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STRATEGIES: FRAMEWORK FOR TEACHING

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DOMAIN 3

INSTRUCTION



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STRATEGIES: FRAMEWORK FOR TEACHING

Strategies in this resource are organized in the same order as Kentucky's Framework for Teaching materials, by component and element under each domain. In these materials, each of the four Framework for Teaching domains are available as separate PDF files.

DOMAIN 3 > INSTRUCTION

3A. COMMUNICATING WITH STUDENTS

- > Expectations for Learning
- > Directions and Procedures
- > Explanation of Content
- > Use of Oral and Written Language

3B. USING QUESTIONING & DISCUSSION TECHNIQUES

- > Quality of Questions
- > Discussion Techniques
- > Student Participation

3C. ENGAGING STUDENTS IN LEARNING

- > Activities and Assignments
- > Grouping of Students
- > Instructional Materials and Resources
- > Structure and Pacing

3D. USING ASSESSMENT IN INSTRUCTION

- > Assessment Criteria
- > Monitoring of Student Learning
- > Feedback to Students
- > Student Self-Assessment and Monitoring of Progress

3E. DEMONSTRATING FLEXIBILITY & RESPONSIVENESS

- > Lesson Adjustment
- > Response to Students
- > Persistence

OTHER DOMAINS:

DOMAIN 1 > PLANNING & PREPARATION
DOMAIN 2 > CLASSROOM ENVIRONMENT
DOMAIN 4 > PROFESSIONAL RESPONSIBILITIES

INSTRUCTION > DOMAIN 3

> 3A. COMMUNICATING WITH STUDENTS

> EXPECTATIONS FOR LEARNING

■ **ESSENTIAL QUESTIONS / LEARNING TARGETS** — At the start of each lesson, post and cover essential questions or learning targets. Students need to understand and be able to convey what they should learn. Reference the questions or targets throughout the lesson. Tie them to any independent work. (Make sure targets are congruent with the standards.)

■ **PLAN WITH STUDENTS** — Let students help plan a lesson or unit. Once they know the purpose for the learning, they can help decide ways to achieve the purpose. Involvement will allow students to identify interests and relevance.

■ **CRITERIA FOR HIGH-QUALITY WORK** — Make sure rubrics spell out criteria for quality work. Criteria should clarify the purpose of learning. When possible, co-develop rubrics with students so they learn how to define quality work. Review the rubric before the assignment so that all students clearly understand expectations. Students should have numerous opportunities to see and analyze high-quality work that matches the rubric.

> DIRECTIONS AND PROCEDURES

■ **DIRECTIONS CHECK** — For complicated assignments, check understanding by having students repeat the purpose and directions to each other, and then call on one or two aloud. (Give the purpose of the activity and reference essential questions/learning targets to help students understand what they are supposed to experience and learn.)

■ **VISUAL DIRECTIONS** — For activities and projects that require multiple steps, project directions on a screen so that students can reference them while working. For younger students, give groups the steps with a check-off box to help them stay on track. Placing copies in sheet protectors and using dry erase markers allow them to be re-used for different classes.

■ **ONLINE DIRECTIONS** — Once directions for an activity or assignment are provided, post the directions, rubrics, and other pertinent information on your teacher web page. Students in class can review assignment details before deciding if they need further explanation, absent students have access to what they missed, and parents can stay connected. Have materials ready in advance so that when the lesson is complete, a student (if age appropriate) can be responsible for submitting or posting online.

■ **MISCONCEPTIONS** — When planning, consider directions and steps of an assignment from a student perspective to anticipate what might go wrong before students begin. During the lesson, pose a question that will determine whether students have misconceptions about the content. Depending on student responses, you can proceed with lesson/assignment or clear up misconceptions.

■ **CLEAR FORMATTING** — When providing written directions or content, be concise and consider the way it looks to others. To make the directions or content easier to use, consider the following formatting techniques:

- > Layout
- > Bullets
- > White space
- > Graphics

> EXPLANATION OF CONTENT

■ **CONNECTIONS TO REAL LIFE BUILD PURPOSE** —

- > **REAL-LIFE EXPECTATIONS** — As possible, show students models from real-world products or standards instead of only academic resources. Align expectations to age-appropriate and content-appropriate adaptations.

> **AUTHENTIC AUDIENCE** — As a way to make the learning purposeful, students can create a project or service for a real audience. Have the audience interact with students while they are creating their products to focus on meeting expectations. Examples could be projects like learning centers for younger students; a web site for a local non-profit; project-based learning experiences with local businesses; peer-tutoring materials for struggling students; games to review content; etc.

■ **BUILD STUDENT INTEREST** —

> **KNOW YOUR STUDENTS** — When you plan, use your knowledge of individual students. Build that knowledge by having students complete surveys describing themselves as people. Some of the most important questions you can ask are, What’s your favorite way to spend your time outside of class? What hobbies do you have? What is something about which you know a lot? Use that information to make connections during student learning.

> **BACKGROUND KNOWLEDGE** — When introducing a lesson, have students share their own knowledge, thoughts, and ideas about the content or concept through some variation of the KWL charts. (See specific directions for a variety of those tools in 3E.) Using sticky notes for students to share what they know and would like to learn adds variety, but some anonymous responses might lead to better discussion. If students are from very diverse backgrounds, some students might feel like their experience isn’t as good as someone else’s. Celebrate the way that diverse knowledge and experience expands everyone’s learning.

■ **MODEL** — Show students what they are expected to do or produce. For activities, model the process needed to complete the activity. For products, show a model alongside the criteria for quality. You may also want to model your thought process as you complete necessary tasks.

■ **GRAPHIC ORGANIZERS** — Graphic organizers can help students understand concepts. A graphic organizer isn’t a product but a tool to guide student thinking and prepare students to apply learning in a meaningful product. Once students are ready to move to actual work without a graphic organizer, don’t hold them back. Some free sources: www.eduplace.com/graphicorganizer/ (print for classroom use); www.wtpps.org/ti/graph_organiz.html. (Washington Township Public Schools has a chart with interactive graphic organizers and notes on the options. These organizers may be printed or filled out and saved on the computer.)

■ **PROVIDE PICTURES, CHARTS, AND VIDEOS** — Include visual resources to demonstrate and/or reinforce content. Stopping a lesson to watch a short video clip or view pictures can help students build background knowledge necessary for new learning.

■ **USE MEMORY AIDES** — Teach students chants, mnemonic devices, or “body symbols” (gestures or actions that represent an idea, concept, etc.) to aid memorization of key facts or procedures associated with higher-level concepts. Let students stop to process learning and repeat the applicable memory aide to reinforce foundational learning.

■ **BUILD IN TIME TO PROCESS AND REFLECT** — After a new idea from discussion or a reading is shared, pose a question to help students process the content. Use partner talk (discuss with a partner) or think-pair-share (think on your own, discuss with a partner, then share with a larger group) strategies to engage all. Allow students to ask for clarification based on their discussions before moving on to the new material. Incorporate technology by using sites such as ProConIt (www.proconit.com), which allows you to post different sides of a subject so that students can debate online. Presenting materials in class, then allowing students to follow up with this resource promotes engagement, time for reflection, and technology standards.

■ **CONTENT VOCABULARY THROUGH DIRECT INSTRUCTION** — To extend students’ vocabularies and teach new content vocabulary:

- > Introduce key words before reading or a lesson.
- > Expose students to vocabulary in a variety of ways.
- > Promote active engagement to help internalize understanding of the words.

> USE OF ORAL AND WRITTEN LANGUAGE

■ **MODEL STANDARDS IN INSTRUCTION** — To help students meet proficiency, teachers need to model the following standards in every lesson:

SPEAKING AND LISTENING

- > Present information, findings, and supporting evidence such that listeners can follow the line of reasoning and the organization, development and style are appropriate to task, purpose and audience. (Standard 4)
- > Make strategic use of digital media and visual displays of data to express information and enhance understanding of presentations. (Standard 5)

> Adapt speech to a variety of contexts and communicative tasks, demonstrating command of formal English when indicated or appropriate. (Standard 6)

WRITING

> Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Standard 4)

LANGUAGE

Demonstrate command of the conventions of standard English:

- > Grammar and usage when writing or speaking (Standard 1)
- > Capitalization, punctuation, and spelling when writing (Standard 2)

Excerpted from English/Language Arts K-12 College and Career Readiness Anchor Standards

■ **PRECISE AND CONCISE COMMUNICATION** — Your “effective use of oral and written communication” is a continuing opportunity to teach one of the seven “survival skills critical to the new world of work” according to Tony Wagner, expert in residence at Harvard University’s Innovation Lab. Successful people at all levels must be precise and clear in describing issues and results to others. Use every lesson to model precise and concise communication. When teaching a lesson, tell students why and how you work on that skill, reflect aloud to them when you are and aren’t successful, and share why.

