Writing to Learn and Interactive Notebooks Across Content Areas

Handouts

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Left-Side Processing

FOCUSED NOTES	TOPIC/OBJECTIVE:	NAME:
		CLASS/PERIOD:
		DATE:

ESSENTIAL QUESTION:

Left-Side Processing

FOCUSED NOTES	TOPIC/OBJECTIVE:	NAME:
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FOCUSED NOTES	TOPIC/OBJECTIVE:	NAME:
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Left-Side Processing

Using the Interactive Student Notebook

Using the Interactive Student Notebook _____

"Notebooks have made my students more responsible for their own learning. They have become more involved in the lessons, more attentive during the activities and reading, and more precise in their note taking."

— Middle School Teacher

Introduction

Student notebooks are an essential part of any social studies course. Unfortunately, they are too often drab repositories of information filled with uninspired, unconnected, and poorly understood ideas. Interactive Student Notebooks, however, offer an exciting twist on the conventional social studies notebook. The first time you see one, you will be immediately struck by the colorful and varied expression within its pages. Words and diagrams, bullets and arrows, ink and pencil, a multitude of colors, highlighting—all reveal a unique personal style as students express their ideas, questions, feelings about and reactions to new content in a host of creative ways. No two Interactive Student Notebooks look the same.

At the same time, the Interactive Student Notebook provides a cohesive structure and serves as the organizational anchor for the multiple intelligence activities that occur in a TCI lesson. For each lesson, the Interactive Student Notebook centers on three key elements of the TCI Approach:

- **Preview Assignments** At the start of each lesson, short, intriguing assignments help students connect the upcoming lesson to their own experience, activating their prior knowledge. The purpose of these assignments, along with examples of the many different types, are found in "Preview Assignment," page 22.
- **Graphically Organized Reading Notes** As the lesson unfolds, students use a section called Reading Notes to record, in a striking graphic format, main ideas and supporting details of what they are learning. Typically, all "testable" information can be found in this section. Many examples of the various formats suitable for this part of the notebook are presented in "Graphically Organized Reading Notes," page 96.
- **Processing Assignments** Students end each lesson with a Processing assignment—perhaps involving illustrated timelines, Venn diagrams, matrices, annotated maps, flowcharts, sensory figures, advertisements, visual metaphors, or persuasive letters—to synthesize and apply what they have learned. Many examples of these engaging assignments are found in "Processing Assignment," page 102.

Why Interactive Student Notebooks Engage Students

Teachers find that their students embrace the Interactive Student Notebook enthusiastically. "I used to hate taking notes and filling out worksheets in class," one student commented, "but I love working on my notebook because it's fun." Teachers also report that because the Interactive Student Notebook encourages a variety of forms of expression—personalized responses to the subject matter, artwork, graphics, timelines, maps, and song lyrics—there's more interest and more involvement by students, in addition to more learning and better retention. Here are some of the reasons Interactive Student Notebooks are found to engage students so thoroughly:

They reach out to students, inviting them to be active participants in their learning. Many students are accustomed to filling out blanks on a worksheet or laboriously copying teacher-written notes from the board or the overhead. The Interactive Student Notebook changes that. At the beginning of a lesson, students are "hooked" with a Preview assignment that taps into their own experiences and prior knowledge. Then students are encouraged to accurately record Reading Notes for a *purpose*—searching for implications or assumptions, identifying main ideas, providing supporting details, interpreting information. They will use this information during Processing assignments that challenge them to really *think* and apply what they have learned. As a result, students become more creative, more independent thinkers.

They encourage students to use a variety of intelligences, not just linguistic intelligence. Conventional student notebooks may work for motivated students with strong linguistic skills, but they do not work as well for students with other predominant intelligences. In the Interactive Student Notebook, students approach

Origin of the Interactive Student Notebook

The Interactive Student Notebook was initially developed in the 1970s by Lee Swenson and his colleagues at Aragon High School in San Mateo, California. Teachers at TCI, after using Interactive Student Notebooks in their classrooms and seeing how profoundly they improved instruction, contacted Lee in 1992 about adopting the Interactive Student Notebook as part of the TCI Approach. Lee then collaborated with teachers at TCI to refine his ideas by creating standard guidelines for students and teachers, and by expanding the variety of graphic organizers.

"Students like that the notebooks allow them the freedom and creativity to express themselves in a variety of ways. Parents continually tell me that they think it's fantastic that kids are relating social studies to their lives and writing about what they learn in their notebooks."

— High School Teacher

"Character Collage of Porfolio"

FACTORIES

encouraged trade

400 miles

15,000 miles

TRANSPORTATION

Dictator

GAS

poor people

suffered

Gave Rurales more power.

ports everywhere

ARMY LEADER

Demography Mosaic

SPANISH

Indian Language

HIGH LITERACY RATE

Health & Guatemala / VERY LOW

INDEPENDANCE early 1800's

CUBA

VERY POOR

Ethnically Diverse

BRAZIL

CATHOLIC RELIGION

PROTESTANT

RURAL

urban

BIG AND Small Countries

MEXICO

Haiti

MOSTLY COLONIZED BY SPAIN

Portugal

Students use their visual intelligence when they interpret information graphically in their notebooks. With colored markers and construction paper, they create vivid images that help them understand and remember key concepts—such as the attributes of Mexico's Porfirio Diaz (above left), and the demographic characteristics of modern Latin America (above right).

understanding in many ways. They can tap into their *visual* intelligence through such elements as graphs, maps, illustrations, pictowords, and visual metaphors; their *musical* intelligence by composing song lyrics or reacting to a piece of music; their *intrapersonal* intelligence by reflecting on the ways social studies topics affect them personally; their *interpersonal* intelligence by recording group discussions and group project notes; and their *logical-mathematical* intelligence through sequencing and the use of spectrums, graphs, and charts.

