Writing to Learn

Slide 1–
Incorporating writing across the curriculum is currently a hot topic in education. Writing tasks in content classrooms are primarily summaries of learned concepts. While this may be pedagogically sound in the appropriate contexts. Writing to learn activities are aimed to deepen students' understandings of content subject matter.

The purpose of this professional development module is to provide learning experiences centered on writing to learn activities.

This module begins by looking at common myths and misconceptions teachers have regarding writing to learn activities, followed by a brief presentation that links writing to learn activities with research-based best practices aligned with state standards.

The latter part of the module focuses on writing to learn activities for a content classroom along with assessment techniques.

Slide 2 – 1 minute
The first myth and misconception we will look at is the teacher must grade all writing. Keep in mind that grades are simply value markers. Therefore, students often have mistaken perceptions regarding the value of classroom tasks. For an example, if an assignment is graded then it must be important or if an assignment is not graded then it has no importance.

With writing to learn activities the process of thinking and composing is much more important than the final product which is the actual written text. In fact, non-graded writing to learn tasks are often more valuable with respect to increasing students' understanding of content concepts.

Slide 3 – 1 minute 49 seconds
A second myth and misconception is the teacher must correct all writing. Obviously some writing problems students have will not get corrected without direct instruction. However, in many cases students do correct their own writing as they begin to develop self-awareness as writers. Students read the writing of their peers, they comment on each other's writing. Therefore, with time and practice most students improve their ability to express their ideas through writing.

It is absolutely critical to note that with writing to learn activities students are not producing writing that requires an eye for correct grammar and punctuation.

Slide 4 – 2 minutes 36 seconds
The third myth and misconception is the teacher must give feedback in order for writing to improve. Writing is an essential skill that requires practice to improve performance. Feedback from teachers and peers helps but real improvement in writing comes when the student takes charge of their own learning. This takes place as students begin to build self-awareness or metacognition which in turn leads to self-correction and increased understanding.
A fourth myth and misconception is students written responses to questions posed by the teacher are as effective as short answer responses. In actuality longer written responses require more complete and complex thinking than short answer responses. True false statements, multiple choice questions and other short answer responses are rarely constructed to encourage higher levels of thinking. Consider Blooms Taxonomy for levels of cognition for a moment. Most short answer responses ask students to think at the lowest level. Such as remembering and understanding, which nearly requires students to repeat or reproduce information. In thinking about writing to learn activities, well-constructed questions that require longer written responses propel students towards a higher level of thinking such as applying, analyzing, evaluating, and creating.

The final myth and misconception we will address is getting students to write is a daunting task. When teachers commit to making writing to learn activities a routine part of the learning process, writing activities become part of the natural instructional flow. Now planning writing to learn activities requires a higher level of thinking for teachers. At first this may seem more time consuming but with practice most teachers find that planning writing to learn activities really requires no more time to develop than short answer responses. Moreover, teachers tend to discover that they need fewer tasks to assess student’s mastery of content.

Since content subject matter involves more than just knowing or doing something, teachers must create a balance with the integration of reading and writing. Research has demonstrated that reading with writing activities enhances comprehension since the two are reciprocal processes. However, writing to learn goes well beyond the integration of writing activities during instruction. The purpose for writing to learn is meant to be a catalyst that deepens student’s comprehension of content area objectives. They are not neat writing activities or standalone assignments.

Based upon the research cited in this module I have developed a conceptual framework for writing to learn. Notice that the framework depicts a circular process. During writing to learn activities students engage in processes such as recall, clarify, and wonder about the topic being explored through writing. Through this process students discover what they know about the content, their language and themselves as well as how they can communicate these attributes to a variety of audiences. Writing to learn activities requires quality instruction. Students must be guided through the process which requires good teaching and modeling. Students learn how to write when they are surrounded with examples and have set expectations for the quality of work. Students also need a safe environment to make mistakes and decisions about their writing. Moreover students require feedback and time to practice writing skills.
Robert Marzono defined writing to learn activities as tasks that focus on deepening understanding and improving retention of content. Marzano has identified five phases that occur within writing to learn activities.

Phase one is the Record phase. Here is where students record their understanding of content through writing. For example, immediately after showing students a video clip the teacher could ask students to record what they know in their notebooks. This phase is geared towards summarization. Students are asked to write in complete sentences but remember there is not emphasis on punctuation, spelling or other grammatical features of writing. Essentially this writing becomes a rough draft. Teachers can also enhance the record phase by encouraging students to include graphic organizers, sketches or other pictorial representations. This is particularly beneficial to English language learners who might struggle with expressing their ideas in writing.

Phase 2 is the compare phase. In this phase students share what they have recorded with a partner. Noting what is similar and what is different between the two recordings. Similar content indicates that both students have identified the same information. Different content can indicate that either one student noted something important while the other did not or both students might be confused about the content. During this phase the teacher walks around the classroom, answers questions from student pairs and clears up any confusion or misconceptions. If the teacher notices that several students are confused about similar topics then the teacher may conduct a mini lesson before passing on to the next phase.

The next phase, phase three is the Revise phase. Students create a more complete and polished version of what they wrote during phase one the Record phase. This version is more complete because now students have the benefit of conferring with a partner and then having the teacher clear up any confusion of misconceptions. This version is also more polished because students revised their initial draft and they are asked to pay more attention to their spelling, punctuation and grammar during this phase.

These three phases combine to create the R CR cycle or the Record, Compare and Revise cycle. This cycle should be done several times during a unit of instruction so students will have multiple polished drafts of writing related to a specific unit of study.

Phase four is the Combine phase. During this phase students combine the writings created during the R CR cycle to generate and defend generalizations about the content being studied. Students must support their generalizations about the content with specific evidence from their notes. This part of the project can work as a classroom presentation or even be part of a class discussion.

