reading?
	  o What new information did I learn?
	  o How does it fit in with what I already know?
	3. Give students opportunities to practice the technique, and offer structured feedback to students.
	4. Read the selected passage aloud as the students read the same text silently. At certain points stop and "think aloud" the answers to some of the pre-selected questions.
	5. Demonstrate how good readers monitor their understanding by rereading a sentence, reading ahead to clarify, and/or looking for

	context clues. Students then learn to offer answers to the questions as the teacher leads the Think Aloud.	
90. Think-Ink-Pair-Share	A variation of the cooperative learning strategy, Think-Pair-Share, Think-Ink-Pair-Share (TIPS) provides a way to scaffold students' oral participation in a paired or group exchange of ideas. Critical thinking skills are developed along with writing skills that allow a student to clarify their thoughts to themselves. It assist the student who is less confident by allowing them to organize their thoughts and have a written reference. Four steps are involved: 1. Students think silently about a question posed by the instructor. 2. Students write down what they want to share with their partners/group members- students may write key words or complete sentences. 3. Match up with a partner or assigned group 4. Pairs/group members share their *An option at the end is to write what their partner shared. Students can then add to or change their initial writings	
91. Think-Pair-Share	Think-pair-share (TPS) is a cooperative learning strategy in which students work together to solve a problem or answer a question about an assigned reading. This technique requires students to (1) think individually about a topic or answer to a question; and (2) share ideas with classmates. Discussing an answer with a partner serves to maximize participation, focus attention and engage students in comprehending the reading material. • Decide upon the text to be read and develop the set of questions or prompts that target key content concepts. • Describe the purpose of the strategy and provide guidelines for discussions. • Model the procedure to ensure that students understand how to use the strategy. • Monitor and support students as they work through the following: **T** : (Think) Teachers begin by asking a specific question about the text. Students "think" about what they know or have learned about the topic. **P** : (Pair) Each student should be paired with another student or a small group. **S** : (Share) Students share their thinking with their partner. Teachers expand the "share" into a whole-class discussion.	

92. Think-Tack-Toe	• Nine commands or questions, arranged like a tic-tac-toe board. Students choose three to complete, creating a row vertically, horizontally, or diagonally. • Student choice allows for differentiation by interest and/or learning style. Think-tac-toe boards for different levels of readiness can also be created and given to different groups of students. • Students may also be given choices as to which assignment square they complete during a particular class period. Students who choose the same assignment may form a small group for that day. http://www.fortheteachers.org/instructional_strategies/#AlternativeAssessment	
93. Three-Two-One (3-2-1)	Regarding the lesson just taught or the "chunk" of the lesson just taught, ask students to write: • three key terms/ideas/concept/skill • two terms/ideas/concept/skill they would like to know more about • one terms/ideas/concept/skill that they think they have mastered	
94. Visual Imaging	The practice of imaging or mentally visualizing objects, events or situations is a powerful process that assists students to construct meaning as they listen and read. As students read and listen to others, they incorporate their knowledge and previous experiences to form images of situations, settings, characters and events. These images extend students' comprehension, enrich their personal interpretations and stimulate unique ideas for writing. Imaging provides the opportunity for students to experience vicariously what they hear, read and write. **What is its purpose?** • to provide opportunities for students to share personal interpretations of literary selections • to develop students' ability to create images and ideas by relating their previous knowledge and experiences to what is heard and read • to develop students' ability to monitor for meaning as they read and write **How can I do it?** • **Reading:** o When reading to students, periodically pause to share your personal perceptions and images evoked by the author's language. o Initially, encourage students to visualize the characters in stories. o Gradually extend their visualizing experiences to include the	