They help students to organize systematically as they learn. Students use their notebooks to record ideas about every social studies lesson. They use a variety of organizational techniques—topic headings, color-coding, different writing styles—to give coherence to what they learn. The notebook also helps students keep assignments together and in a logical order. Gone are the days of notes and assignments wadded up and stuffed in backpacks or lockers.

They become a portfolio of individual learning. These personal, creative notebooks become a record of each student's growth. Teachers, students, and even family members can review a student's progress in writing, thinking, and organizational skills.

Hints for Making Effective Interactive Student Notebooks

Teachers use the Interactive Student Notebook in a variety of forms. Some give their students the consumable workbook that is provided with TCI's core program materials. Teachers who elect to use this consumable can follow the sequence exactly as designed, having students complete the specified Preview, Reading Notes, and Processing assignment for each lesson. This is helpful to teachers who are new to TCI Approach, since they can rely on the published Interactive Student Notebook for support while they are learning to use the essential elements and strategies of the program.

Other teachers elect to supplement the printed workbook with their own handouts and materials that students bring in. Students use spiral-bound notebooks or three-ring binders to combine the materials, cutting and pasting as they create their own unique Interactive Student Notebooks. In this format, TCI materials serve as the backbone, but teachers have the flexibility to tailor instruction to suit their needs.

Help Students to See the Coherent Whole

The Interactive Student Notebook groups assignments by unit, so that students can see a logical flow from assignment to assignment and begin to understand the coherence of the unit. Their notebooks serve as a chronological record of their work and help reinforce the major concepts and themes in a unit.

This is where the parts of the integrated lesson come together—the Preview, the graphically organized Reading Notes, and the Processing assignment. Using this framework helps students see how everything connects.

"The notebook allows me to express my opinions about what we are learning. I usually don't get to do that in my other classes."

— Middle School Student

Still other teachers may be developing their own curricular materials based on the TCI Approach. They won't have a published notebook to start with, but they can follow the same structure, having students create spiral-bound Interactive Student Notebooks that include the teacher's own lesson Previews, graphic organizers for capturing content notes, and Processing assignments, plus any additional support materials. Creating this type of Interactive Student Notebook is labor-intensive, but many teachers are willing and eager to take on the task because of the tremendous success of this powerful organizational and instructional tool.

Regardless of the format you plan to use, the following hints will increase the effectiveness of your Interactive Student Notebooks and allow students' individual styles to flourish.

1. Supply materials that inspire creativity. An abundance of materials—colored pencils and markers, scissors, glue sticks, colored highlighters—will spark creativity for notebook assignments. Some teachers collect a class set of materials to keep in their room. These can be used by students who don't otherwise have the materials they need for in-class work on their notebook.

2. Let students create their own covers. When you introduce the Interactive Student Notebook, encourage students to embellish theirs with a colorful cover that in some way reflects the content you are teaching. This immediately sends students the message that the notebooks will be their own creations that they can take pride in—and it helps cut down on the number of lost notebooks during the year.

3. Personalize the notebooks with an author page. Have students create a page about themselves to include at the front of their notebooks. Their author page could include a portrait or photograph, as well as personal information or favorite quotes. (As needed, remind students that any content unsuitable at school is also unacceptable for use in notebooks.) With both a personalized cover and an author page, very few notebooks get lost.
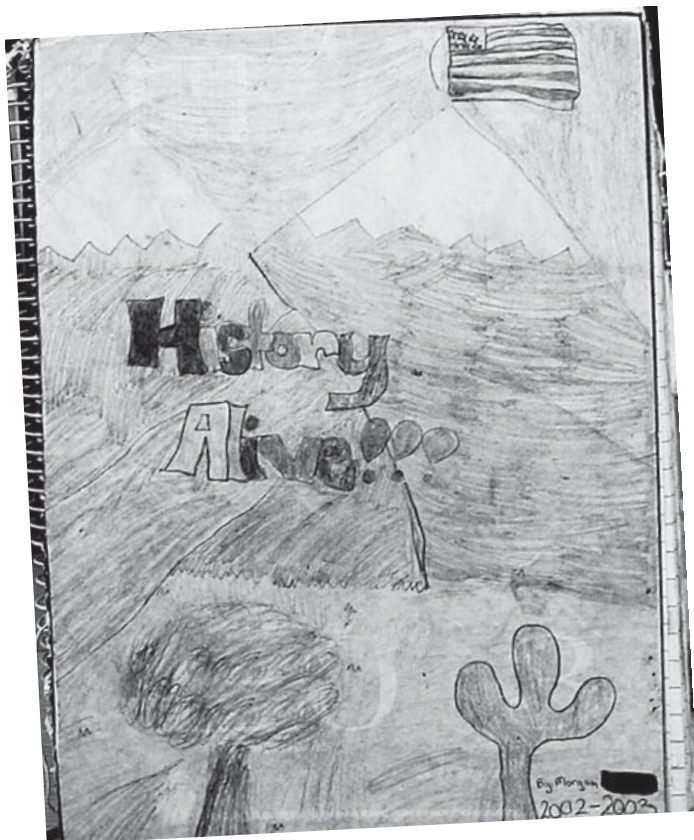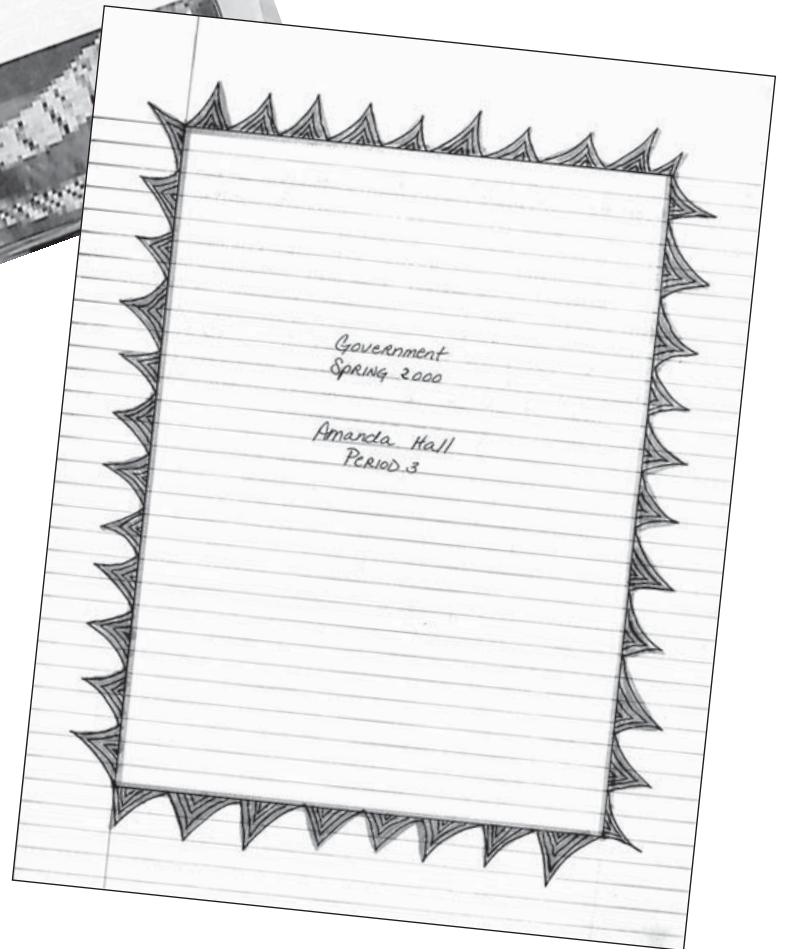
Notebook covers can be as individual as your students. It's up to each teacher to specify which information is considered essential for the cover, such as student's name, course name, class period, date. Beyond that, the students' design treatment may take a wide variety of forms, from the simple to the complex, from the pictorial to the abstract.