■ **COMMUNICATION REMINDERS** — Create non-verbal reminders for positive communication skills:

- > Expectation: Listen; track the speaker; keep hands down when someone is speaking; speak only in turn.
- > Teacher non-verbal reminder: “hands down” gesture

■ **CONTENT VOCABULARY PRE-TEST** — Pre-test specific content vocabulary to determine which words students already know and which need more direct instruction time in the classroom. Send home the words students miss so families can work on those at home. (Make sure the students know they won’t be graded on the pre-test.)

■ **VOCABULARY FRONTLOADING** — Introduce key vocabulary through images or connections to student knowledge and experiences. As students learn more about terms, have them create their own symbols or drawings for words. (Don’t have the students simply define vocabulary words; they need to construct the meaning from the words through thinking and experience.)

■ **VOCABULARY ACQUISITION MONITORING** — Prepare students to track vocabulary lists to lesson plans. Document that terms are taught. Post the lists and make a ritual of checking off words when everyone knows them. Have students keep a copy of the lists in their notebook and check off words as they demonstrate understanding (i.e., games; learning center; vocabulary quiz; etc.).

■ **STUDENT OWNERSHIP OF VOCABULARY DEVELOPMENT** — Reinforce the importance of vocabulary in students’ lives. Johnson O’Connor, known for research on the impact of vocabulary on people’s lives, concluded after 20 years of research that a person’s vocabulary level is the best single predictor of career success. Share what’s especially great — kids aren’t born with a certain vocabulary, so everyone can learn and grow their vocabulary. Encourage students to share when they encounter vocabulary words in other contexts.

■ RESOURCES:

> Correct grammar and speaking — Regardless of educational background or accepted regional usage, many teachers need to brush up on proper grammar. Effective teaching requires correct modeling on a daily basis.

> One practical, quick guide to proper grammar is *The Elements of Style*, by William Strunk, Jr., and E. B. White (advertised on Amazon: Kindle for \$2.99; used hardcover as low as \$.50 plus shipping).

> NoRedInk offers help with apostrophes, subject-verb agreement, comma use, fragments and run-ons, and commonly confused words. www.noredink.com

> Common mistakes are the subject on 15 Grammar Goofs That Make You Look Silly www.copyblogger.com/grammar-goofs/

> Grammar Girl is user-friendly and allows choice of the topic you need to practice, www.quickanddirtytips.com/education/grammar/split-infinitives. Or subscribe to the podcast on iTunes at itunes.apple.com/us/podcast/grammar-girl-quick-dirty-tips/id173429229?mt=2.

> More sites are described in an article, “Practice Grammar With Technology.” www.techlearning.com/Default.aspx?tabid=67&entryid=5736#sthash.XHrP4Y6y.dpuf

> 3B. USING QUESTIONING & DISCUSSION TECHNIQUES

> QUALITY OF QUESTIONS

■ **RAISE THE LEVEL OF QUESTIONING** — Examine the types of questions you plan in a lesson or discussion. Determine if they are low- or high-level questions. Work to increase the level of questions, prompts, and multiple-choice stems, and write those into lesson plans:

A. EXPLAIN IT — Provide the “answer” and ask the students to explain it.

LOWER LEVEL

- > *What are the properties of plastic?*
- > $7 + 2 + 3 = ?$

HIGHER LEVEL

- > *Why is plastic a good material for modern toys?*
- > $7+2+3=12$ *What strategies could have been used to answer this problem?*

B. DIFFERENT POINT OF VIEW — Rewrite the question so students think of issues from a different point of view.

LOWER LEVEL

- > *Why is it wrong to steal?*
- > *Why was it cruel to employ Victorian children to clean chimneys?*

HIGHER LEVEL

- > *What would a mother whose children were starving think about shoplifting?*
- > *Who had the most to lose from the practice of Victorian children cleaning chimneys? Who had the most to gain? Give reasons to support your answers.*

C. STATEMENT AND DISCUSSION — Turn a recall question into a statement and a discussion question.

LOWER LEVEL

- > *Which forms of exercise make the heart stronger?*
- > *Which metals are magnetic? Which are not?*

HIGHER LEVEL

- > *All forms of exercise make the heart stronger. Do you agree or disagree, and why?*
- > *All metals are magnetic. Do you agree or disagree, and why?*

D. APPLICABLE CHARTS AND GRAPHS

LOWER LEVEL

- > *If air in a balloon is heated, what happens to the balloon?*

HIGHER LEVEL

- > *According to the chart, what conclusion can be made about how temperature affects air in a balloon?*
- (Excerpt from K-PREP sample of Stanford 10 NRT, 4th Grade)*

E. VERB TRANSFORMATION

LOWER LEVEL

- > *The life cycle of the frog has what stages?*

HIGHER LEVEL

- > *Which statement provides the best description of a frog's life cycle?*

F. PRINCIPLE, CONCEPT, OR RULE

LOWER LEVEL

- > *Electromagnetic energy from the sun comes to Earth in the form of _____?*

HIGHER LEVEL

- > *Which statement best explains the energy relationship between the sun and Earth?*

■ **LITERACY DESIGN COLLABORATIVE TEMPLATES** — Use the templates from LDC to create quality questions.

Elementary: ELA, social studies and science for Grades 4-5 created by LDC are available in CIITS or on the web: www.literacydesigncollaborative.org/wp-content/uploads/2012/10/LDC-Elementary-Template-Tasks-v1.pdf

Secondary: Tasks for integrating literacy into middle and high school content areas (grades 6-12) created by LDC are available in CIITS or on the web: www.literacydesigncollaborative.org/resources/

■ **MATH DESIGN COLLABORATIVE LESSONS** — Use the templates from MDC to create quality questions.

Elementary: Sample lessons for grades K-5 are available in CIITS or on the web: maccss.ncdpi.wikispaces.net

Secondary: Sample lessons for grades 6-12 are available in CIITS or on the web: map.mathshell.org/materials/lessons.php?taskid=406&subpage=concept

■ **SOCRATIC METHOD, SOCRATIC QUESTIONING, AND SOCRATIC SEMINARS** — Teaching strategies named for Socrates, an important Greek philosopher who lived from 469-399 B.C., can improve the quality of learning. Socrates was known for probing questions to unlock answers and more questions. The benefit of Socrates' style is the learning gained from posing strong questions or using critical thinking to identify and solve problems at any grade level or in any subject.

> Socratic method is based on the idea that knowing how to uncover answers is more important than simply memorizing facts. It frequently involves posing a question that examines implications of the main idea or the reasoning behind it, questioning premises behind a statement, and considering possibilities to clarify reasons behind basic ideas.

> Socratic questioning is a process based on the Socratic method, using questions that clarify, probe assumptions, scrutinize evidence, challenge viewpoints, examine consequences, or lead to new questions. Examples are questions that start with, "What do you mean by ...," "Why did you say ...," "How do you know ...," "Why do you think it works like ...," "What if the result was ...," "Why would someone ask ..."

> Socratic seminars focus on issues that invite inquiry and require students to be prepared, to follow a conversation, to be ready to reflect on an idea, and to contribute ideas and reasons for positions or decisions. Groups dive more deeply into the meaning and implications of the issue at hand. Seminars are driven by intelligent questions that prompt thought and consideration of ideas and possibilities. A main goal is for conversation and questions to stay focused on the main idea while opening new areas for consideration. See a seminar in action at ed.ted.com/on/29Ph4gH2, or watch more about Socratic seminar www.teachingchannel.org; an outline of the steps appears at www.readwritethink.org/professional-development/strategy-guides/socratic-seminars-30600.html

■ **SOCRATIC SEMINAR STARTER FOR ELEMENTARY** — A simple way to start using Socratic-like seminars in elementary grades is the Question-Answer Relationship (QAR) strategy. This strategy helps students categorize questions in four types, specified below. Reading Rockets suggests the following steps to be used to obtain a seminar-like setting using QAR (www.readingrockets.org/strategies/question_answer_relationship):

> 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:

> Right-There Questions: Literal questions with answers that can be found in the text. Often, the words used in the question are the same words found in the text.

> Think and Search Questions: Answers are gathered from several parts of the text and put together to make meaning.

> Author and You: Questions are based on information provided in the text, but the student is required to relate it to his/her experience. Although the answer does not lie directly in the text, the student must have read it to answer the question.

> On My Own: Questions do not require the student to have read the passage, but he/she must use background or prior knowledge to answer the question.

