Research-based Instructional Frameworks/Strategies
For Improving Student Achievement
<u>Examples</u>

No.	Strategies	Description
1.	**Cooperative Learning**	Cooperative learning is situated within the social constructivist paradigm. Students work on projects or problems in teams with both personal and team accountability for conceptual understanding. http://www.kaganonline.com/KaganClub/index.html http://classroom.leanderisd.org/webs/marzano/
2.	**Differentiated Instruction**	A fuller definition of differentiated instruction is that a teacher proactively plans varied approaches to what students need to learn, how they will learn it, and/or how they can express what they have learned in order to increase the likelihood that each student will learn as much as he or she can as efficiently as possible. (Tomlinson, 2003, p. 151) http://www.sdesa6.org/content/docs/StrategiesThatDifferentiateInstructionK_4-080808.pdf
3.	**Socratic Seminar**	**Socratic Seminars are a highly motivating form of intellectual and scholarly discourse conducted in K-12 classrooms. They usually range from 30-50 minutes--longer if time allows--once a week. Socratic Seminars foster active learning as participants explore and evaluate the ideas, issues, and values in a particular text.** http://www.readwritethink.org/professional-development/strategy-guides/socratic-seminars-30600.html
4.	**Reciprocal Teaching**	Reciprocal teaching refers to an instructional activity that takes place in the form of a dialogue between teachers and students regarding segments of text. The dialogue is structured by the use of four strategies: summarizing, question generating, clarifying, and predicting. The teacher and students take turns assuming the role of teacher in leading this dialogue. http://www.ncrel.org/sdrs/areas/issues/students/atrisk/at6lk38.htm
5.	**Concept Attainment**	In concept attainment, students figure out the attributes of a group or category that has already been formed by the teacher. To do so, students compare and contrast examples that contain the attributes of the concept with examples that do not contain those attributes. They then separate them into two groups. Concept attainment, then, is the search for and identification of attributes that can be used to distinguish examples of a given group or category from non-examples. http://olc.spsd.sk.ca/DE/PD/instr/strats/cattain/index.html
6.	**Problem-based Learning**	Problem-based learning (PBL) is focused, experiential learning (minds-on, hands-on) organized around the investigation and resolution of messy, real-world problems.… PBL curriculum provides authentic experiences that foster active learning, support knowledge construction, and naturally integrate school learning and real life; this curriculum approach also addresses state and national standards and integrates disciplines.… http://www.studygs.net/pbl.htm http://www.ntlf.com/html/pi/9812/pbl_1.htm
7.	**Learning Focused Instruction**	LEARNING-FOCUSED is a comprehensive continuous school improvement model 8.at: - provides schools with consistent learning - provides exemplary strategies instruction

		• Integrates research-based exemplary practices http://www.learningfocused.com/
8.	Frayer's Model	The framework of the Frayer Model includes: the concept word, the definition, characteristics of the concept word, examples of the concept word, and non examples of the concept word. It is important to include both examples and non examples, so students are able to identify what the concept word is and what the concept word is not. http://its.guilford.k12.nc.us/act/strategies/Frayer.htm
9.	Concept Formation	**Concept Formation or Concept Development Model** by Hilda Taba (1966) is used to enhance the thinking skills of students. It gives students practice in categorizing, and developing, extending, and refining concepts. http://olc.spsd.sk.ca/de/pd/instr/strats/formation/index.html
10.	Backward Design	Backward design is an approach to instructional design (promoted by Grant Wiggins and Jay McTighe,1998), with curriculum units around these types of questions: What enduring understandings do I want my students to develop? How will I know if my students have learned what I want them to learn? How will I engage my students in the instruction.? http://pixel.fhda.edu/id/six_facets.html
11.	Dimensions of Learning	Dimensions of Learning is a comprehensive model that define the learning process. Its premise is that five types of thinking -- what we call the five dimensions of learning -- are essential to successful learning. These five dimensions focus on (1) attitudes and perceptions; (2) acquiring and integrating of knowledge; (3) extending and refining knowledge; (4) using knowledge meaningfully; (5) acquiring productive habits of mind. http://www.mcrel.org/dimensions/whathow.asp
12.	Compare, Contrast, Classify; Using Analogies & Metaphors	The ability to break a concept into its similar and dissimilar characteristics allows students to understand (and often solve) complex problems by analyzing them in a more simple way. Teachers can either directly present similarities and differences, accompanied by deep discussion and inquiry, or simply ask students to identify similarities and differences on their own. While teacher-directed activities focus on identifying specific items, student-directed activities encourage variation and broaden understanding, research shows. Research also notes that graphic forms are a good way to represent similarities and differences. **Applications:** * Use Venn diagrams or charts to compare and classify items. * Engage students in comparing, classifying, and creating metaphors and analogies. http://www.middleweb.com/MWLresources/marzchat1.html http://classroom.leanderisd.org/webs/marzano/
13.	Summarizing and Notetaking	These skills promote greater comprehension by asking students to analyze a subject to expose what's essential and then put it in their own words. According to research, this requires substituting, deleting, and keeping some things and having an awareness of the basic structure of the information presented. **Applications:** * Provide a set of rules for creating a summary. * When summarizing, ask students to question what is unclear, clarify those questions, and then predict what will happen next in the text. Research shows that taking more notes is better than fewer notes, though verbatim note taking is ineffective because it does not allow time to process the information. Teachers should encourage and give time for review and revision of notes; notes can be the best study guides for tests. **Applications:** * Use teacher-prepared notes. * Stick to a consistent format for notes, although students can refine the notes as necessary. http://www.middleweb.com/MWLresources/marzchat1.html