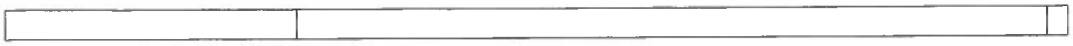
	setting and story events. o Discussing personal images and interpretations provides students' with a deeper understanding of the text. o Students may record or describe the images evoked by texts in their reading logs and during conference • **Writing:** As a prewriting activity, teachers can guide students through an imaging exercise. o Have students concentrate on a situation, event or experience. o Create a setting or situation with minimal description and explanation such as the experience of walking through a forest in late fall. o Focus on using key words related to this experience that will elicit sensory responses. o Encourage students to share the images created and the feelings aroused. o Collaboratively determine and record the words or phrases that evoke and describe the images. o These words or phrases could be recorded under the categories of sights, sounds, tastes, smells and feelings. o Have students try to incorporate these words and phrases in their writing efforts. o Students should be encouraged to use imaging as a prewriting activity for independent writing. • **Spelling:** Students can be taught to use imaging for remembering and recalling spellings of words. A basic procedure for helping students visualize words of current relevance to them and to the topic of study is as follows: o have the students imagine that they are watching a large video screen or computer monitor o have them focus on a blank screen o display a printed word and ask students to print that word on their imaginary screens o have students describe the colors and shapes of their letters, and silently read the letters in order o have students write the words on their papers from memory and check what they have written o have students verify spellings by comparing their words to the displayed words o if their spellings are incorrect, the imaging process should be repeated. • When students are comfortable with creating images of words, they

	can apply this strategy independently to encode the spellings of words. • To incorporate a new word into their writing vocabularies, students should look at the word, cover the word, visualize it on their screen, then write the word from memory and verify what they have written. • If the word is spelled incorrectly, the imaging process should be repeated. When discussing spelling patterns and letter combinations, teachers should encourage students to use imaging. • When recalling the spelling of a word, students should say the word, visualize it and then write the word.	
95. Vocabulary – Pre-teach/Frontload Vocabulary	Without an understanding of new vocabulary in a given text students soon: a) lose interest b) create a ruckus c) fall asleep. Pre-teaching vocabulary **is not** an activity where new unfamiliar words from the text are listed for students to find the definitions in a dictionary and write them out. It is rather the job of the teacher to introduce the words to kids in photos, through artifacts, analogies, metaphors or through a context related to things students will know, understand and in which they are interested. Robert Marzano suggest the following: 1. Provide a description, explanation, or example of the new term. 2. Ask students to restate the description, explanation, or example in their own words. 3. Ask students to construct a picture, pictograph, or symbolic representation of the term. 4. Engage students periodically in activities that help them add to their knowledge of the terms in their vocabulary notebooks. 5. Periodically ask students to discuss the terms with one another. 6. Involve students periodically in games that enable them to play with terms. http://www.ascd.org/publications/educational-leadership/sept09/vol67/num01/Six-Steps-to-Better-Vocabulary-Instruction.aspx http://www.edutopia.org/blog/scaffolding-lessons-six-strategies-rebecca-alber	
96. Wall are Clozing In	• Post four sets of cloze (fill in the blank) study guides on the walls. • Mont of time Divide the class into four teams. • Provide each team is provided with the vocabulary words that complete each cloze sentence and a glue stick. • Set the timer for an appropriate • When one team completes all the sentences the game stops and their answers are checked. If they are incorrect the timer is reset and the game is in play until one team wins.	