Interactive Student Notebook Guidelines

What is the purpose of the Interactive Notebook?

The purpose of the Interactive Student Notebook is to enable you to be a creative, independent thinker and writer. Interactive notebooks will be used for class notes as well as for other activities in which you will be asked to express your own ideas and process the information presented in class.

What materials do I need?

- Spiral notebook—white paper, college-ruled, at least 100 pages
- Pencil
- Blue and black pens
- Glue stick and scissors
- Colored pens and pencils
- Highlighters
- Zipper pouch

What goes in my notebook?

Everything we do in class. We will use graphically organized visuals to help you take notes, structuring them so that key ideas are clear and supported by examples from class activities, discussion, or reading assignments. Your notebook will also be used for a variety of different activities to preview learning and process new content to demonstrate understanding. This is where you will record and express all of your well-considered ideas.

How can I earn an A on my notebook?

A student who expects to earn an A- or higher grade on the notebook will be one who keeps a complete, neat notebook, produces quality work, and has taken the time to consistently extend learning beyond classroom assignments. You will show this by including "Making Connections" entries, unassigned work that you complete in addition to our regular class assignments.

What do you mean by "Making Connections"?

For "Making Connections," you place articles, pictures, or cartoons (from magazines, newspapers, or the Internet) into your notebook, along with a 4–5 sentence summary and reflection on how the materials relate to our topic of study. You might also include original drawings. "Making Connections" entries should sharpen (rather than clutter) the visual appearance of your notebook.

How will my notebook be graded?

Notebooks will be graded on thoroughness, quality, organization, and visual appearance. You will know the value of each major notebook assignment when it is given. About 25 percent of your grade for the course will be based on the notebook.

An important part of your notebook is its visual appearance. Your notebook should be NEAT! Each entry should be title and dated. Your artistic talent should be visible throughout the notebook.

Notebooks will be checked periodically for completeness—usually about every 3–4 weeks, except for the first few weeks of class, when they will be checked more regularly. All class notes and notebook assignments should be included, even for days you were absent.

What happens if I am absent?

If you are absent, it is your responsibility to obtain notebook assignments from a classmate or from the Interactive Teacher Notebook.

Share this handout with your parent or guardian. When both of you have read this information, please sign your names below.

Student Signature _____   Parent Signature _____

4. Give clear guidelines for the notebooks. One of the most important steps for successful notebooks is to establish clear guidelines. Decide ahead of time what you expect your students to produce in their notebooks, and then clearly communicate your expectations. Most teachers create a list of criteria—how notebooks will be graded, what percentage of the class grade will depend on the notebooks—and ask students to attach that list to the inside cover of their notebooks. Some teachers even include directions for specific types of notebook assignments, class rules, and their grading policy.

You might also send a letter to students and families, explaining the purpose of the notebook and your expectations. In the sample guidelines shown on page 168, students and their parents are asked to sign the handout to show that they have read the guidelines and understand the purpose and importance of the Interactive Student Notebook.

5. Consider adding a table of contents. You may want students to create a running table of contents for their notebooks. This can be as simple as a list of completed assignments and page numbers, or it could include more complex information. Add your comments and scores for each assignment. This will help you immensely when it comes time to grade the notebooks.

Lost Notebooks?

Because students take a great deal of pride of ownership in their notebooks, typically very few are lost during a semester. Most teachers report that only a handful of students lose them each year. If your students do lose their notebooks, consider allowing them to make up a select number of assignments so they may receive partial credit.