The final phase, phase 5 is the Review phase and this should always occur before an assessment. Of course the teacher can conduct this phase at any time. During this phase the students read over the generalizations that they produced during the Combine phase and the summaries that they wrote during the R CR cycles. Students can do this independently or they could even work in small groups and all though the students might generate new questions the teacher could address these to the whole class or within a small group. The primary focus is
providing students with a more comprehensive and targeted review of all of the content that will be on the assessment.

**Slide 9 – 11 minutes 29 seconds**
Keep in mind that writing to learn occurs across the curriculum. Implementing writing to learn activities during content area instruction addresses the Texas Essential Knowledge and Skills within the English Language Arts and Reading standards. Look at the following state standards for Kindergarten, first grade, second grade, third grade, fourth grade and fifth grade. Notice the skills the students are using as they engage in writing to learn activities. Monitoring and adjusting comprehension, making inferences, retelling important events, and making connections.

**Slide 10 – 12 minutes 19 seconds**
The same is true with the sixth grade, seventh grade and eighth grade Texas Essential Knowledge and Skills for English Language Arts and Reading. Establishing a purpose for reading. Asking literal and interpretive, evaluative and universal questions. Monitoring and adjusting comprehension in sixth grade, reflecting on understanding in the seventh and eighth grades. Making inferences, summarizing, paraphrasing and synthesizing text and making connections. Even during the High School grades students engaged in writing to learn activities are reflecting on understanding and making complex inferences about a text. So as teachers plan writing to learn activities in any grade level they need to consider how these English Language Arts and Reading Texas Essential Knowledge and Skills are being addressed. Particularly when the writing to learn activities involves content subject matter.

**Slide 11 – 13 minutes 30 seconds**
Research supports that students who engage in writing to learn strategies build stronger comprehension skills then their peers who do not actively engage in writing about their learning. So integrating writing to learn activities, prepare students for assigned reading and direct instruction that is taking place within the content area classroom. Writing to learn activities also serve as a review and summary of important concepts that were addressed during instruction. In writing to learn students also use language to shape order and represent their own experience to reach a fuller understanding. Students are encouraged to use a variety of problem solving skills and thought processes which fosters critical thinking skills. Students become better communicators and learners as a result of using writing to learn activities.

**Slide 12 – 14 minutes 30 seconds**
Writing to learn activities can be integrated during any part of a class. Writing to learn activities serve well as class openers bringing students back into the context of your class from their other lives. A writing to learn activity planned for at the beginning of a class sets and expectation that students must pay attention and arrive to class prepared. It also helps the teacher diagnose how much students have retained from the previous class period. Alternatively class openers prepare students for the new material by giving them the opportunity to draft definitions and key terms that have not yet been taught. At the end of class students can revise these definitions and see what they have learned.

**Slide 13 – 15 minutes 24 seconds**
During class having students engaged in a writing to learn activity can revive students by changing the pace of the lecture or class discussion. It can also encourage students to participate by allowing them to brainstorm and write about particular questions they may have or issues. Students can then share these with peers during the remainder of class.

Slide 14 – 15 minutes 49 seconds
End of class writing to learn activities helps students identify what they have learned and what they are confused about. Students are now taking responsibility for the content well before the next formal assignment or exam. In addition brief writing to learn activities at the end of class will help students to better comprehend and retain the material addressed in class that day.

Slide 15 – 16 minutes 23 seconds
Now let’s review several writing to learn activities that can be easily implemented into any content classroom. The first of the writing to learn activities we will explore deal with preparing for reading. So these are activities that should be planned prior to reading from a content text. The guided writing procedure enables students to make connections prior to reading a content text. This is a research validated instructional strategy that involves students with discussing, listening, reading and writing about content area concepts. First student’s prior knowledge on a topic is activated through brainstorming. Ideas are listed in a visible location and small groups of students are asked to organize and label these ideas into categories. Students then write individually on the topic using the information generated during the brainstorming cooperative activity. Next student read the content text and revise their explanatory writing. By using the guided writing procedure students significantly improve depth of their content understanding through writing.

Slide 16 – 17 minutes 43 seconds
Another writing to learn activity that prepares students for reading is Learning Logs. Learning Logs enable students to use well-structured prompts that encourage writing. Students use writing to make predictions, activate prior knowledge or develop a pre-reading orientation to an assignment. Well planned prompts help students focus on the upcoming topic of a lesson and they also provide direction for the acquisition of knowledge. Students in all grade levels can use Learning Logs, chapter reading assignments, science investigations or throughout social studies content. Keep in mind though that Learning Logs which are sometimes referred to as journals can be used in a plethora of ways with in the classroom. However, this methodology uses student writing as way to prepare for learning within the content classroom.

Slide 17 – 18 minutes 45 seconds
Quick Writes are another way to prepare students for reading. These are informal means for engaging students to think about upcoming topics. Typically Quick Write prompts are teacher directed questions and are fairly easy to work into the curriculum. Sometimes student’s responses can be recorded onto note cards for teacher reference or to share with other students. Quick Writes are also referred to as 1 minute papers admit slips or exit slips. An Example of a Quick Write in a 5th grade science class might be as simple as “What do you know about photosynthesis?” or it could be a more complex writing to learn activity with the prompt “describe 3 important components of the photosynthesis process”.

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Slide 18 – 19 minutes 41 seconds
To prepare for a content class structured note taking is a wonderful way for students to get ready for lectures. On a piece of paper students draw a vertical line about 2 inches from the left side of the paper. To the left of the line students log main ideas and keywords from a reading, and write down more specific details to the right of the line. Then at the end of the lecture students can write a brief summary at the end of the page.

Slide 19 – 20 minutes 15 seconds
The listen, stop and write note taking technique breaks the teachers lecture into 3 minute segments interspersed with 2 minute writing periods. This strategy assists students with the listening and note taking skills. It gives students a chance to write about what they heard by the teacher.