97. Web Quest	Web Quests allow students to complete authentic projects and use technology to find and present information and, at the same time, alleviate some of the barriers teachers may find in their attempt to work in the confines of project-based learning. Generally, Web Quests are cooperative activities where students assume different roles relative to an authentic problem. The Internet is usually the main information resource, although other more traditional resources, such as magazines and journals, can be included. The Web Quest itself provides structure to the investigation of the authentic topic, thereby increasing the ability of students to successfully navigate a highly unstructured environment such as the Internet. Students then develop a product which then demonstrates their knowledge of the problem and its potential solutions. Students enjoy Web Quests because they are given the opportunity to use the Internet to find and apply information. The students may also learn to use presentation software, which allows them to impart their information in a creative way while educating others. Teachers benefit from Web Quests in a number of ways. For example, rubrics for each project and Web resource addresses are provided, authentic learning occurs, ideas for projects are supplies, and learning is fun for students while they integrate technology. Web Quests can and should be modified by the teacher to fit the needs of the classroom. **How can I do it?** In planning for project-learning, you should always start with the end in mind. A Web Quest can provide you with the project for a unit of study. After reading through a specific Web Quest, you can then begin to select the objectives to be mastered. An alternative way to start could be to select objectives and then find a Web Quest that would help master those to be taught. Subsequently, you can decide which enabling activities need to be taught. Every Web Quest has an Introduction, a Task, Resources, a Process, Evaluation (with a rubric), and a Conclusion. As you can imagine, having the students complete a Web Quest can be a wonderful experience. Here are some tips to help you start and succeed with your first few. 1. Preview your Web Quest before you use it. 2. Change the Web Quest so that it will meet the needs of your class. Sometimes you may have to alter the procedure to suit the one-computer classroom or break up the steps. 3. It is helpful to perform the initial Web Quest as a group so that the students may become familiar with the process and ask any questions as you proceed.

	4. Remember to let the students explore and have fun. There will be times when the Web Quest does not proceed the way you intended, but learning is still taking place.	
98. Webbing	Webbing is a method of visually representing relationships among ideas, concepts or events. During this procedure, ideas and information are explored and organized. The resulting web or pattern of relationships is determined by the participants' knowledge and previous experiences, and by the purpose for webbing. • Topics to be webbed must be relevant to classroom learning experiences and students' interests. • The topic or title should be charted or displayed. • Guide a brainstorming session during which students are encouraged to verbalize ideas and understandings related to the topic. • Record brainstormed ideas. • Discuss the relationships among the various ideas and collaboratively determine how the ideas could be organized or categorized. • Record the ideas in clusters or categories around the displayed topic or title. • As students become familiar with this strategy, they may create webs prior to writing, or before and after they read, research or study.	
99. Word Walls	A word wall is an organized collection of words prominently displayed in a classroom. This display is used as an interactive tool for teaching reading and spelling to children. There are many different types of word walls including high frequency words, word families, names, alphabet and "doozers". **What is its purpose?** Word walls have many benefits. They teach children to recognize and spell high frequency words; see patterns and relationship in words build phonemic awareness skills and apply phonics rules. Word walls also provide reference support for children during reading and writing activities. Children learn to be independent as they use the word walls in daily activities. Word walls can also be used: • To support the teaching of important general principals about words and how they work. • To foster reading and writing. • To promote independence on the part of young students as they	

	work with words in writing and reading. • To provide a visual map to help children remember connections between words and the characteristics that will help them form categories. • To develop a growing core of words that become part of a reading and writing vocabulary. • To provide reference for children during their reading and writing. **How do I do it?** 1. Make words accessible by putting them where every student can see them. They should be written in large black letters using a variety of background colors to distinguish easily confused words. 2. Teachers should be selective about the words that go on the word wall. Try to include words that children use most commonly in their writing. Words should be added gradually - a guideline is five words per week. 3. Use the word wall daily to practice words incorporating a variety of activities such as: chanting, snapping, cheering, clapping, tracing, word guessing games as well as writing them. 4. Provide enough practice so that words are read and spelled automatically and make sure that word walls are always spelled correctly in the children's daily writing.
100. Writing to Inform	• Introduce expository structures to students by reading various resources in all subject areas. When reading informative text, focus students' attention on the structure and organization of ideas. • A shared experience, students' interests, or a unit or topic of study in any subject area should provide the topic for collaborative writing and reporting activities. • With students, determine an appropriate topic. • Brainstorm, categorize and web what is known about the topic. • Have students consider the audience to determine the appropriate content and format of the report. • Sequence main ideas and supporting details, incorporating sub-headings if appropriate. • Collaboratively prepare a draft by developing charted ideas into sentences and paragraphs. • Read the draft and discuss the clarity of the information conveyed. • Revise the draft incorporating students' suggestions. • Have students consider the audience and purpose of the writing as they prepare the final draft or copy. • Have students prepare any accompanying visuals. • Share, display or present the final version to appropriate audiences.



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