This student's contents page lists each assignment completed and the page number where it can be found.
A table of contents helps students stay organized, and helps you at grading time.
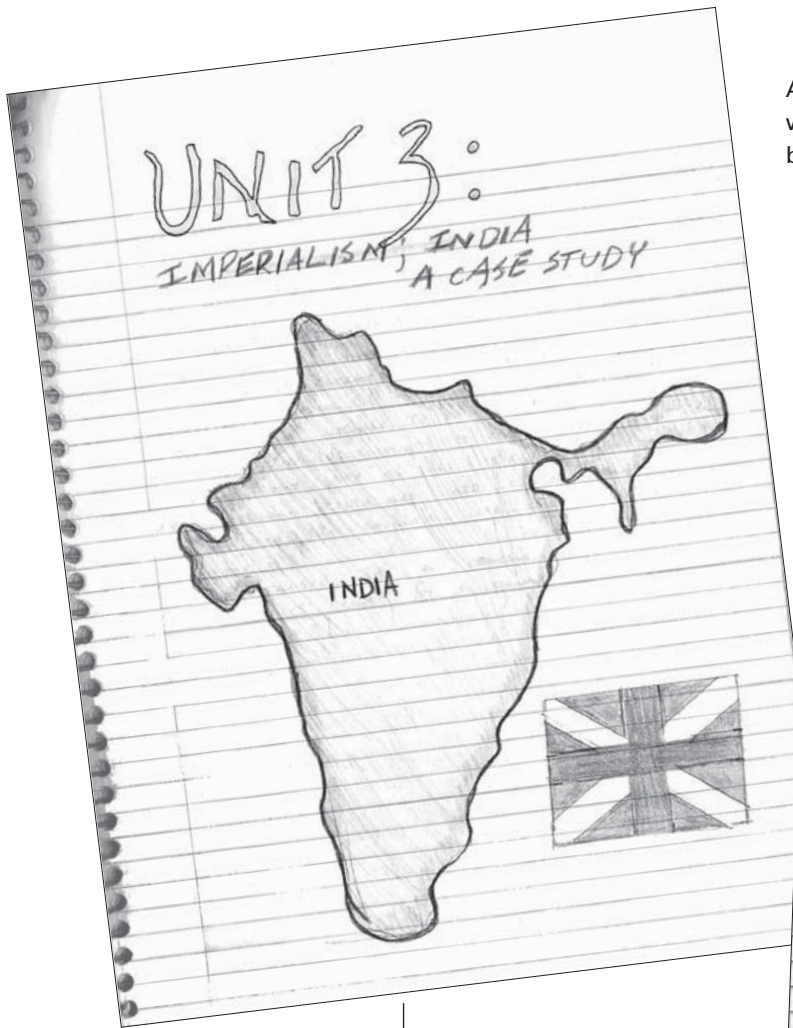
A simple title page design with a few bold images can be extremely effective.
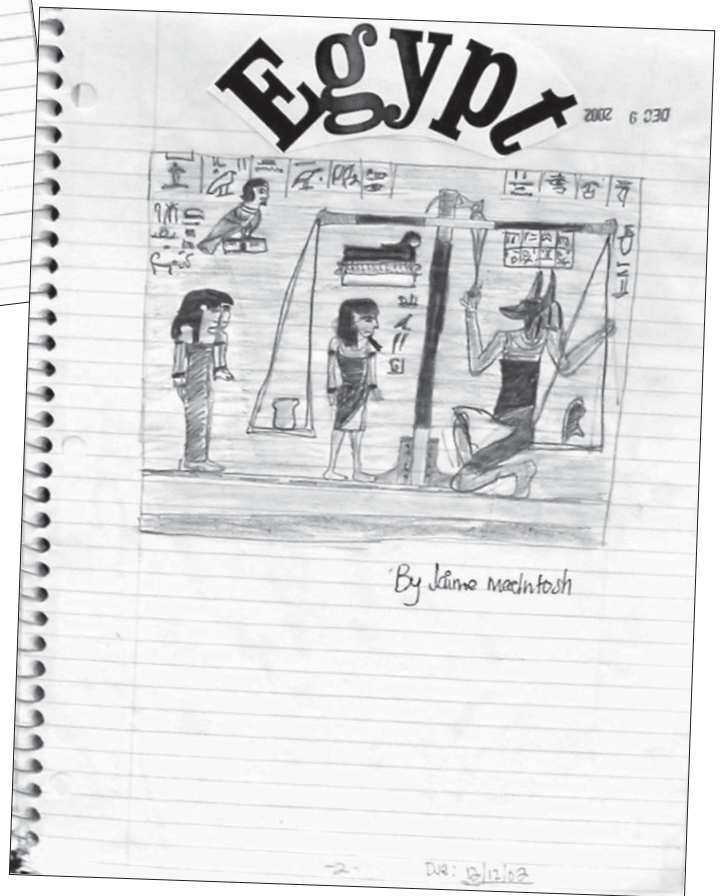
6. Add unit title pages that echo the unit theme. For each unit you study, have students design a title page for that section of their Interactive Student Notebook. On this page they would write the title of the unit, and then find and affix pictures or draw illustrations to represent the unit's theme. This is an opportunity for students to preview the chapter, as well as to use their creative genius to personalize their notebooks.

How to Manage Interactive Student Notebooks

If you have four or five classes a day, each with up to 35 students, that means you could have 150 or more student notebooks to keep track of. Because so much of the students' work appears in these notebooks, you will need a system for assessing them. Ideally, you will both informally assess the notebooks on a regular basis, to give students immediate feedback, and also *formally* collect and grade the notebooks every three to four weeks.

An earlier section of this book, "How to Make Assessment of Student Notebooks Manageable" (pages 125–127), gives you further details and tips on effectively managing this task.

Create an "Interactive *Teacher* Notebook." Another management tool to help you monitor the use and the effectiveness of the Interactive Student Notebook throughout the year is an "Interactive *Teacher* Notebook." All you need is a master notebook in which you record each notebook assignment, attach student handouts, store copies of content notes, and make annotations on the activities for future reference—notes on how they went, which groups or individuals seemed to have trouble with them and why, and what questions really worked to prompt good critical thinking.