> Read a short passage aloud to students.

> Prepare predetermined questions to ask after you stop reading. When finished reading, ask the questions aloud and model how you decide which type of question you need to answer.

> Show students how to find information to answer the question (i.e., in the text, from your own experiences, etc.).

> After modeling this method with your students, start scaffolding your QAR strategy so that children can do this independently in class discussions.

■ **FOLLOW-UP QUESTIONS** — Knowing how to inspire students to continue or deepen discussion requires teachers to be prepared with follow-up questions. Good follow-up questions expand the conversation and require students to

> Clarify answers: Tell me more about that.

> Support answers: What about the reading made you think that ___?

> Argue: Convince us that ____.

> Examine responses more fully: In what other context does that idea play out?

> Consider different perspectives: What would you say to someone who thought ___?

> Predict: What do you think that we will discover in the next chapter?

> Hypothesize: How would you handle a situation like ___?

> Decide: So, this leads you to what conclusions?

> Compare: How is your answer different from or the same as others?

> Generalize: What did you discover?

SOURCE: Rethinking Whole-Class Discussion by Todd Finley, Edutopia www.edutopia.org/blog/rethinking-whole-class-discussion-todd-finley

■ **CREATE A QUESTIONING ENVIRONMENT** — To help students accept important questions and create their own, they need to experience the safety of a questioning environment. Allow students to ask questions about a topic and record them for all to see. Questions should not be judged or edited. Teacher Julie Grimm uses a 10-by-10 exercise with primary students encouraging them to come up with 10 great questions about a topic during a 10-minute period.

■ **5 WHYS** — To get to the root issue of a topic, ask a series of “why” questions to keep students investigating deeper issues or connections. Asking up to 5 “whys” keeps the discussion interesting and moving without boring students.

■ **WHY / WHAT IF / HOW** — This sequence of questioning can engage students in almost any issue or topic. Teachers can start with a question or a statement and invite student discussion by prompting with “why, what if and how.”

■ **ACCEPT LACK OF CLOSURE** — Answers and closure to a discussion make students and teachers feel safe. However, teachers usually stifle students when they talk too much, provide too much information, express frequent personal opinions, or tell students what to think. To provide students an opportunity to use their brain power, consider responding with any of the following:

- > Tell me more.
- > I’m wondering how you figured that out.
- > Can you share data to support your idea?
- > Can you give an example?

These responses push students toward clarity of thinking, reflection about a position, examples, and data. The follow-up discussion will likely build deeper understanding.

■ **CLARIFY** — Some students have great ideas but experience difficulty expressing them clearly. Clarify what a student is trying to say by

- > Restating what they said and asking if you understood correctly, and
- > Asking the student to help you understand by explaining again.

When the teacher accepts responsibility for the misunderstanding, the student is less likely to feel put on the spot.

> DISCUSSION TECHNIQUES

■ **AVOID Q&A TRAP** — Many times teachers think they are engaging students with questioning that is really just fishing for certain answers at a stop/start pace. To avoid that trap, use the following tips:

- > Announce your intention and teach — “I’m going to model how to solve this equation, and I’ll check for your understanding in the end.” This direct instruction is more effective than trying to ask, “What do I do next?” and getting incorrect answers or getting off track. Students end up missing the point of the lesson and stop paying attention.
- > Raise the stakes — Prior to direct instruction, give students time to find solutions on their own. This works only when students have some prerequisite skills or concepts. After they have time to solve or discuss ideas, model or directly teach. Students will be eager to see what they got right.
- > Rehearse lessons that teach crucial concepts — While time-consuming during planning, it pays off for students through deliberate wording, examples, modeling, etc., that are succinct and direct. This can save reteaching skills or concepts.
- > Video lesson — Record your own lessons and watch them. Identify whether your questioning techniques are too much question-and-answer ping-pong or if true discussion takes place with deeper thinking.

■ **UNDERSTANDING DISCUSSION** — Be clear with students that discussion is a back-and-forth exchange. A teacher:

- > Poses a question (or a student does)
- > Invites all students to be heard
- > Enables students to engage in discussion directly with one another
- > Stays out of the role of mediator unless students need him/her

Discussions can also take place via class blogs, Twitter (teaches students to be concise), and ProConIt (www.proconit.com).

■ **GROUND RULES FOR GROUP DISCUSSION** — Set expectations with students after they understand the goals of class discussions and have experienced good models of discussion. Some examples of ground rules might include the following:

- > Treat others as you would like to be treated
- > Allow each person to speak without interruption
- > Critique the ideas, not the person
- > Provide supporting evidence or examples

It is the responsibility of the teacher and the students to hold themselves and each other accountable for rules created.

■ MODEL DISCUSSION —

- > Think aloud in front of students so they can understand your thinking. Keep your description on a level students can understand. Repeat this strategy often as you teach students to think at higher levels, solve problems, and answer questions as part of peer or class discussion. Encourage students to suggest ways to take thinking to a higher level.
- > Have students work in pairs and then teams on think-aloud exercises for feedback.
- > Model appropriate, respectful ways for students to comment and ask follow-up questions.

■ EXPECTATIONS FOR CONTENT OF THE DISCUSSION —

- > Students actively support, engage and listen to peers
- > Comments are relevant
- > Comments are supported with facts, examples, or evidence
- > Students explore all the implications and importance of the comment
- > Comments are insightful; they broaden the discussion and clarify issues
- > Comments are complete and concise (Does the comment cover the point as well as possible in as few words as possible?)

■ **HUMAN GRAPHS** — Have students respond to any statement by forming a human graph. For example, ask, “Can all forms of physical change on the Earth’s surface be measured?” Students then form lines to represent their thinking — Agree, Don’t Know, Disagree. After students select a line, have each student turn to a partner and explain their selection. Have one person from each line explain why he/she chose that line. After sharing explanations, allow students to change lines if they would like. Finally, take note of the final graph.

■ **FOUR CORNERS** — Ask students to react to a series of controversial statements about a topic they are preparing to study. Students move around the room to show their level of agreement/disagreement with various statements relating to the topic. For topic ideas, see learning.blogs.nytimes.com/2013/06/13/182-questions-to-write-or-talk-about/?_php=true&_type=blogs&_r=0.

■ **ONLINE DISCUSSION POSTS** — Your school should have a format for setting up online discussions. If you don’t know what those are, talk to technology experts in the district. The purpose of the online discussion is to carry the discussion outside the classroom and allow students to respond on their own time. This can be formal: You require a post, or a certain number of posts, by a specified date; or informal: You or a student checks the post periodically for additional issues to bring to the class.

■ **STUDENT-RESPONSE SYSTEMS** — Use this system to collect anonymous opinions from students. The information can be the foundation for quality discussion. Start with 2-3 poll questions before discussion, then poll students again at the end of discussion to see if any opinions changed. Students could write about why opinions were changed or not.

■ **WAIT TIME** — Teachers give students at least 3-5 seconds. (Of the teachers studied from our review of research, the average teacher waits 1 second before calling on a student.) The extra time levels the playing field for students who need more processing time. Using wait time also improves the quality of the answers and discussion.

■ **SOCRATIC SMACKDOWN** — In Rebecca Grodner’s eighth-grade ELA class, kids play Socratic Smackdown. Grodner created the game to teach the building blocks of argumentation while allowing students practice and time to assess their peers’ conversational etiquette. Students might earn points for using supporting evidence or playing devil’s advocate. They lose points for interrupting or insulting other players. They’re motivated to learn the components of rhetoric, to understand how they function within a discursive system, and to use them in everyday contexts. To implement and download the free game, go to www.instituteofplay.org/work/projects/print-play-games-2/socratic-smackdown/

■ **TEACH QUESTION STEMS** — Many learners need to be taught how to engage in discussion — particularly ELL / ESL students. Provide conversation stems on a poster or individual notecards.

TO AFFIRM >

Thanks for explaining _____.
You did a nice job on _____.

TO PIGGYBACK >

I agree because _____.
I think another reason is _____.

TO SUMMARIZE >

So far we decided _____.
We already know that _____.
So what you’re saying is _____.

TO CLARIFY >

Tell me more about _____.
Could you explain again?
I don’t understand about _____.
How did you figure that out?

TO FOLLOW-UP >

Why do you think that?
Where is that in the text?
Can you give an example?

TO DISAGREE >

Let me explain why I see that differently. Have you considered _____?
I disagree because _____.

■ **THINK-PAIR-SHARE** — This technique creates opportunities for all students to be actively involved, enables students to practice their listening skills, and allows students time to think and get their thoughts together before speaking in front of the whole group.