Slide 20 – 20 minutes 43 seconds
The next writing to learn activity we will explore are strategies targeted to review and summarize concepts in the content classroom. With microthemes students are asked to draw together key ideas in their own words from a reading assignment, demonstration, science inquiry investigation or class lecture. The microthemes or summaries are often written on a single index card which allows teacher to easily handle and assess. Teachers are usually able to provide students with feedback pretty quickly. This writing to learn activity also gives students confidence because they come to the next class with a summary of the previous lesson and they also have review cards that can used as a study tool for assessments. A variety of approaches can be used to develop microthemes. In one approach, microtheme activity can be to describe, compare or contrast a topic. Students can analyze a topic from a preselected list or students can respond to an open ended question. Microthemes can be implemented with just about any grade level and content area. An example of a microtheme in a 7th grade class is “Describe how and why cultures and cultural landscapes have changed in the past 20 years in the United States.”

Slide 21 – 22 minutes 19 seconds
For students that are intimidated by writing summaries framed paragraphs provide guidance and structure to overcome their fears. After reading an assignment students complete the framed paragraph by writing in the missing words and by creating their own sentences. Many teachers like to use framed paragraphs at the beginning of the school year In order to ease students into the process of writing about content area concepts. Even though it is important to scalpel students when they are in the initial stages of learning to write, it is equally important to know when to begin removing some of that support. So as student’s confidence and fluency in writing develops, teacher can slowly eliminate the questions within the framed paragraph so that students write using alternative formats. This writing to learn strategy fosters students to write quality responses about content concepts independently.

Slide 22 – 23 minutes 24 seconds
Text Boxes are a similar writing to learn technique. With this strategy the text boxes correspond with photographs, diagrams or specific paragraphs within a content text. Each box consists of 2 columns. Students take notes about important facts and ideas in the first column and they reflect and question the text within the right column. Using text box will not only assist
students learning how to adjust their reading rate and monitor their comprehension when reading content texts about unfamiliar topics, but it also calls their attention to key facts, ideas, and organizational patterns within text.

Slide 23 – 24 minutes 13 seconds
Sentence Synthesis is another writing to learn strategy aimed to assist students review and summarize concepts. Students use 3 or 4 key words that the teacher selects from the lesson to construct a sentence that summarizes the main idea of the lesson. Sentences are then shared with classmates so discussion becomes an important component of this writing to learn activity. This also becomes a springboard which fosters synthesis of content concepts. Teachers can then use these sentences to prepare them for upcoming lessons and then continue building on the same keywords and concepts.

Slide 24 – 25 minutes 0 seconds
Analogical Statements enable students to make connections, clarify relationships, build vocabulary skills and utilize prior knowledge of familiar topics. Students are consciously manipulating content with a specific focus which becomes a very narrowly focused writing to learn activity. Students are also engaged in analysis of unfamiliar ideas using their knowledge of familiar ideas as a supportive element.

Slide 25 – 25 minutes 36 seconds
The last group of writing to learn activities we will explore are aimed to encourage critical creative thinking. Biopoems are an excellent way for students to achieve a deeper understanding of a historical figure. Biopoems require students to think carefully about the content of a text and make inferences about what a historical figure actions and statements apply. Students can create their first biopoem as a class with the teacher guiding them through the process. Multiple right answers exist and students must choose the most significant features of the person being studied which provides excellent practice and sharpens student’s critical thinking skills.

Slide 26 – 26 minutes 33 seconds
Word Maps are an effective writing to learn activity to foster creative and critical thinking. Students use 3 main questions to investigate a new concept or term. What is it? What is it like? What are some examples? The process of answering the questions assists students in linking new concepts to their previous knowledge. This writing to learn activity is particularly effective when used in small groups because of the depth of discussion involve as students respond to these 3 questions. Ownership of understanding is enhanced with the design of a visual representation such as a graphic organizer of the concepts or terms discussed.

Slide 27 – 27 minutes 21 seconds
And ABC List engages students in critical and creative thinking. With this writing to learn strategy students can visualize their new understanding of content by creating an alphabet list focused on a specific topic being studied. After reading a text and lesson, students choose significant words or phrases using each letter of the alphabet. This selection process strengthens a student’s ability to find important details and refines their critical thinking skills. Beginning in the upper Elementary grades, students enjoy having options to express their learning with
writing. Using these writing to learn strategies gives students choice and control which are important motivational factors.

**Slide 28 – 28 minutes 15 seconds**
Written conversations are short exchanges between 2 students. This writing to learn activity is extremely motivating and engaging for all students and it also enables all students to actively participate with the content being studied. Written conversations can replace or supplement classroom discussions.

**Slide 29 – 28 minutes 45 seconds**
Multimodal writing to learn tasks are an excellent way for students to engage in a more critical and creative expression. Students require alternatives to express their understanding about content and sometimes text only writing is daunting to students. There are several benefits associated with multimodal writing to learn tasks. First student achievement is not dependent upon the writing skill alone. So students are able to incorporate different modes of representation to express their learning this greatly assists students that may not be strong writers, lack confidence in their skills or they are simply not motivated to produce writing. Multimodal writing to learn tasks enable students to actively engage and express their understanding. Also multimodal writing is used frequently throughout content publications in the real world. So multimodal writing to learn tasks serve as an authentic representation of what real people do in the real world to communicate ideas. Students are very familiar with multimodal environments. Everyday life is multimodal. With the Internet and other technology tools students encounter, communicate and respond to multiple modes of representation on a daily basis. Therefore incorporating multimodal writing tasks will be very familiar to students and may serve as motivating factor. Finally multimodal writing to learn tasks enable students to increase content understanding. When student present information in a variety of formats it encourages them to consider how different modes fit together to describe a related concept. Thus this leads to a more well developed understanding.