By keeping a master notebook, you have a visual record of what took place in class. If you incorporate details about the lesson objectives, standards addressed, materials needed, and procedures, the teacher notebook serves as your lesson-planning book as well. It is the ideal place to reflect on the outcome of lessons and to record ideas about how to make them more effective in the future.

The Interactive Teacher Notebook serves both the teacher and the students. For the teacher, this tool
- functions as the teacher's lesson-planning book.
- includes a table of contents that becomes the "official" record of assignments.
- provides a place to store extra materials and handouts.
- communicates special instructions for students who have been absent.
- serves as a journal to reflect on the effectiveness of activities and assignments and ways to improve them.

For students, the Interactive Teacher Notebook
- is a place they can find any information and assignments they missed during an absence.
- serves as a model of how assignments should be title, dated, and arranged.
- allows them to check the completeness of their own notebook.

Spotlight Student Notebooks

Showcase exceptional notebooks so students have the opportunity to gather ideas for improving their own notebooks. You might set up six or eight stations around the classroom, put an exceptional notebook at each, and conduct a "gallery walk." Allow students 15 or 20 minutes to roam around the room and collect ideas from the model notebooks.

Costa's Levels of Thinking

Costa's Level	Cognitive Functions	Sample Questions
Level 3: **Applying Information** Demonstrates mastering of knowledge learned (OUTPUT)	• Apply • Create • Evaluate • Generate • Hypothesize • Imagine • Judge • Modify • Predict • Speculate	• What would happen to _____ if _____? • What would it be like to live …? • Pretend you are a character in the story and… • What do you think will happen to _____? Why? • Could this story have really happened? Why or why not? • How would you solve this problem in your life? • How does the author's claim hold up under these circumstances: _____? • What if the situation changed to ___; how would that impact the outcome?
Level 2: **Processing Information** Practice knowledge learned (PROCESS)	• Analyze • Categorize • Compare • Contrast • Demonstrate • Develop • Group • Infer • Organize • Relate • Sequence • Synthesize	• Would you have done the same thing as…? • How are _____ and ___ alike and different? • What was important about…? • What other ways could _____ be interpreted? • What is the main idea of the story (event)? • What information supports your explanation? • What does _____ mean? • What does _____ suggest about _____'s character? • What lines of the poem express the poet's feelings about _____? • What is the author trying to prove?
Level 1: **Gathering Information** Introduction of knowledge (INPUT)	• Define • Describe • Find • Identify • List • Locate • Name • Observe • Recite • Report	• What information is given? • Where does _____ happen? • When did the event take place? • What are…? • Where did…? • What is…? • Who was/were…? • What part of the story shows…? • What is the origin of the word _____? • What events led to _____?

124 **The Write Path English Language Arts: Exploring Texts with Strategic Reading**

Vocabulary:
Costa's Levels of Thinking

LEVEL 1

Remember

Define	List	Recall	Match
Repeat	State	Memorize	Identify
Name	Describe	Label	Record

Show Understanding

Give examples	Rewrite	Review	Tell
Restate	Reorganize	Locate	Extend
Discuss	Explain	Find	Summarize
Express	Report	Paraphrase	Generalize

LEVEL 2

Use Understanding

Dramatize	Use	Translate	Interpret
Practice	Compute	Change	Repair
Operate	Schedule	Pretend	Demonstrate
Imply	Relate	Discover	Infer
Apply	Illustrate	Solve	

Examine

Diagram	Question	Analyze	Criticize
Distinguish	Inventory	Differentiate	Experiment
Compare	Categorize	Select	Break down
Contrast	Outline	Separate	Discriminate
Divide	Debate	Point out	

Create

Compose	Draw	Plan	Modify
Design	Arrange	Compile	Assemble
Propose	Suppose	Revise	Prepare
Combine	Formulate	Write	Generate
Construct	Organize	Devise	

LEVEL 3

Decide

Judge	Rate	Choose	Conclude
Value	Justify	Assess	Summarize
Predict	Decide	Select	
Evaluate	Measure	Estimate	

Supportive Evidence

Prove your answer	Give reasons for your answer	Explain your answer	Why do you feel that way?
Support your answer		Why or why not?	

Cornell Note-Taking Summary Template

Steps for Writing a Complete Summary

Step 1:	**Read the essential question**/objective at the top of the Cornell notes.
Step 2:	**Respond** to the essential question/objective in one sentence—this is the introduction to the summary. Use your own words in writing your summary.
Step 3:	**Review the first chunk** of notes on the right side and the corresponding question on the left side.
Step 4:	**Write a one-sentence response** to the left side question, using content-based vocabulary and information from the right side of notes. DO NOT rewrite the whole right side of your notes; the goal is to paraphrase your notes into one sentence.
Step 5:	**Repeat this process** until all your questions are incorporated into the summary—accounting for all the main ideas in your notes.
Step 6:	**Reread your summary** for clarity and accuracy, rewriting as needed and adding transitions, when possible.
Step 7:	**Review your summary** to study for tests/quizzes, write essays, etc.

Summary Paragraph Template

Essential question/objective introduction:

_____

_____

_____

Response to the question for the 1st chunk of notes:

_____

_____

_____

Response to the question for the 2nd chunk of notes:

_____

_____

_____

Response to questions for all additional chunks of notes:

_____

_____

_____

6.7 The Curve of Forgetting

Topic

• Examining the concept of forgetting

Rationale

Having your students revisit and review their notes can be an exhausting task. Even though we know that it is a critical exercise to support information recall, students do not always see the vital nature of this study time. This Socratic Seminar uses the graphical data recorded by Hermann Ebbinghaus regarding the nature of forgetting, and lets students analyze how often and for how long they should review vital information.