THINK > Each student thinks, takes notes, and/or writes about a topic individually for a specified, brief time.

PAIR > Students form pairs and discuss each other's thoughts.

SHARE > Some of the students share their thoughts with the full group.

■ **JIGSAW GROUP DISCUSSION** —

> Students are in an initial group and each student is given a different topic on which to become an "expert."

> Students leave that group to go work with other "experts" on the same topic to learn and discuss their thoughts.

> Students return to their original group and present their findings.

■ **DISCUSSION TECHNOLOGY** — Open possibilities for class discussions to "continue" during transitions and beyond by creating an environment where teachers and students participate in online conversations. This provides communication opportunities even beyond the class period. Two examples:

> Today'sMeet, todaysmeet.com, teachers create private chat rooms so students could ask questions or leave comments before, during, and after class

> Padlet, padlet.com, a digital bulletin board where students share thoughts, pictures, videos, and links

■ **RANDOM STUDENT SELECTION** — Give students time to prepare their thinking through Think, Pair, Share or at Partner Talks, and then call on students randomly so all students are held accountable. Use index cards, popsicle sticks with students' names, or a random student generator from the Internet.

■ **DISCUSSION TICKETS** — Hand out one or two tickets to each student before a discussion. When students want to speak, they turn in a ticket each time. This strategy limits a student who often dominates conversation, and helps see students who aren't speaking to draw them into conversation.

■ **RESPECTFUL LISTENING AND ONLY ONE PERSON TALKING AT A TIME** — Have an object that signals who has the right to talk (this can include the teacher). Some objects that could be used include a talking stick; a wad of paper; a foam ball.

■ **ROOM ARRANGEMENT CAN PROMOTE DISCUSSION** — Move chairs or desks so students see each other well and conversation can flow easily. Think about where the teacher is positioned to send the message that the teacher is a part of the discussion but not controlling it.

■ **ACCOUNTABLE TALK** — In a classroom filled with accountable talk, students ask one another about their thinking and build on each others' responses. They cite evidence, ask for clarification, and extend understanding by using the statements they have heard from their classmates to form new ideas. In kindergarten through high school classrooms in Kenton County, you will see posters with accountable talk stems or "moves" posted for student and teacher use. For the lower elementary, you might see "Defend: I agree or disagree with _____ because." "Build: I would like to add to what _____ said." ... There are 12 accountable talk "moves" that have been researched and used by teachers and students for nearly 20 years. Find out more about the "moves" at ifl.pitt.edu/.

■ **STUDENT-PARTICIPATION RUBRIC** — Use these criteria to create a rubric (adapted from Teaching How to Question: Participation Rubrics by Anna H. Lathrop, EdD):

PREPARATION > Evidence shows preparation for discussion (prepared notes and/or recall of text/content).

ENGAGEMENT > Quality of engagement is active, respectful, and includes all students.

INITIATIVE > Questions help to focus, clarify, and summarize discussion.

RESPONSE > Quality of response reflects knowledge, comprehension, and application of the reading.

DISCUSSION > Quality of response extends discussion with peers and reflects analysis, synthesis, and evaluation.

Use these criteria to teach students meaningful participation and let them set goals for improvement. As part of goals, have peers, older students, or other adults advise specific ways to improve.

■ **PARTICIPATION SELF-ASSESSMENT** — A simple assessment could ask students to select one statement from below:

- > I contribute several times during every discussion.
- > I contribute at least once during most every class discussion.
- > I often contribute to class discussion.
- > I occasionally contribute during class discussion.
- > I rarely contribute to class discussion.

Students can try to move up one level during the next discussion.

■ **FISHBOWL** — A fishbowl conversation can be used when discussing topics within large groups. Fishbowls involve a small group seated in circle and conversing (fish). They are surrounded by a larger group of observers, seated in an outer circle (bowl). The facilitator poses a question based on recently studied content/reading or speaks for 5-10 minutes setting a general outline for discussion that the inner circle continues. The outer circle usually listens and observes. Whenever someone wants to participate and move to the inner circle, a participant from the fishbowl must free a chair and move to the outer circle. Students in the outer circle could also provide feedback to a “fish” partner using a discussion rubric.

> 3C. ENGAGING STUDENTS IN LEARNING

> ACTIVITIES AND ASSIGNMENTS

■ **TEACH STUDENTS HOW THE BRAIN WORKS** — Scientists have been able to show how the brain grows, forms new connections, and gets stronger through learning. The more a mind is challenged to learn, the more brain cells grow.

■ **INVOLVE STUDENTS IN PLANNING** — To make experiences more relevant, involve students in planning learning activities. Students will also be engaged by adding technology and other media.

■ **INVOLVE STUDENTS IN ASSESSING** — Model how to assess one’s own work and set future progress targets/goals. (See Component 3D.)

■ **MODEL AND TEACH STUDENTS TO HAVE A GROWTH MINDSET** — Growth mindset increases motivation and ownership of learning. Motivation: to exert effort, it helps to have inner sense that you are likely to succeed at what you are undertaking. Ownership: instead of learning the material to take a test, students with growth mindset take charge of their learning for their own benefit.

■ **CREATE LESSONS THAT BUILD ON STUDENTS’ PRIOR KNOWLEDGE** — Rather than assuming students know nothing about a subject, pre-test or use a strategy to find out what students know. Gauging prior knowledge can save instructional time and open opportunities to go deeper into the content. Encourage independent inquiry in areas of interest.

■ **STUDENT-DIRECTED LEARNING** — Keep the following tips in mind when incorporating student-led learning experiences:

- > Focus on process rather than content. For example, in science, inquiry is more important than memorizing facts or answering questions from the textbook.
- > Organize students into groups to solve problems; promote and model discussion, peer coaching, and persistence.
- > Don’t immediately answer every question a student has or correct them when they are wondering or stuck. Allow time to arrive at a solution.

■ **POWER OF PRAISE** — Praise student thinking and persistence but avoid praising students’ intelligence, which can harm motivation and performance. When you say, “You did that so quickly!” or “Your paper is perfect,” you send the message that speed and perfection are prized.

■ **STUDENT TALK VS. TEACHER TALK** — Ask another adult to tally student talk and teacher talk if you are concerned about student engagement. For intellectual engagement, student talk should outweigh teacher talk.

■ **ALLOW STUDENTS TO SUGGEST WAYS TO BE MORE INTELLECTUALLY ENGAGED** — Listen to all students. It’s important to hear voices seldom heard in schools, including students who are minority, low-income, have low grades, or don’t interact with peers.

■ **MODEL HOW TO APPRECIATE FRUSTRATION** — Reflect on classroom dynamics and results. Taking stock and gaining perspective provides the necessary attitude adjustment to turn frustration with learning into enthusiasm. Students need to learn how to persist in their learning.

■ **STUDENT ENGAGEMENT** — Create lessons, assignments, or projects that appeal to student interests or stimulate their curiosity. Give students choice over the topics they are asked to write about, or let students choose the way they will investigate a topic or demonstrate what they have learned (i.e., write a paper, produce a short video or audio documentary, or create a multimedia presentation). Teachers may also introduce a unit of study with a problem or question that needs to be solved. For example, students might be asked to investigate the causes of a local environmental problem, determine the species of an unknown animal from a few short descriptions of its physical characteristics and behaviors, or build a robot that can accomplish a specific task. In these cases, sparking student curiosity can increase engagement in the learning process.

SOURCE: Hidden curriculum (2014, August 26). In S. Abbott (Ed.), *The glossary of education reform*. Retrieved from edglossary.org/hidden-curriculum

■ **CREATE ANALOGIES AND METAPHORS TO SHOW UNDERSTANDING** — Research supports analogies in good teaching:

- > Recognizing and constructing analogies helps students bridge the gap between the new and the old. Traditional analogies include the eye and a camera, the heart and a pump, the brain and a computer, and the memory and a file cabinet. Self-created analogies are generally more effective than those made up by others (Gunning, 1996).
- > Activation of prior knowledge to help students learn new material is considered a basic principle of good teaching (Glynn, 1996) and is the foundation for the effective use of analogies.
- > Analogies have proven to be effective learning tools for reinforcing thinking skills and conceptual understanding (Alvermann & Phelps, 1998).

Why is it important?

- > Good teachers use metaphors and analogies to make new and unfamiliar concepts more meaningful to students by connecting learning to information students already know.
- > Good readers know how to use analogies and metaphors to get at the meaning of a passage.
- > When students create their own analogies for new concepts, the analogy can provide a way to assess understanding.
- > Metaphors and analogies add “sparkle” to student writing.