14.	Reinforcing Effort & Providing Recognition	Effort and recognition speak to the attitudes and beliefs of students, and teachers must show the connection between effort and achievement. Research shows that although not all students realize the importance of effort, they can learn to change their beliefs to emphasize effort. **Applications:** * Share stories about people who succeeded by not giving up. * Have students keep a log of their weekly efforts and achievements, reflect on it periodically, and even mathematically analyze the data. According to research, recognition is most effective if it is contingent on the achievement of a certain standard. Also, symbolic recognition works better than tangible rewards. * Find ways to personalize recognition. Give awards for individual accomplishments. * "Pause, Prompt, Praise." If a student is struggling, pause to discuss the problem, then prompt with specific suggestions to help her improve. If the student's performance improves as a result, offer praise. http://www.middleweb.com/MWLresources/marzchat1.html http://classroom.leanderisd.org/webs/marzano/
15.	Non-linguistic Representations	**5. Nonlinguistic Representations** According to research, knowledge is stored in two forms: linguistic and visual. The more students use both forms in the classroom, the more opportunity they have to achieve. Recently, use of nonlinguistic representation has proven to not only stimulate but also increase brain activity. **Applications:** * Incorporate words and images using symbols to represent relationships. * Use physical models and physical movement to represent information. http://www.middleweb.com/MWLresources/marzchat1.html http://classroom.leanderisd.org/webs/marzano/
16.	Homework & Practice	Homework provides students with the opportunity to extend their learning outside the classroom. However, research shows that the amount of homework assigned should vary by grade level and that parent involvement should be minimal. Teachers should explain the purpose of homework to both the student and the parent or guardian, and teachers should try to give feedback on all homework assigned. **Applications:** * Establish a homework policy with advice-such as keeping a consistent schedule, setting, and time limit-that parents and students may not have considered. * Tell students if homework is for practice or preparation for upcoming units. * Maximize the effectiveness of feedback by varying the way it is delivered. Research shows that students should adapt skills while they're learning them. Speed and accuracy are key indicators of the effectiveness of practice. **Applications:** * Assign timed quizzes for homework and have students report on their speed and accuracy. * Focus practice on difficult concepts and set aside time to accommodate practice periods. http://www.middleweb.com/MWLresources/marzchat1.html http://classroom.leanderisd.org/webs/marzano/
17.	Setting Objectives & Providing Feedback	Setting objectives can provide students with a direction for their learning. Goals should not be too specific; they should be easily adaptable to students' own objectives. **Applications:** * Set a core goal for a unit, and then encourage students to personalize that goal by identifying areas of interest to them. Questions like "I want to know" and "I want to know more about . . ." get students thinking about their interests and actively involved in the goal-setting process. * Use contracts to outline the specific goals that students must attain and the grade they