**Slide 30 – 30 minutes 52 seconds**
Teacher feedback is important during different stages of writing to learn activities as well as on final evaluations of writing pieces. We are now going to explore 3 evaluative tools that assist teachers with assessment of writing to learn activities. Remember grades are essentially value markers so these assessment tools are not necessarily geared towards enabling the teacher to derive a grade for the grade book. The purpose of these assessments tools is to provide teachers with methodologies for which they can evaluate products from student’s participation in writing to learn activities and determine the level of understanding students possess.

Careful use of rubrics can help teachers with limited background in writing and give them a better sense of qualitative differences in students writing. A rubric reveals scoring rules and explains to students the criteria the writing will be judged. Well-conceived rubrics can be put to good use as tools for students to self-monitor which enhances the writing skills while writing to learn. As such, rubrics function as a scoring guide so the teacher can assess and differentiate between below average, average and above average writing performance. In order to be most effective the teacher must refer to the rubric consistently during class. This also fosters dialog between the teacher and the students so students have a clear understanding of the content to be learned and the conditions needed for quality work. The genuine feedback given by the
rubric redirect students efforts towards obtaining content knowledge and a level of proficiency or mastery. Teachers also have a common set of criteria from which to judge the depth of student learning and understanding.

**Slide 31 – 33 minutes 03 seconds**
A checklist is another way to assess students writing to learn products. A checklist is a concrete, observable list of behaviors or task dimensions that are organized in a logical sequence. A checklist provides students with goals for writing as well as the characteristics of a good finished product. A well-developed checklist can guide student writers towards successful completion of a specific writing to learn task. The use of a checklist also encourages writers to be more self-directed in the mastery of content learning. Individual writers clearly know the goals when using checklists which can become the basis for conversations between peer partners. Teachers can also use them as a point of reference when conferences with students and evaluations of written artifacts.

**Slide 32 – 34 minutes 04 seconds**
Observation is the best way to measure behavior as students participate in writing to learn activities. The teacher must develop their ability to document behaviors in order to realize student’s areas of strengths and areas needing improvement. Remember the focus of writing to learn is not finished product but rather the process of using writing to deepen understanding. Anecdotal notes are a wonderful way to document a pattern of student behavior during writing to learn activities that may affect students over time.

**Slide 33 – 34 minutes 43 seconds**
These are the resources that were referenced in the first part of this writing to learn presentation. I have also included additional reading an videos in this module to assist with developing a comprehensive understanding of writing to learn activities with in the content classroom.

**Slide 34 – 35 minutes 07 seconds**
You have now completed the first phase of this module which explored common myths and misconceptions teachers have with regards to writing to learn activities. Presented a conceptual framework for writing to learn which in turn links writing to learn activities with researched based activities that is aligned with states standards. The previous part of this module also describes several writing to learn activities for a content classroom along with assessment techniques. This part of the module will represent video resources that will depict writing to learn activities within authentic context. So as you view the video be sure you are looking for the concepts presented in the first part of this presentation.

**Slide 35 – 35 minutes 53 seconds**
During the writing to learn presentation we explored the guided writing procedure. This writing to learn activity is a pre-reading instructional strategy. During the guided writing procedure students make connection to improve their depth of knowledge and understanding by participating in a specific writing task. This writing to learn activity also provides opportunities for discussion, listening, reading and of course writing. Before you view the video let’s review the instructional elements associated with the guided writing procedure. First student’s prior
knowledge to the topic is activated through brainstorming. Ideas are listed in a visible location and small groups of students are asked to organize and label the ideas into categories. Students then write individually on the topic using the information generated during the brainstorming cooperative activity. Next students read the content text and revise their explanatory writing. In the video the teacher is using the guided writing procedure in a small group during a guided reading lesson.

Slide 36 – 37 minutes 11 seconds
Read slide. No audio

Slide 37 – 37 minutes 23 seconds
Read slide. No audio

Slide 38 – 37 minutes 32 seconds
Teacher- look up animals endanger by Bill Obrien. We are going to look at it specifically to help identify strategies that writers use to try and persuade us. So to start with I want you to turn to page… The Authors Note at the end. It is about in the middle because this is a double text book. When you are reading I want you to think about what was the authors intent when he wrote this book? What was his intent when he wrote this book? Go ahead and read.

Slide 39 – 38 minutes 44 seconds
Teacher - Talk to your nearby neighbor about what you think the author’s intent was. (garbled, low speaking by students)

Slide 40 – 39 minutes 14 seconds
Teacher – I heard a lot of people talking about the author wants to try and save endangered animals. Ok, well, what should he do to make this happen? Jenna?

Student - (garbled, low speaking by student)

Teacher - Why would he do that? What would be his purpose then? Monica?

Student- It would be to get the word out to lots of different people to make sure that they know this is happening. Like tigers and whales are going to be endangered. People in the future that are coming soon aren’t going to be able to see them. Teacher- ok so does he just want to inform people? Mat?

Student- He wants them to learn like information so they could like keep on learning like in the future more about them and like so other kids who want to see them can see them.

Teacher- good. So he wants to persuade people. He needs to persuade them. What strategies do writers use to try and persuade us? What is 1 strategy Monica?

Student- Grabbing on their heart.
Teacher – I am just going to draw a heart. We will remember that is what that is. Danielle what else?

Student – Using time like he did you know where they won’t be there for the next generation if we keep doing what we are doing.

Teacher- All right, so time is running out. What else? Matt?

Student – like how many years it may come extinct. And so you have like you have to do it now. You can’t wait. You have to do it now.

Teacher- So the numbers so the numbers could support that time… Good. Sara, I haven’t heard from you.

Student – research because you need real facts and everything because it won’t make a nonfiction book. It has to be real facts.