SOURCE: www.teachervision.com

■ **IMPROVING STUDENT RESPONSES** — Model and teach students to provide support, evidence, or justification for responses when answering questions orally or in writing. Encourage students to use the same strategy to question others in conversation. Create an anchor chart with common questions or prompts. (i.e., How do you know that? Why do you think...?).

■ **SHOW AND TELL** — Modeling is a fundamental principle of scaffolding.

- > Show students what they are expected to do or produce. A model along with criteria/rubric should be introduced to students before they begin work.
- > For activities, model the process students will use to complete an activity. Try a fishbowl activity with a group in the center, circled by the class, to model for the larger group.

Model your thought process as you complete the necessary tasks.

■ **PRE-TEACH VOCABULARY** — Also known as frontloading, introduce new vocabulary to students in photos and in context of things they know about. Use analogies and metaphors to support understanding. Have students create a symbol or drawing for each word and allow time for discussion. Dictionaries should never come out until all of these steps have been taken. Students can compare their definitions to a dictionary.

■ **GRAPHIC ORGANIZERS** —Graphic organizers can help students organize information and understand concepts. A graphic organizer isn't a product but a tool to guide student thinking and prepare students to apply learning in a meaningful product. Once students are ready to move to actual work without a graphic organizer, don't hold them back. Some free sources: www.eduplace.com/graphicorganizer/ (print for classroom use), www.wtps.org/ti/graph_organiz.html (Washington Township Public School District has a chart with interactive graphic organizers and notes. These organizers may be printed or filled out and saved on the computer.)

■ **PROVIDE PICTURES, CHARTS, AND VIDEOS** — Include visual resources to demonstrate and/or reinforce content. Stopping a lesson to watch a short video clip or view pictures can help students build background knowledge necessary for new learning.

■ **USE MEMORY AIDS** — Teach students chants, mnemonic devices, or “body symbols” (gestures or actions that represent an idea, concept, etc.) to aid memorization of key facts or procedures associated with higher-level concepts. Let students stop to process learning and repeat the applicable memory aide to reinforce foundational learning.

■ **SENTENCE STARTERS** — For students who have trouble getting a writing assignment started give them a sentence starter that will boost that first step.

- > One thing I don't understand about World War II is...
- > People disagree on this issue because...
- > Something important to know about photosynthesis is...

■ **LEARNING MENUS** — A learning menu is a compilation of activities and study opportunities that focus students on developing skills and knowledge and deepen understanding of content. Menus offer students choice in learning and help teachers differentiate for various learning styles and abilities. Using menus for days/weeks at a time also frees up the teacher to work with students in small groups. Various kinds of menus are possible, including the following:

- > **RESTAURANT MENU** — Appetizer (choose specified number of activities to review or warm-up students); Entrée (choose specified number of focused learning activities using graphic organizers, reading assignments, written responses, etc.); Dessert (overview of content, provide an artifact, or provide an optional enrichment opportunity)
- > **TIC-TAC-TOE MENU** — Provide a board with 9 options of learning tasks that encompass various learning styles and

multiple intelligences. Specify how many of the assignments students must complete in the given time frame.

> **AGENDA** — In an agenda format, include Imperatives (must-do assignments); Negotiables (complete a specified number from a list); Options (may do one or more enrichment activities).

It is important for teachers to build in self-checking systems for skill activities, formative assessments with feedback, and summative assessment throughout the unit.

■ **MODEL DISCUSSION SKILLS** — Teach appropriate, respectful ways for students to comment and ask follow up questions. (See detailed discussion strategies in Domain 3B.)

■ **THINK ALOUD** — Model thinking for your students often. Let them hear your thinking process as you respond to questions and work through problems.

■ **SUPPLY VS. DEMAND** — Focus on developing students' thinking instead of supplying the answers. Keep your questions at high levels, and if students aren't matching that level, ask questions to help them through the thinking process.

■ **PRACTICE INTELLECTUAL ENGAGEMENT, INSIDE AND OUTSIDE SCHOOL** — Have students ask themselves questions like "What do I think the answer is?" and "On what basis did I come to that conclusion" before looking up answers.

■ **PROVIDE INTERVENTIONS TO SUPPORT THE LEARNING NEEDS OF INDIVIDUAL STUDENTS** — To show students how to persevere through learning challenges, plan activities and assignments that are multi-sensory, differentiated, and tiered. This can promote student access and understanding.

■ **USE COOPERATIVE LEARNING STRUCTURES** — Cooperative learning structures organize interactions between students for instruction. They also heighten engagement in the classroom. Some structures organize partner work, others focus on teamwork, and some involve the whole class. The key to using cooperative learning structures is to meet a particular purpose in instruction (i.e., reviewing content, discussion, team building, etc.). A few popular structures:

> **SCOOT** — To review content, students move from one desk to another solving problems or answering questions on task cards and compiling answers on recording sheet. Students work until all problems/questions are answered.

> **TEAM SCOOT** — Students rove and tackle fewer problems as a team, allowing for more discussion and peer teaching. All students still have to work the problem or record answers but can collaborate.

> **THINK-PAIR-SHARE** — The Think-Pair-Share strategy provides students time and structure to work on a given topic, enabling an opportunity to formulate individual ideas and share with a peer. This strategy promotes participation by encouraging a high percentage of pupil response. In this strategy, a problem is posed, students think about it individually, then work in pairs to solve the problem and share thoughts with the class. Think-Pair-Share is easy within a planned lesson, but is also works for spur-of-the-moment discussions. This strategy can be used for a variety of daily classroom activities like concept reviews, discussion questions, partner reading, brainstorming, quiz reviews, topic development, etc. Think-Pair-Share develops conceptual understanding of a topic plus the ability to filter information, draw conclusions, and consider other points of view.

> **STAND UP, HAND UP, PAIR UP** — Students stand up, put their hand up until they find a partner, then share or discuss. This structure is perfect for teambuilding, processing and reviewing information, energizing the class, forming random pairs or teams, lesson starts, or wraps.

■ **EXECUTIVE FUNCTION** — Students need to be explicitly taught and given opportunities to practice executive functions such as how to learn, study, organize, prioritize, review, and actively participate. Many struggling students lack executive function skills, which prevent mastering content. Activities that support executive functioning of the brain include

- > Comparing and contrasting
- > Giving new examples of a concept
- > Spiraled curriculum
- > Group collaboration
- > Open-ended discussions

Activities/assignments planned for students should give them the opportunity to:

- > Make predictions
- > Solve various types of problems
- > Pursue inquiries
- > Analyze what information they need

SOURCE: Three Brain-Based Teaching Strategies to Build Executive Function in Students by Judy Willis, MD, Edutopia, www.edutopia.org/blog/brain-based-teaching-strategies-judy-willis

> GROUPING OF STUDENTS

■ **GROUPING STUDENTS BASED ON PURPOSE** — Use multiple groupings suitable to the lesson objective, including student self-groupings.

For differentiation, groups could be based on

> **INTEREST**

Student interests and talents

> **READINESS**

Overall MAP math or reading scores

Pre-assessment of knowledge for a unit or concept

> **LEARNING PROFILE / LEARNING STYLE**

Visual, auditory, kinesthetic

Multiple Intelligence strengths

4-Mat

■ **FLEXIBLE GROUPING** — It's important that students are not assigned to set groups that don't change. Student grouping should be flexible and should change to meet the purpose of the group. The following article provides a brief explanation of different groupings based on the type of learning involved and includes an easy-to-use chart for planning: www.eduplace.com/science/profdev/articles/valentino.html.

■ **USE COOPERATIVE LEARNING STRUCTURES** — Cooperative learning structures are strategies teachers use to organize interactions between students for an instructional purpose. They also heighten the level of engagement in the classroom. Some structures organize partner work; others, teamwork; and some involve the whole class. The key to using the structures is to find one that meets a particular instructional purpose (i.e., reviewing content, discussion, team building, etc.). (See Component 3C for specific examples.)

> INSTRUCTIONAL MATERIALS AND RESOURCES

■ **SUPPLEMENT INSTRUCTIONAL TEXTS AND MATERIALS** — Have students identify connections to their world and share those with the class. Allow students to identify or create their own learning materials. Older students can create folders on the classroom computer(s) to reference materials they've found helpful and include their own projects and research. Future students can also use the materials.

■ **STUDENT CHOICE OF INFORMATION GATHERING** — Give students choice in how they access, interpret, and process information. Make various technologies and other media available for students to use.