Objectives

Students will:

• Discuss the nature of forgetting

• Interpret graphical data

• Apply learning to their own study habits

Timeline

• 45 – 55 minutes

WICR Strategies

• Inquiry

• Collaboration

• Reading

> ### Conversations with the Math Teacher
>
> ⋄ *What do these graphs mean?*
>
> *Only if you are having difficulty interpreting Student Handout 6.7a (2 of 2) "The Curve of Forgetting – Socratic Seminar"*

Materials/Preparation

• Student Handout 6.7a "The Curve of Forgetting – Socratic Seminar"

• Pencil

Instructions

• Pass out Student Handout 6.7a "The Curve of Forgetting – Socratic Seminar."

• Have students read through Student Handout 6.7a (1 of 2) "The Curve of Forgetting – Socratic Seminar," underlining key information or claims made by the author.

> You can just pass out Student Handout 6.7a (2 of 2) "The Curve of Forgetting – Socratic Seminar" and have students interpret the graph.

• Have students formulate higher-level questions based on the graph and text.

• If students do not generate good introductory Socratic Seminar questions you can use:

> Do you believe that the author is right about his claims regarding forgetting?
>
> How does this information apply to our lives (study habits)?

The Curve of Forgetting – Socratic Seminar

Why Do I Have to Take Notes?
The Brain-Note Connection

It is interesting that so many people lament having a poor memory, when the reality is that our brains are designed to perform one simple task... to forget stuff! **The brain is a huge deleting machine.** Need proof? Just ask yourself, "What did I have for dinner last night?" How about two nights ago?... A week ago?... A month ago?... A year ago? Most likely you could get the first one or two, possibly you can even recall last week. But over the course of time, your brain dumps any information that it deems unnecessary in order to store the new incoming information. It might be helpful to think of your short-term memory as a huge tank that holds on to a ton of information bits to keep us from minor mistakes, like eating chicken for dinner night after night because we do not remember we ate it last night. It holds on to those pieces of information for very short periods of time (generally about 24 hours), and then it will release those brain cells so that they can store new information.

In contrast, our long-term memory stores only that information that it believes to be highly valuable, like how to tie your shoes, a special birthday dinner you had with your family or friends, and how to do simple arithmetic. So how do we remember information? Primarily by revisiting the information often enough that we move it from the very unreliable short-term memory into the much more reliable long-term memory. Think about it – at some point your brain remembered every meal you've eaten, every outfit you've ever worn, the name of everyone you've ever met, and even how you solve systems of linear equations. But over the course of time, sometimes a very short time, our brain hits the delete button.

So where do Cornell notes fit into this? The reality is that without a system for revisiting information, our brains are incredibly efficient at removing extraneous information from our brain. In 1885, Hermann Ebbinghaus did extensive research around the idea of forgetting. In his book, *Memory: A Contribution to Experimental Psychology*, he mapped out the rate at which the average human forgets information over time.

This information might make a teacher incredibly sad. It is the realization that after a brilliant discourse on graphing inequalities, your students will only retain about a quarter of the lecture for the test.

But there is hope! Ebbinghaus goes on to examine how frequently a student would need to revisit information in order to regain near-perfect recall. His research evinces the brain's ability to retain information when we revisit the information during key times.

The essence of this research demonstrates the need for students to revisit information in order to kick the information out of the short-term memory and store it in the much more reliable long-term memory. This is the power of Cornell note-taking – it primarily focuses on how we process the information rather than simply on recording the information.

The Curve of Forgetting

Percent of Information Retained

- 20 minutes = 58.2%
- 1 hour = 44.2%
- 9 hours = 35.8%
- 1 day = 33.7%
- 2 days = 27.8%
- 6 days = 25.4%
- 31 days = 21.1%

Time
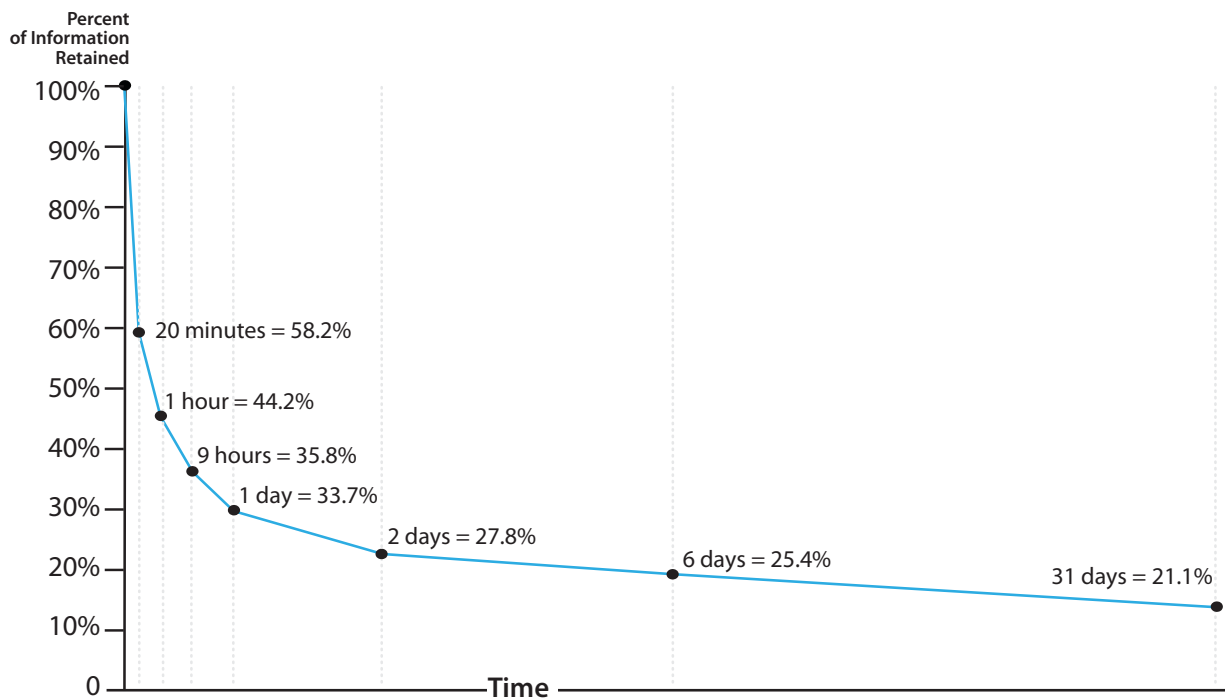
Rate of Forgetting with Study/Repetition