Teacher-Ok, good. Any other strategies? Jordan?

Student- There is connecting to movies and (soft speech)

Teacher- Oh, you are thinking of our mentor text that we use. They connect it to a movie that they see. Good thinking.

Student- like a big name like Mahat Mugandi or Martin Luther King.

Teacher- Big names good. Good point because we trust their thinking. Excellent. Ok so lets keep those strategies in mind that writers use. I want you to turn to page 12 and 13. I am going to ask you to read that spread. In your guided reading notepad, jot down examples of the author using any of these strategies to try and persuade you. Just jot down the key words that shows that, that was a strategy they were using. Go ahead.

Teacher- How is it making you feel Jenna?

Student- It is making me sad because all these animals and plants are becoming endangered.

Teacher- Is that persuading you that this is a big problem?

Student-Oh, yeah!

Slide 41 – 43 minutes 16 seconds
Read slide. No audio

Slide 42 – 43 minutes 20 seconds
Read slides. No audio.
Slide 43 – 43 minutes 58 seconds
During the first part of this presentation we explored how writing to learn activities can take place at the beginning, middle or end of a class. Writing to learn activities incorporated at the end of class are geared towards summarization. During summarization students may identify what they have learned as well as what confuses them about the topic being studied. Writing to learn activities with the purpose of summarization enhances student’s comprehension and retention of the content. Moreover, student artifacts provide teacher with invaluable information from which they can engage in instructional planning for future lessons based on student’s needs.

Slide 44 – 44 minutes 49 seconds
One strategy teachers can use is a writing to learn activity called the GIST Strategy. You will view a video clip of a teacher using this strategy during a writing to learn activity. The GIST strategy takes place during the 3 phases of reading. During the pre-reading phase students predict the main point of the text by simply scanning the text page in order to get a feel for what they think the text might be about. Students predictions become the GIST. The teacher records these predictions in a visible location. During the reading phase, students read the text. They can read the text either independently, with a peer partner or maybe even in a small group. Once the students have completed the reading they are now in the post reading phase. At this time students think about what they have read and then they go back to their GIST predictions created during the pre-reading phase and consider revisions that they might need to make. This is a wonderful opportunity to facilitate discussions about any revisions that were made. During the video be sure and look for these elements as the teacher utilizes this writing to learn activity during the reading of a text.

Slide 45 – 46 minutes 13 seconds
Read slide. No audio

Slide 46 – 46 minutes 21 seconds
During the writing process the teacher dialogs with students to confirm their understanding of the elements of a summary. The teacher encourages the student to articulate writing choices and asks probing questions to stimulate deep thinking. The student and teacher collaboratively decide on the next steps. The student makes appropriate revisions checking with a group during the writing process. The teacher uses this time to dialogue as an opportunity for ongoing assessment and records her observation for future reference.

Slide 47 – 46 minutes 50 seconds
Teacher- So you have read the text and so now both you and Diana created your GIST list. So I noticed that you had to add some spaces. How many words do you have on your GIST list?

Student – 27

Teacher- So you have 27 GIST word! WOOW! That is a lot. So if we are going to start looking through these words I am going to read through and see if I can piece together what you thought was the main idea.
Teacher: What is the main idea of this text?

Student: Space rocks?

Teacher: So we are talking about space rocks and how they are dangerous and you said “what are space rocks?”

Student: Asteroid, comet, meteor.

Teacher: Is this text only about space rocks?

Student: No.

Teacher: No. But here you have gone into detail about what comets are and what they look like. What asteroids are and what meteorites are. Is that needed in the summary?

Student: No.

Teacher: Why not?

Student: Because it is too specific.

Teacher: You have included all these specific details about the different types of space rocks. But, this text is not only on space rocks and what they are, it is also on how they are dangerous. This whole section of the text is about how they are dangerous. So this maybe interesting. Oh wow! I didn’t know a comet was called a dirty snow ball. But, is it an important detail that supports the main idea?

Student: No.

Student – No.

Teacher: So what I would like you to do look at this GIST list and take out some of the specific details. Maybe some of the interesting details and just really get to the main idea of the text. Do you have questions?

Student: No.

Student: No.

Slide 48 – 48 minutes 35 seconds

Student: I guess we could take out all the specific details about the space rocks.

Slide 49 – 48 minutes 42 seconds

Teacher: So now you have the opportunity to look at your original GIST list because you had 27 words on there and what you did was you discussed what words you should include. What
were the main ideas and you created a new GIST list. So let’s take a look at your new GIST list.

**Slide 50 – 49 minutes 00 seconds**
The teacher gives very specific feedback to the student during the writing process. Students are expected to reflect on their work, the process and on themselves as writers. During the conversation teachers continue to observe and assess.

**Slide 51 – 49 minutes 17 seconds**
**Teacher**- So you've read this text together and after you reread it you pulled out the GIST words and you put your GIST words into a summary. Let’s quickly look at your GIST words and see what information you thought was important. After you read the text what did you think the main idea was?

**Student**- I thought the main idea was how space rock affect earth and the people on it.

**Teacher**- How space rocks affect earth and the people on it. So the information you have included should demonstrate that. Ok, so let’s see. So you have space rocks, leftover, comets, asteroids, meteorites, what does that mean? Comets, asteroids, meteorites.

**Student**- They are the different types of space rocks.

**Teacher**- Ok, so they are the different types of space rocks and they orbit the sun and sometimes they come crashing to earth. Which causes changes in the climate, or even the extinction of dinosaurs. So you have got your ideas there especially if you thought the main idea is how you think space rocks affect us and earth. So let’s take a look your summary and how you have pieced these words together.

**Student**- (Soft speaking student) Space rocks is about what happens when space rocks crash onto earth. The author is trying to inform that scientist are trying to track and predict future collisions in order to stop them.