■ **HIGHER-LEVEL ACTIVITIES** — Use Hess's Cognitive Rigor Matrix for increasing the level of thinking and work required in student activities. The model combines the revised Bloom's Taxonomy and Webb's Depth of Knowledge, with versions for math/science and English/language arts. An example from the English/language arts matrix shows how Bloom's definition of "evaluate" complements Webb's "strategic thinking/reasoning":

- > "Describe, compare, and contrast methods for solving a problem"
- > "Verify the reasonableness of results"
- > "Justify or critique conclusions that have been drawn"
- > "Cite evidence and develop a logical argument for conjectures"

■ **LITERACY DESIGN COLLABORATIVE TEMPLATES** — Use the templates from LDC to create quality questions.

Elementary: ELA, social studies and science for Grades 4-5 created by LDC are available in CIITS or on the web: www.literacydesigncollaborative.org/wp-content/uploads/2012/10/LDC-Elementary-Template-Tasks-v1.pdf

Secondary: Tasks for integrating literacy into middle and high school content areas (grades 6-12) created by LDC are available in CIITS or on the web: www.literacydesigncollaborative.org/resources/

■ **MATH DESIGN COLLABORATIVE LESSONS** — Use the templates from MDC to create quality questions.

Elementary: Sample lessons for grades K-5 are available in CIITS or on the web: maccss.ncdpi.wikispaces.net

Secondary: Sample lessons for grades 6-12 are available in CIITS or on the web: map.mathshell.org/materials/lessons.php?taskid=406&subpage=concept

> STRUCTURE AND PACING

■ **LESSON PACING** — The essential to pacing a lesson well includes the following:

- > Create urgency by keeping a diligent pace without leaving learners behind (use a timer, if necessary)
- > Create clear goals and expectations from the beginning

- > Make smooth transitions with prepared materials and clear directions. While students are completing one assignment, pass out materials or setting up the next activity to minimize down time.
- > Display visual directions prepared ahead of time (PowerPoint, Prezi).

Check for understanding with formative assessment throughout.

■ **EXPLAIN TO STUDENTS THE GOALS FOR THEIR THINKING AND LEARNING** — Let students know they will be expected to participate in partner talks and class discussions, as well as “think” time to help them prepare.

■ **PROVIDE THINK TIME** — Use the following steps:

- > Pose a clear higher-level question.
- > Wait at least 3-5 seconds. (The average teacher waits 1 second before calling on a student.)
- > Have students turn to a partner and share answers — this strategy engages and holds all students accountable. The teacher can listen to student discussions and re-teach on the spot, if necessary.
- > Call on a student randomly, instead of having students raise hands. (Or the discussion could end with partner talk, based on teacher’s goal.)
- > Allow other students to comment on what was said or to address the original question.
- > Next, depending on the needs of the class and the plans you’ve made, you might:
 - > Continue with the discussion, being aware of using think time consistently.
 - > Ask follow-up questions to deepen or redirect the discussion.

Start back at Step 1 with a new question.

■ **BUILD IN EXTRA OPPORTUNITIES** — Plan for students to continue work if they need more time. Extend the learning if done quickly. Provide meaningful out-of-school experiences to extend the learning beyond the classroom.

■ **ALLOW STUDENTS TO CREATE SIGNALS** — Students can use signals to indicate when a lesson’s pace is too slow or rushed, and the teacher can adjust accordingly.

> 3D. USING ASSESSMENT IN INSTRUCTION

> ASSESSMENT CRITERIA

■ **ASSESSMENT MATCHES THE STANDARD** — Double check that assessment criteria match the rigor of standards. For example, If the standard says “contrast,” to adequately show contrast, a student has to describe the differences, not just list them.

■ **CRITERIA FOR QUALITY WORK** — Share rubrics with specific criteria for quality work. Criteria should clarify the purpose of learning. When possible, co-develop rubrics with students or have them help determine the criteria. Review the rubric in advance of the assignment so that the class clearly understands what is expected. Students should have plenty of opportunities to see and analyze high-quality work that matches the rubric.

■ **STUDENT ASSESSMENT WRITING** — Teach students to write quality multiple-choice questions. Create simplified, step-by-step directions. Use questions for reviews, quizzes, games, etc. Good questions can go into a test-question pool. This is a way for students to learn material more deeply.

■ **ENHANCED MULTIPLE-CHOICE** — Choose a few multiple-choice questions on an exit slip, quiz, or test, and add a place for students to explain their answer choice. Ask students to explain thinking in arriving at an answer or how they would defend it. This is an especially good way to improve new assessment items.

■ **PUT YOUR TEST TO THE TEST** — After grading assessments, complete a wrong-answer analysis. Tally multiple-choice questions missed to diagnose any problem. If several students missed the same item, determine the following: Was the question confusing to students? Were the answer choices confusing? Did I cover that content as planned? Did I provide students enough support and feedback on formative assessments through the unit? Essentially, you are trying to decide whether the test questions or the instruction needs revision. If instruction was the problem, plan to reteach the concept.

> MONITORING OF STUDENT LEARNING

■ **GIVE PRE-TESTS** — Gather information about students’ prior knowledge and areas of strength and weakness. Instruction can be tailored to meet students’ learning needs and to better monitor what students learn.

■ **FLASHBACKS** — Design multiple-choice or short-answer questions for the beginning of each class. Questions should review prior skills/content. Daily review keeps content fresh and allows tracking of student retention.

- **EXIT SLIPS** — During the last five minutes of class, teachers can give students slips of paper, sticky notes, or index cards to answer one or two questions posted for students to answer. The teacher collects slips as students leave class and reviews responses to learn how many students got the big idea and misunderstanding that exists. Lessons for the next day are adjusted to address student needs. Slips could also be prepared ahead of time with multiple-choice and short-answer questions. Make sure questions are tied to the essential question or learning target for the lesson.
- **HAND IN, PASS OUT** — Ask students questions and have them respond anonymously in writing. The teacher immediately, randomly gives feedback on a few responses. Pass back the remaining responses to have students grade with the same criteria. The teacher takes an informal poll on how many questions were answered correctly.
- **LEARNING LOGS AND/OR REFLECTION JOURNALS** — Learning logs are notebooks that students may use to react to content they are learning, processes they use, and reflections on learning. Student writing and drawing reflect on the content being studied (e.g., water cycle) and may respond to prompts or questions posed by the teacher. Using a reflection journal, students can also record targets they've mastered, reflect on experiences that worked well or didn't, ideas for future reading/study, and goals. Teachers may use these writing tools to respond to each child individually, sharing questions, feelings, and ideas, and making suggestions for future work or related activities. Some teachers hold individual conferences with students and use journals and logs to document progress. Ideally, students could combine the log and journal into one notebook to combine the reflection of content and learning. olc.spsd.sk.ca/De/PD/instr/strats/logs/index.html
- **POLL EVERYWHERE** — Take your anticipation guide or pre-test online and have students use mobile devices to answer questions regarding a topic – these questions should be true/false or agree/disagree. Polls, quizzes, or surveys can be located on CIITS, on free polling sites like polleverywhere.com, or apps such as Socrative.
- **DOODLE IT** — Have students draw what they understand instead of writing an explanation.
- **TEXT RENDERING** — Students read an informative text independently, highlighting or writing a few sentences they find important or interesting, or that create “aha” moments. In a group, have students each share a sentence from the text. Next, have each student pick and share a phrase from the sentence they chose. Finally, each student will pick a word from the sentence they share. Students can use their words and phrases to develop a main idea or summary of the text.
- **METACOGNITION** — To process what/why of the content presented, have students complete an exit form with the following questions:
 - > What did we do?
 - > Why did we do it?
 - > What did I learn today?
 - > How can I apply it?
 - > What questions do I still have about it?
- **RUNNING RECORDS** — Reading teachers take a running record on a passage of at least 100 words to note miscues, fluency, and comprehension. Analyze the record for meaning errors, structure errors, and visual errors.
- **TWITTER BOARD** — Using Twitter requires students to be concise about what is learned from a lesson before posting to a class feed. The Twitter board also provides an authentic audience.