Percent of Information Retained

Time

| 1st Repetition within 18 minutes | 2nd Repetition within 1 day | 3rd Repetition within 7 days | 4th Repetition within 31 days | 5th Repetition within 3 months |
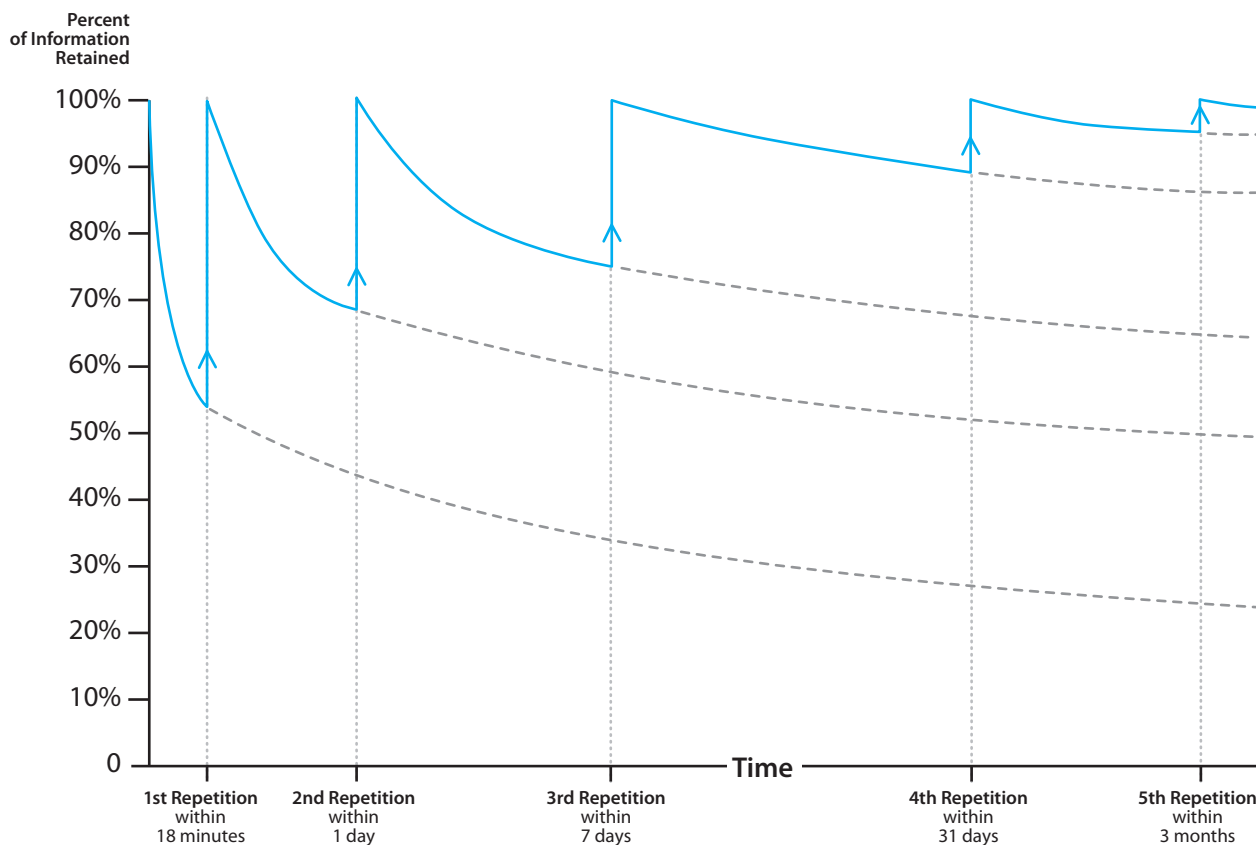
Left Side Response Suggestions

Response takes many forms. If your teacher has not specified the type of response you need to make or the content of the response, the following are suggestions for use in the Interactive Notebook.

• Graphics that have a purpose (such as showing comparisons between two unlike elements)

• Drawings (used as illustrations of concepts or events)

• Quickwrites

• Reflections

• Summaries

• Brainstorms

• Short paragraphs

• Level 2 and 3 questions

• Diagrams

• Analogies

• Critical reviews

• Origami pop-up books

• Concertina books

• Flap books

Appendix

Writing to Learn
Processing Activities

In order to use the INB effectively, students must process and analyze the concepts, vocabulary, and information they are supposed to learn. There are many activities you can use for left-side INB processing of the content. The following activities highlight writing-to-learn strategies that can be used as output for the INB. All levels of students have used these strategies to learn, including students from the upper elementary to Advanced Placement and International Baccalaureate classes, as well as English language learners and students with learning disabilities.

The processing activities can be used for topics, concepts, events, vocabulary, figures, and equations. In the activity descriptions these will be generically referred to as concepts. Each activity requires writing, a nonlinguistic representation, and an explanation. ("Do it, draw it, describe it.") The level of these products will depend on the skills, background, and sophistication of the students in the class. The length of the writing portion should be at least one paragraph, but can be varied depending on the teacher's directions.