		will receive if they meet those goals.
		Research shows that feedback generally produces positive results. Teachers can never give too much; however, they should manage the form that feedback takes. **Applications:** * Make sure feedback is corrective in nature; tell students how they did in relation to specific levels of knowledge. Rubrics are a great way to do this. * Keep feedback timely and specific. * Encourage students to lead feedback sessions. http://www.middleweb.com/MWLresources/marzchat1.html http://classroom.leanderisd.org/webs/marzano/
18.	Generating & Testing Hypothesis	Research shows that a deductive approach (using a general rule to make a prediction) to this strategy works best. Whether a hypothesis is induced or deduced, students should clearly explain their hypotheses and conclusions. **Applications:** * Ask students to predict what would happen if an aspect of a familiar system, such as the government or transportation, were changed. * Ask students to build something using limited resources. This task generates questions and hypotheses about what may or may not work http://www.middleweb.com/MWLresources/marzchat1.html http://classroom.leanderisd.org/webs/marzano/
19.	Cues, Questions & Advance Organizers	Cues, questions, and advance organizers help students use what they already know about a topic to enhance further learning. Research shows that these tools should be highly analytical, should focus on what is important, and are most effective when presented before a learning experience. **Applications:** * Pause briefly after asking a question. Doing so will increase the depth of your students' answers. * Vary the style of advance organizer used: Tell a story, skim a text, or create a graphic image. There are many ways to expose students to information before they "learn" it. http://www.middleweb.com/MWLresources/marzchat1.html http://classroom.leanderisd.org/webs/marzano/
20.	Mnemonics	Mnemonics are strategies for memorizing and assimilating information. It can help people to master interesting concepts and provide a lot of fun doing so. Teachers can use mnemonics to guide their presentations of material and they can teach devices that students can use to enhance their individual and cooperative study of information and concepts. http://www.fun-with-words.com/mnemonics.html
21.	Simulations	Simulations are constructed from descriptions of real life situations. A less than real life situation is created for the instructional situation. The student engages in activity to achieve the goal of the simulation and has to do with realistic factors until the goal is mastered. http://www.techtrekers.com/sim.htm
22.	Group Investigation	Group investigation is the direct route to the development of the community of learners. A substantial part of a students' education should be by cooperative inquiry into important social and academic problems. Group investigation has been designed to lead students to define problems, explore various perspectives on the problems, and study together to master information, ideas, and skills - simultaneously developing their social competence. http://wblrd.sk.ca/~bestpractice/coop/examples11.html
23.	Scientific Inquiry	From the beginning the student is brought into the scientific process and helped to collect and analyze data, check out hypotheses and theories, and reflect on the nature of knowledge construction. http://www.hent.org/sue/Scientific%20Inquiry%20Process.htm
24.	Jurisprudential Inquiry	This model is designed for secondary students in the social studies and implies the case study method, reminiscent of legal education. Students study cases involving social problems in areas where public policy is to be made (justice and equality, poverty and

		power etc.) They are led to identify the public policy issues as well as options available for dealing with them and the values underlying those options. This model can be used in any area where there are public policy issues for instance ethics in science, business and sports etc. https://php.radford.edu/~fdc/resources/SRFIDC/Files/Presentations/Way/jurisprudential.pdf http://www.k-state.edu/catl/fete/Retreat2009/presentations/Kim.pdf
25.	Role Play	Role playing help students to understand social behavior, their role in social interactions, and ways of solving problems more effectively. It also helps students collect and organize information about social issues, develop empathy with others, and attempt to improve their social skills. The model requires of students to "act out" conflicts, to learn to take the roles of others, and to observe social behavior. With adaptation role playing can be used with students of all ages. http://serc.carleton.edu/introgeo/roleplaying/howto.html http://imet.csus.edu/imet3/odell/portfolio/grartifacts/Lit%20review.pdf
26.	Teams Games Tournament	Team Games Tournaments are a cooperative learning strategy developed at Johns Hopkins University. It can be used as an assessment alternative and/or as a review technique. http://www.woodrow.org/teachers/bi/1995/tournaments.html
27.	Student Teams Achievement Division (STAD)	STAD is one of three strategies under the umbrella of Student Learning Teams developed at Johns Hopkins University based on years of research on cooperative learning. In STAD, students study with 4-5 team members following a teacher presentation. Students take quizzes individually to demonstrate how much they have learned. The individual quiz scores are summed to form a team score, and teams are rewarded for their performance. Teams are made up of students with varying academic abilities, genders, and race. The entire cycle of activities, from teacher presentation to team practice to quiz, usually takes three to five class periods. STAD has been used in a wide variety of subjects, from math to language arts to social studies, and has been used from grade 2 through college. It is most appropriate for teaching well-defined objectives with single right answers, such as specific locational characteristics in geography and some map skills, knowledge of events in history, and principles of economics or government. http://artofteachingscience.org/mos/7.7.html
28.	Synectics	Synectics operates on the principle that, by using the mind's remarkable capacity to connect seemingly irrelevant elements of thought, we can spark surprising new ideas that may later be developed into feasible solutions to problems. http://www.saskschools.ca/~bestpractice/synectics/resources.html