> FEEDBACK TO STUDENTS

- **FEEDBACK ENHANCES ACHIEVEMENT** — Effective feedback is the most powerful tool to enhance achievement. All students must have challenging goals, and effective feedback must be specific and occur during learning. Time is always an issue, so teachers need help from administrators and team members to free time to provide meaningful feedback to students.
- **WRONG-ANSWER ANALYSIS** — Lead students in meaningful wrong-answer analysis, or have the students work in small groups. Students need prompt feedback to learn well. Students need to see what they missed and correct misconceptions. Do not make this a rote activity but an engaging learning experience. Providing credit for wrong-answer analysis will motivate some students.
- **IMMEDIATE FEEDBACK** — Give students immediate feedback on what they've mastered. Using technology like Gradecam (www.gradecam.com), feedback on formative assessments or daily reviews can be immediate. Gradecam is a web or document camera that immediately assesses multiple-choice responses and even loads results into a grade book as well as provides an item analysis for teachers to see whole-class results. An app such as Socrative will also allow teachers to pose multiple-choice questions, grade answers, and receive scores. Teachers can hold short conferences with students to discuss what they've learned before class is over. Quick grading and feedback on multiple-choice allows time for conferencing about writing and more complicated projects. The web site www.curriculet.com allows teachers to create and share lessons/materials, embed questions and quizzes into text, and track mastery of skills and standards. Students get immediate feedback on correct/incorrect responses. In a 1:1 class-

room, the free app Geddit allows students to rate their understanding of content as it is covered. Responses are private and one seen only by the teacher. Geddit can also check understanding via multiple choice and short answer questions.

■ **GUIDELINES FOR EFFECTIVE FEEDBACK** — In general, children are successful when the curriculum encourages them to reset personal expectations to a higher plane. Every student should have access to and be expected to master the curriculum. The curriculum can help students set higher expectations for themselves. Create clear lists of what students need to master in each content area, and assess regularly to monitor mastery. Share this information with students and parents.

Feedback should be immediate when learning a new skill. Repeating incorrect knowledge or practicing skills the wrong way makes the material harder to correct.

- > Use the language of the scoring guide.
- > Offer only as much feedback as students can act on at one time. Narrow comments to specific knowledge and skills.
- > Feedback shouldn't be a judgment of students as people but should ensure they react productively to results. To get the best results, students must understand feedback, be clear on what to do the next time, and feel that they are able handle it. Effective feedback will encourage students to keep trying.
- > Feedback doesn't have to come only from the teacher; it can come from answer keys, self-checking puzzles or games, from students or other adults, and also from the criteria on a checklist or scoring guide.

Encourage student self-assessment and peer assessment.

■ **VOICE FEEDBACK** — Google Drive has enabled Google Add-Ons, which can be efficient for teachers. One free add-on is Kaizena, which might help teachers give better feedback to students. You can pull a document into Kaizena with one click to easily add voice comments and thoughts on student work. You can then send the work back for revision. See other Google Add-Ons (Kaizena is No. 13) at www.coolcatteacher.com/best-google-drive-add-ons/

■ **WRITING FEEDBACK** — Providing time for writing conferences or giving written feedback is challenging for any teacher. Teach students to peer conference by modeling multiple times, and use peer conference sheets to hold both parties accountable. The web site PaperRater (www.paperrater.com) allows students to submit writing for feedback on grammar, spelling, plagiarism, and suggestions for style.

■ **A B C CARDS** — Students have sets of cards with A,B,or C written on them. The teacher poses multiple-choice questions. Students hold up the letter of the correct answer for the teacher to see. The teacher uses the quick results to decide how to proceed with the lesson.

■ **ANALOGY PROMPT** — Periodically, present students with a simile prompt: (A designated concept, principle, or process) is like _____ because _____.

■ **'I LEARNED' STATEMENTS** — "I learned" statements may be in written or oral form. Their purpose is to give students a chance to self-select what they learned during a class session, an investigation, or a series of lessons.

■ **JOURNALS AND LOGS (DIGITAL OR PRINT)** — In journals and logs, students can record important information, express personal reactions, and reflect about new knowledge, events, themes, and ideas.

Examples include:

- > Literature response journals
- > Reading logs
- > Personal writing journals
- > Dialogue journals
- > Learning logs

Students use these for jotting down

- > Achievement targets they have mastered.
- > Targets they have found useful, important, or are working to master.
- > Learning experiences that worked well — or did not.
- > Questions with which they need help.
- > Ideas for important study topics or learning strategies that they might like to try.

■ **ONE-MINUTE ESSAY** — A one-minute essay question (or one-minute question) is a focused question with a specific purpose that can be answered concisely.

■ **THREE-MINUTE PAUSE** — This strategy provides a chance for students to stop, reflect on the concepts and ideas from a lesson, make connections to prior knowledge or experience, and seek clarification.

- > I changed my attitude about...
- > I became more aware of...
- > I was surprised about...
- > I felt...
- > I related to...
- > I empathized with...

> STUDENT SELF-ASSESSMENT
AND MONITORING OF PROGRESS

■ **FIST OF FIVE** — Ask, “How well do you know this information?” Students show the number of fingers on a scale, with 1 being lowest and 5 highest.

- 5 > I know it so well I could explain it to anyone.
- 4 > I can do it alone.
- 3 > I need some help.
- 2 > I could use more practice.
- 1 > I am only beginning.

■ **STUDENT JOURNALS (DIGITAL OR PRINT)** — In addition to exploring interests and logging ideas, journals can be used to document achievement targets mastered and areas providing a challenge. Journals can give students a chance to reflect on learning experiences and list questions.

■ **THUMB IT** — Have students respond with the position of their thumb to get an idea of understanding on a topic being studied. Ask: “Where am I now in my understanding of _____?”

- > Thumb up – “I know a lot.”
- > Thumb sideways – “I know some.”
- > Thumb down – “I know very little.”

■ **YES / NO CARDS** — Ask the students a series of questions and have them respond by holding up a yes or no card. You could ask questions about content knowledge or about understanding of content.

■ **SELF-ASSESSMENT** — A key in alternative assessment is having students learn to recognize individual progress by reflection. Students able to review their own performance explain reasons for choosing processes they used, identify the next step, and develop insight and self-involvement. Self-reflection, an important concept in any assessment, is a particularly important component of a student portfolio. (See also Learning Logs and Reflection Journals in 3D.)

Important points to remember about self-assessment:

- > Help students learn to accurately identify strengths and areas for improvement.
- > Model and encourage the language of the scoring guide.
- > Use established criteria for students to explain why their work meets expectations.
- > Use feedback to identify areas in which work and goal-setting are needed.

■ **WRONG-ANSWER ANALYSIS** — Students need prompt feedback and know what they missed. It is important to correct misconceptions before moving to new content when possible. Lead students in meaningful wrong-answer analysis or have students work in small groups. Rather than a rote activity, make this an engaging learning experience. Credit for the wrong-answer analysis will motivate some students.

■ **TRACKING STUDENT PROGRESS** — Consider how you will involve students in tracking and analyzing their own learning. Select the best reporting option for the age and content: scoring guides, graphing, conferences, grades, or areas of mastery.

■ **STUDENT-LED CONFERENCES** — To create ownership of learning, many schools incorporate student-led conferences instead of the traditional parent-teacher conference. Students gather their data/progress, self-reflections/assessments, or work samples, and share these with families and teacher at the scheduled conference. Students should also identify important goals for the future and share these. Preparation and partner practice before the parents come to the conference are important.

> 3E. DEMONSTRATING FLEXIBILITY & RESPONSIVENESS

> LESSON ADJUSTMENT

■ **FORMATIVE ASSESSMENT** — Use information to adjust instruction “in the moment” or after analysis or results; don’t assess students if you aren’t going to do something with what you learn. (For specific formative assessments, see 3D Strategies.)

■ **MINI-LESSONS** — Use mini-lessons for the whole class or small groups based on information from formative assessments. Plan 3-5 minutes of re-teaching, clearing up misconceptions, clarifying, etc., and then ask students to apply that knowledge on their own after the lesson. Monitor work, answer questions, and check for understanding. If more than one adult is in the room, small groups can allow re-teaching in one group and practice on current skills in another.

■ **ROOM ARRANGEMENT** — Consider how furniture is arranged to meet the needs of learners. Does the arrangement benefit student learning? Be aware of how students will use each area and provide space for

- > Reading/research
- > Small-group work
- > Large-group work
- > Accessing materials

■ **BREAK INTO STEPS** — Directions, lessons, activities, and projects may be more manageable if broken into smaller steps. For a student who is easily overwhelmed, use blank paper to cover up most of a page so students see small portions to complete. When taking on complicated activities, have students/groups stop after each step to see they are on target (Ex: gather materials, check; complete Step 1, check; etc.).

■ **PRIOR KNOWLEDGE** — Plan ways for students to share their own knowledge, thoughts and ideas about the content or concept being studied. Some formal tools for that process:

A. TRADITIONAL K W L — Using the chart, students answer the questions:

- > “What do I **Know** about the topic?”
- > “What do I **Want** to learn about the topic?” before a lesson, activity, or unit.
- > Later they return to answer “What did I **Learn** about the topic?”

B. SCIENCE VARIATION T H C

- > “What do you **Think**?”
- > “**How** can we find out?” Students explain how they can test their ideas.
- > “What **Conclusions** can I make from what we’ve learned?”