**Teacher**- What I have noticed is that you have done a great job of putting your ideas together. There is a logical flow there. What you have done here, is that you included the title and the author. The way you have phrased your sentences really flows well. You have space rocks, asteroids, comets. This is a good way to explain these are the types of space rocks. It is really effective how you got to the main purpose, to inform us and what is he informing us about what scientist are trying to do. How did you get that idea out of this text about what scientist are trying to do? Josh?

**Student**- I got the idea from the last paragraph. Why are they dangerous. It tells us what they do and what we can do. Um what they can do to us and the last sentence is researchers are trying to track down and intercept large objects before they reach earth’s surface.

**Teacher**- This is an important thing that we have to stop this from happening. So what you have done another effective job is of using your own words. Ok. Did you use any synonyms?
Students-No.

Teacher- Can you go back and maybe use some synonyms for some of the words you used from the text?
Students-yes.

Teacher- What is a word that comes out to you that you can say, you know what I can use a synonym for that word?

Student- Um maybe crash?

Teacher- Crash? Ok. So come up with a synonym and then make sure you have included it in your summary. Ok. So now remember before you go on and ensure that it is done ask yourself the 3 questions. Did I include the authors main idea? Does it make sense? Is it brief?

Slide 52 – 52 minutes 16 seconds
Read slide. No audio.

Slide 53 – 52 minutes 33 seconds
Read slide. No audio.

Slide 54 – 52 minutes 51 seconds
Pre-writing is an extremely important part of the writing process. Unfortunately many writers overlook this step and neglect to engage in activities that cognitively prepare them to address the writing task. Ralph Fletcher a renowned researcher in teaching writing stated that “students should spend 70 percent of their writing time in the pre-writing phase.” Pre-writing does not necessarily have to be the completion for graphic organizer which sometimes is the most utilized approach in the pre-writing assignments. Pre-writing can also be jotting down a list of word in a writers notebook. Conferring with a peer about a writing task, examining completed writings for ideas, and careful thought about how to approach a writing task. Fletcher emphasizes that pre-writing should be a help not a burden for writers. In this next video clip you will see how to use pre-writing as a writing to learn activity within the context of a social studies classroom.

Slide 55 – 54 minutes 02 seconds
Read slide. No audio

Slide 56 – 54 minutes 06 seconds
To write forcefully and detailed about social studies topics students need interactive experiences about which to write. What’s great about the writing for understanding strategy is that it taps into students multiple abilities so that all learners not just those with strong linguistics skills have something really memorable to write about. Pre-writing are essential if students are to write effectively using concrete details. You’ll see how this plays out in a writing
Slide 57 – 54 minutes 44 seconds
So class in this activity you are going to match quotations and placards describing how African Americans faced slavery in the mid-1800s. Eventually what you are going to do is write a journal as if you an enslaved American. Use the information from the primary sources, from the images and from information in your book. Ok. So that is where we are headed.

Slide 58 – 55 minutes 05 seconds
Step 1: get a quotation. In your pair, read the quotation aloud. Discuss what the quotation reveals about how African Americans faced slavery.
Step 2: Then match your quotation to one of the placards.
Step 3: Ask yourself, what is the subject of this quotation? The find the section of reading notes that addresses this topic. Complete the Reading Notes.

Slide 59 – 55 minutes 27 seconds
One of the cruelest things I ever saw done to a slave was done by my master. He wanted to punish one of the slaves that had done something he didn't like. The slave was kind of a stubborn one. He took that slave and hitched him to a plow and plowed him just like a horse. He beat him and jerked him until he got all bloody and sore. But the old master kept on day after day.

Slide 60 – 55 minutes 50 seconds
My father was sold away from us when I was small. That was a sad time for us. Father wouldn't sell the mothers away from their children so we lived on without fear of being sold. My Pa sure did hate to leave us. He missed us and we longed for him. He would often slip back to our cottage at night. We would gather around him and curl up in his lap and he would tickle us for a long time. He gave us these pleasures at a painful risk.

Slide 61 – 56 minutes 20 seconds
Read slide. No audio.

Slide 62 – 56 minutes 24 seconds
Students talking in the background. Garbled.

Slide 63 – 56 minutes 43 seconds
Garbled. Cause it shows the father being taken away and the family being sad because he is getting taken away like they are talking about in the quotation. Yeah and how the father never came back. The mother would have felt really sad because her husband was being taken away.

Slide 64 – 57 minutes 06 seconds
So I think we should probably draw a whip because that is how they controlled them. Draw a cloud or something.
Ok everybody now you are going to create that journal that we discussed at the very beginning of the lesson. It should be written from the prospective as if you were the enslaved African American. You are no longer a student here in class. You are going back in time to experience, to take on that role. This is how it is going to work. You are going to take turns reading your journal to each other. I want you to listen for the bulleted items to see if they have the required pieces in that page in their journal.

Student 1-Hayes Plantation August 3, 1848 Journal. He beat a slave to death today and I sure am glad it wasn’t me. My master tied a slave to a pole and made everyone watch as they beat him to death. The closest thing I have ever done to rebellion was refusing to work one day. Him and his overseers are always watching for the smallest mistakes. At Hayes Plantation you learn to always listen to the master. I drew an illustration.

Student 2- Well he had all of them. He gave the date and location. He described his act of rebellion when he didn’t work. Then he had an illustration.

Student 3- Dear Journal, Me and my fellow slaves maintain a strong sense of our community by supporting our slave church. My favorite leisure activity is a quilting bee which is a time when I gather with many other slave women and it allows me to express myself, using cloth and a needle. This is my picture of me making my quilt.

Student 4- So you got a description of your favorite leisure activity. Your description of the church meeting and the illustration. You got everything in there.

To learn how to bring writing for understanding to your classroom visit web address shown.