C. KNOW-WONDER-LEARN

- > K: What do you already **Know** about the topic?
- > W: What do you **Want** to learn?
- > H: **How** can you learn more?
- > L: What are you **Learning**? (Record observations and information as you learn.)

The teacher can reinforce learning beyond the classroom with these questions: What action will you take with what you learned? What new questions do you have?

D. MATH VERSION

- > “What do I **Know** from the information stated in this problem?”
- > “What information do I **Not** need in order to solve this problem?”
- > “**What** exactly does this problem ask me to find?”

> RESPONSE TO STUDENTS

■ **DIFFERENTIATION** — Teachers provide students with varied avenues to learning (often in the same classroom) in terms of acquiring content; processing, constructing, or making sense of ideas; and developing teaching materials and assessment measures so that all students within a classroom can learn effectively, regardless of differences in ability. Students vary in culture, socioeconomic status, language, gender, motivation, ability/disability, personal interests, and more. Teachers need to be aware of these differences in planning curriculum. By considering varied learning needs, teachers can develop personalized instruction to ensure all children can learn effectively.

Differentiate based on

A. INTEREST

- > Independent study — Encourages student autonomy but teacher needs to monitor and support work as independence is developed
- > Interest centers — Connect classroom topics to student interests and talents; centers need to offer meaningful learning and use of concepts or skills

B. READINESS

- > Basic skills cooperative tasks — Focused on mastery
- > Peer tutoring — Give struggling learners additional opportunities to learn, but be sure the tutor is prepared to help or this could lead to more confusion; be careful that peer tutors don’t come across as superior; all students have strengths and gifts to share
- > Learning centers/stations (based on readiness) — Can target varied skill levels in a class, as long as all students don’t go to all centers
- > Small-group direct instruction — More personal attention from a teacher increases student participation; students

working independently must have meaningful assignments.

> Tiered assignments (assignments of varying complexity) — Use with flexible groups based on pre-assessment of knowledge for a unit or concept only; teacher will need to monitor, support, and coach students on quality

> Tiered products — Ensure the product is a rigorous, meaningful way for students to demonstrate learning; teacher will need to monitor, support, and coach students on quality

> Literature/Informational groups — Base the groups on reading level (and interest as much as possible)

C. LEARNING PROFILE — Use a learning-activities menu that allows for student choice while meeting teacher guidelines/requirements. (Be sure the activities are about learning the content, not about the kind of activity.) Options include the following:

> 4-MAT

> Multiple intelligences

■ **CONFERRING WITH STUDENTS** — Teachers should have formal conference time where students get feedback. “On the spot” conferences, when you stop by a student’s desk and talk through a question or problem, is great one-on-one teaching time.

■ **MEETING THE NEEDS OF SPECIFIC LEARNERS** — Make adjustments that address the needs of learners. Some students may require changes beyond those you can make in your own actions. Be sure to have adaptive tools or techniques needed for your student. For example, use an exercise ball for students with energy or movement issues, appropriately leveled materials, specialized seating, etc. Collaborate with special education teachers and therapists to see what techniques may be incorporated into the regular classroom to make learning effective.

■ **USE DIFFERENT WORDS OR TEXTS** — At times, students need paraphrasing to understand directions or content. It may also be useful to locate short texts that offer background knowledge or are written at a level to help students build vocabulary and knowledge.

■ **EXPLAIN WITH DRAWINGS OR PICTURES** — Using a visual aid to support students’ understanding of vocabulary, background knowledge, or content will help students store more information in long-term memory.

■ **SHOW AN EXAMPLE** — Give students quality products and models for assignments. Use everyday examples to help them understand content (ex: the ramp to the gym is an inclined plane) and connect to what they know. When appropriate, use videos to help students see what you are teaching (ex: volcanic eruption).

■ **PEER COACHING** — Pair an accomplished learner or expert with a struggling learner (or one who has been absent) to give the struggling learner additional explanation.

■ **DEMONSTRATE WITH A MODEL** — Using physical models can help students build background knowledge to understand new content. Using student work samples can also establish criteria for work and show a finished product.

■ **ACT IT OUT** — Get students moving to understand concepts or models. Acting out vocabulary or more complex content will increase memory storage (ex: rotation of the earth around the sun).

■ **INTENTIONAL SMALL GROUP / PARTNER WORK** — Based on formative assessment results, plan for re-teaching in a small group or develop review activities for small groups or partners. Intentional planning is required to bridge gaps in student understanding.

■ **WRITING FRAMES** — A writing frame is a skeletal outline to scaffold writing. Frames help struggling writers. Frames can help students organize thoughts and focus on main ideas. Frames can be designed to teach a particular text structure for beginners (ex: compare-contrast). In addition, the transitions in a frame can help students move from one idea to another while developing coherence. Frames can gradually be removed as students become more proficient.

■ **EXPLAIN WITH A METAPHOR, ANALOGY, STORY, OR SONG** — To help students understand and remember unfamiliar concepts, connect to what they already know. Metaphors and analogies will help grasp abstract ideas. Stories and songs can also help students remember concepts, processes, or facts, and introduce new ideas.

> PERSISTENCE

■ **TEACHER TOOLKIT** — Constantly use your mental toolkit to adjust teaching to meet student needs. Keep adding tools through your career. Some examples you might face and solutions you might try, include the following:

WHAT CAN I DO?

> Use different words or texts.

> Explain with drawing and pictures.

> Show a video explanation or example.

- > Have a peer teach.
- > Demonstrate with a model.
- > Have students act things out or use their bodies.
- > Explain with a metaphor, analogy, story, or song.

WHEN CAN I DO IT?

- > Pull students aside for more instruction during independent or small-group work.
- > Provide resources (material or online) for students to learn at home, then
- > Bring in a student before or after school for a quick re-teach, homework stop, or skill practice on a computer game or smartphone app.
- > Arrange with other grade-level teachers for a Review Friday to reteach across classes in small groups.

HOW CAN I DO IT? — If a student doesn't understand why work doesn't meet expectations or isn't of sufficient quality:

- > Show a model and identify quality indicators.
- > Break down the steps.
- > Review the criteria one piece at a time.

Never be afraid to seek advice and support from colleagues in the building, within the district, or on the Internet.

> DOMAIN 3 SUPPLEMENTAL INFORMATION

■ SOURCES

- > *Teaching What Matters Most*, Richard W. Strong, Harvey F. Silver and Matthew J. Perini
- > *6 Scaffolding Strategies to Use with Your Students*, Rebecca Alber, Edutopia
- > *Put Reading First: The Research Building Blocks for Teaching Children to Read K-3*, Armbruster, Lehr and Osborn, Center for the Improvement of Early Reading Achievement
- > *Results Now: How We Can Achieve Unprecedented Improvements in Teaching and Learning*, Mike Schmoker
- > *Tips for Encouraging Student Participation in Classroom Discussion*, www2.bgsu.edu/downloads/provost/file116040.pdf
- > *How Can I Use Socratic Questioning to Support Learning in the Classroom?*, Education Learning Board k12teacherstaffdevelopment.com/tlb/how-can-i-use-socratic-questioning-to-support-learning-in-the-classroom/
- > *Leading Classroom Discussion*, Jackie M. Blount, Department of Curriculum & Instruction, Ralph Napolitano, Department of Materials Science and Engineering, www.celt.iastate.edu/teaching-resources/classroom-practice/teaching-techniques-strategies/leading-classroom-discussion/
- > The Critical Thinking Community, The Role of Questions in Teaching, Thinking, and Learning
- > *Communicating Expectation*, drscavanaugh.org/discussion/inclass/communicating_expectations.htm
- > Criticalthinking.org www.criticalthinking.org/pages/the-role-of-questions-in-teaching-thinking-and-learning/521
- > *Characteristics of Highly Effective Teaching and Learning*, [education.ky.gov/curriculum/docs/Pages/Characteristics-of-Highly-Effective-Teaching-and-Learning-\(CHETL\).aspx](http://education.ky.gov/curriculum/docs/Pages/Characteristics-of-Highly-Effective-Teaching-and-Learning-(CHETL).aspx)
- > *Planning Rigorous and Relevant Instruction*, Jones, Richard D., International Center for Leadership in Education, Inc., dickjones.us/workshop/han_rr.pdf
- > *Tools for Engagement*, Jensen, Eric www.brainbasedteaching.com/professional-development-series/
- > *7 Amazing Revolutionary Discoveries from Brain Research*, Jensen, Eric, www.risd.k12.nm.us/Instruction/CLC/Seven%20Amazing%20Brain%20Discoveries%20that%20Empower%20Teachers.pdf