Unfortunately the transmission of scientific knowledge gets watered down due to layers of interpretation involved in how scientific information is distributed. In this last video clip you will see how writing to learn activities enhance instruction as well as preserve the integrity of scientific understanding with in the context of the science classroom.

I would like to share with you and respond to some articles I recently read about a relatively novel teaching practice that integrates writing across subject areas. This practice is called Write to Learn. I will be focusing particularly on integration in science classes.

So these are the sources I consulted to form the basis for this presentation. The first 2 provide a general perspective on a writing to learn technique as it influences student cognition where as the latter 2 look more at science specific facts of writing to learn. So to begin I will show you one of my favorite comics of all time. None other than Calvin and Hobbs.
Slide 71 – 1 hour 00 minutes 21 seconds
“I’m Hungry can I have a snack?”
“Sure. Help yourself.”
“You can have an apple or an orange from the fridge.” Calvin acknowledges this miscommunication.
“Even though we’re both talking English, we’re not speaking the same language.” My question in this context is how do we train students not only to speak but also to also truly understand in a universal language?

Slide 72 – 1 hour 00 minutes 47 seconds
I am going to focus on Science Literacy because I am more experienced as a science educator. OK. So in terms of science pedagogy here is the fundamental problem. When students learn science essentially we are taking the raw finding of scientific research and reorganizing and translating it into a language more readily accessible by the students. Problem is the real path is far from direct. For example, you do your research in a lab, collect data, interpret your data, then you present your key point in publications or conferences, then many scientist reach a consensus on the filtered data, then makes it way to authors who then publish curriculum documents for teachers and textbooks for students. You have many layers of interpretation. It is a long chain of broken telephones. So how can science educators be assured that the integrity of the scientific knowledge is maintained as it makes its way through all these layers. Not to mention students go through many rounds of reinterpretation themselves which includes note taking, group study, and more cognitive stuff. So you can imagine all that info gets watered down a bit. Here is an example of an electricity test question I gave to a grade 6 science class at one of my practice teaching schools.

Slide 73 – 1 hour 2 minutes 01 seconds
Quick review. Here are 2 light bulbs powered by a battery. This is a series circuit because the energy passes through both light bulbs in the same path. This on the other hand is a parallel circuit because the light bulbs are on different paths. So the energy can only take 1 path and pass through 1 light bulb in 1 cycle. Let’s say in the series circuit an electron sits on the wire and passes along 6 volts of energy. Since this energy passes through both bulbs on the same path each bulb will split the energy equally. So 3 volts each. In the parallel circuit an electron will also pass along 6 volts of energy but this energy can only take 1 path. So the 6 volts will be delivered to only 1 light bulb. So what happens is the series circuit bulbs appear half as bright since they are getting half the voltage.

Slide 74 – 1 hour 2 minutes 54 seconds
So here is the question I gave. In the following diagram, a switch is in the “off” position. Keep in mind that a bulb’s brightness depends on voltage. Because a higher voltage means more energy. So, How many volts of energy is light bulb B receiving? Explain. Ok. So the answer is 3 volts because if energy goes from the battery to light bulb B it will also have to pass through light bulb D. Hence, splitting the energy equally.

Slide 75 – 1 hour 3 minutes 22 seconds
Here are answers provided by 2 of my students. I was not aware of Write to Learn at the time I marked this and wound up giving 1 of the 2 marks to both students.
Student A - Light bulb B has 3 volts because in a series circuit all the light bulbs go dim by half. Because series circuit has two light bulbs. Ok.

Student B – Student B has a pretty hefty sentence. Light bulb B has 12 volts cause if the electron goes through B then it will go through D too so it has to split the voltage which is energy but then you need to double it again so that the electron carries twice as much energy again.

OK. Now if I were to make and educated guess as to who had the better understanding of how circuits and energy work I would say student B demonstrated that better, even though student A got the correct answer. I say this because Student B clearly shows her reasoning in a logically sound progression starting with the nature of energy movement. Now it is not really true that the electron itself travels through the wire, it is the energy that does. But this distinction doesn’t impact the reasoning. What matters here is that she knows that because B and D are connected in a series the energy needs to be split. More interesting is the mistake that she makes. After dividing by 2 she is conscience about multiplying by 2 presumably because she knows that the input should equal the output. She just overlooked the fact that there is 3 volts coming from B and D will add up to 6 volts again on their own. So multiplying by 2 is unnecessary.

Student A on the other hand, his explanation is a bit haphazard so it is harder to gauge a deep understanding. He wrote, because in a series circuit all the light bulbs go dim by half. In terms of argumentation this doesn’t explain why the bulbs have 3 volts each. The light bulbs going dim is a result of having 3 volts in the first place. So this kind of reasoning is what you call a post hoc fallacy. Many students including myself just 6 or so years ago will be satisfied explaining things that way.

Why this is so common is another story but a strong indicator of a lack deep understanding is the tendency to address facts and are definitely related to each other but aren’t laid out in a logical way. The facts are just sitting there and anyone could have memorized them.

Last but not least interestingly Student B loves to read and write whereas Student A loves to tinker with gadgets including circuit boards but Student B performed better on the test overall. Something to think about.

Slide 76 – 1hour 6 minutes 3 seconds
Where does write to learn come in? Some history starting around the 60s. It was believed that writing was the most effective and efficient way to make the brain learn things. The more you write about a concept the more you activate your brain in thinking about that concept and reinforcing the neuronal synapsis in a process called long term potentiation. As well you have an easier time retrieving info from related schemas and building them into your written text. So you have this feedback mechanism where your knowledge is reinforced again and again and it shows in your text. This was the model of writing to learn in the 60s through the 80s. But the drawback was it only focused on writing on the same concept over and over until presumably you knew it inside out. For example, the notion that practice makes perfect. I would think it would be more accurate to say that practice permanent. There is no clear quality control.
mechanism with this model so if you keep practicing to write about a misconception in science. Like sore muscles in running is caused by lactic acid. Yes, that is a myth. You will reinforce that false notion. Another example is how teacher commonly tell their students to elaborate on an explanation in their own words. In some cases this may be beneficial for students but not during skills and drills because the information typically only gets watered down more that way.

**Slide 77 – 1 hour 7 minutes 29 seconds**
More recently educators realize that relying on high frequency practice to learn a concept wasn’t very productive. Yes, students would retain and recall information but only as long as they kept practicing. Once they stopped practicing they likely forget it. But more importantly if you want to be sure that students truly get what they are writing about. You need to give them the right task to perform. The context of the writing task is key. What is the purpose of the writing? How much should they write? Are they writing on a macro or micro scale? What are the students getting out of the writing?

**Slide 78 – 1 hour 8 minutes 8 seconds**
For starters educators made a distinction between 3 functional types of writing.

Transactional writing is what you see in instruction manuals, constitutions, instructions on operating a parking meter. Purely to inform in an explicit manner.

On the other end of the spectrum is poetic writing. I wouldn’t say it is purely aesthetic but this style of writing is metaphorical.

In between expressive writing would be something like spoken word or slam poetry in terms of abstractness but also meant to inform or to prompt thinking or question. This is the favorite mode of thinking in today’s write to learn approaches it is very powerful and previously underestimated.

So if not the reinforcement model from the 60s to the 80s then what does write to learn look like today?

**Slide 79 – 1 hour 8 minutes 55 seconds**
Well, yes reinforcement still takes place so you review, consolidate, & retain material through long term potentiation. But it is not the whole story any more. If your modified constructive educator like I am then you probably consider the information that students learn to practice to be just that. Information. Impersonal facts stuff that you either know of don’t know. And if you didn’t know before then now you know. Not very useful on their own until students get the opportunity to make connections to otherwise discreet units of info and build meaningful higher order constructs and schemas.

**Slide 80 – 1 hour 9 minutes 32 seconds**
This is where the context of the write to learn task comes in. Instead of telling students to describe a phenomena in their own words. Have students analyze and argue from multiple perspectives. Here is an example of a question I asked my grade 8 students when we learn about organelle and cells.
Who is more likely to have a greater mitochondria content? A marathon runner or a weight lifter? Then my students would make thoughtful arguments based on fundamental facts they had just been taught.

They just learned that cellular respiration requires oxygen and carbohydrates to produce energy and that mitochondria is the major site of cellular respiration. Just these 2 things. Then you hear some pretty interesting dialogue.

Those who support the weight lifter believed that the heavier you are the more collective energy you need to lift that load. So your muscle cells will have more mitochondria to generate that energy via cellular respiration. Reasonable argument there.

Those who support the marathon runner say wait cellular respiration requires oxygen. Even if you have lots of carbs it won’t matter. Without oxygen during long distance running you are breathing a lot and weight lifters are focusing on flexing and generating power. The mitochondria must play a significant role in the marathon runner.

So yes the marathon runner has more mitochondria. Now you wouldn’t expect grade a students to know about type 1 type 2 muscle fibers or cycle but that’s ok. These slightly challenging questions encourage them to really think critically about the knowledge that they do have and string together arguments that are logically sound but in a creative way.

Now lets go back to the writing. If you were to put that dialog about marathon runners versus weight lifters on to a paper medium some students will just be more naturally more mindful of their own communication skills. The soundness of their argument. How convincing their voice is. Essentially you are promoting metacognition. Asking yourself questions like is my argument logical? Based on the premises I have put forth do my conclusions necessarily follow? What is the take home message that I want my audience to get out of this?

At the same time putting dialog onto paper can be a hindrance because for example your filled out so quickly but that your fingers can’t jot them down fast enough before your ideas escape again or students may feel that they have to write things properly the first time so the focus shifts away from the message to technicality is like grammar or sentence structure. So getting the beneficial effects of writing not only takes practice and timing but you the teacher also need to model it for your students.

2 studies by Rowell compared 2 writing tasks in a science class. Both use science journals but 1 had metacognitive guiding questions and the other instead of specific questions it went for a free for all approach. Write about anything you want regarding your learning in today’s class. I think both classes had a little prior experience with write to learn. It turned out from these studies that being too free ie having no specificity in your task is counterproductive in a science
Whereas the students with guiding questions were able to put down more ideas of substance in their responses.

**Slide 84 – 1 hour 12 minutes 55 seconds**  
One word of caution though. When it comes to these studies we can observe positive and negative effects of write to learn. It is a lot more difficult to determine exactly how the brain and the students’ knowledge are interacting. We don’t really know the mechanism. That makes it really hard to target the specific areas of improvement for student writing. Maybe for example you want to improve the student’s argumentative skill. How do you write so that 1 sentence coherently flows to the next? For example, realistically what intervention would work? We can’t say. We don’t know the mechanism.

**Slide 78 – 1 hour 13 minutes 30 seconds**  
So my question back to researchers out there is, Is there a formula for devising a write to learn task that optimally trains both deep understanding and writing ability? Some of the documentation I have seen is a bit wishy washy when it comes to advising teachers how to best assess their students. I’ve encountered an article that said longer and broader tasks like keeping a science journal is great because it encourages the student to express themselves in their own voice. And so there is more room for metacognition to produce a quality written response.

On the other hand I have also heard that such tasks are a waste of time because with a broad topic the students writing will only address basic content across the board. There is scope but not depth. So if there is some way to illicit the mechanism of student improvement through write to learn then educator can be more informed and confident about using relevant assessment tools. If this can happen it would be a huge step forward in teaching content and communication skills across many subject areas.

Thanks for listening.