The purpose of each activity is stated with the instructions. When students demonstrate understanding in a different form than they have learned it, they truly show what they understand. Limiting a student's word count or providing a strict format increases the rigor of the assignment because they need to understand the material and then express themselves articulately within the limits provided.

Non-Linguistic Graphic Representation (Illustration)

Purpose: *Use different parts of the brain to demonstrate content mastery.*

1. On the left side of the INB, develop a non-linguistic graphic representation or illustration to represent one of the assigned concepts.

2. Create a slogan or phrase that captures the essence of the concept.

3. Demonstrate the concept in a real-life situation.

4. The illustration must use multiple colors and be suitable for all ages and all situations.

5. A two- to three-paragraph explanation should be written underneath the artwork.

Variations

- *Lost or Found:* Make a lost or found poster about the assigned concept.

- *Band Buzz:* Design a logo for a band named after the assigned concept.

- *Protest Sign:* Create a protest sign emphasizing the assigned concept.

Question Cards

Purpose: *Create study cards that summarize concepts.*

Question cards are written to reflect and review information. The question is placed on the front of the card. A summarized answer is placed on the back of the card. Cards should be placed in the INB in an attached envelope or pocket. An alternative is not to include these in the INB but to have students purchase a ring to hold all questions cards throughout the year.

Vocabulary Card Instructions: Visual Writing

Purpose: *Create study cards for major vocabulary terms and concepts.*

Made on 1/8 of a sheet of paper, the cartoon or diagram side is taped facing up on the page (see illustration). Use the vocabulary cards to review information by looking at the diagram and making the connection between the diagrams or pictures and the figure, term, or event.

Front Side—Cartoon or Diagram

1. Diagram or cartoon in multiple colors

2. Minimal writing on this side of the card

Back Side—Explanation

1. Word (spelled correctly)

2. Link—a word useful in remembering the word. The meaning should be known and can be a word related to or rhyming with the vocabulary word.

Right side has Cornell notes of INPUT
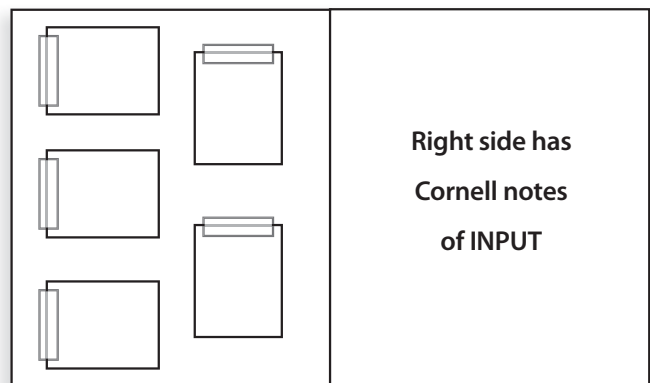
3. Definition—meaning of word using terms the student understands (one sentence)

4. Usage sentences—two sentences explaining the meaning of the vocabulary word

5. Attach cards to left side of INB or attach on ring for studying.

Riddle Cards: Poetry

Purpose: Limit student writing length to select most powerful words.

The purpose of a riddle card is to assist students in learning and understanding concepts covered in class that are necessary for understanding. The riddle and diagram are placed on the front of a card. The riddle and diagram side is taped facing up. The answer and explanation are placed on the back of the card.

Front Side

1. Riddle—the riddle should contain one or more clues. The clues might or might not rhyme, but must refer to aspects of the answer.

2. Artwork—the multicolored artwork should reflect the topic of the riddle with a clue that might help solve the riddle.

Back Side

1. Answer to the riddle—the answer must be clearly and cleanly written across the top of the card.

2. Explanation—the explanation must be below the answer and explain how the clues and artwork lead to the answer. The explanation should be two to three sentences in length.

Fold-It 1: Explain One Term—Visual Writing

Purpose: Process single vocabulary terms.

1. Fold a piece of paper in half.

2. On the front of the "tent," write the word and create a multicolored illustration representing the term.

3. On the top section of the inside when unfolded, write the word on the top "line," part of speech on the second "line," and then write the definition of the word in your own words on the third "line."

4. On the bottom section of the inside when unfolded, write a sentence with the word to clarify its meaning.

5. Glue into INB on the left side as OUTPUT.

Graphic
Word

Paper open here.

Word
Part of speech
Definition

Top section
inside card

Used in
sentence

Bottom section
inside card
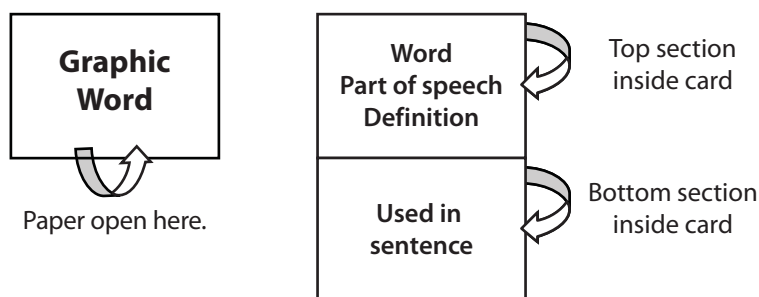
Fold-It 2:
Compare and Contrast Two Terms—Visual Writing

Purpose: *Compare and contrast two related vocabulary terms.*

1. Hold the paper landscape in front of you. Fold the two side edges (the shorter of the edges) inward until they meet in the center. Crease the sides.

2. With the edges still folded, meeting at the center, write one term on the left fold and create a multicolored illustration. Repeat this process on the right side for the second word.

3. Open the flaps. On the left flap from the edge to the fold, write the word and definition in your own words using three to five sentences. Repeat this process for the right-side flap.

4. Create a bulls-eye diagram in the center section to compare and contrast the two terms.

Word

OPEN HERE

Illustration

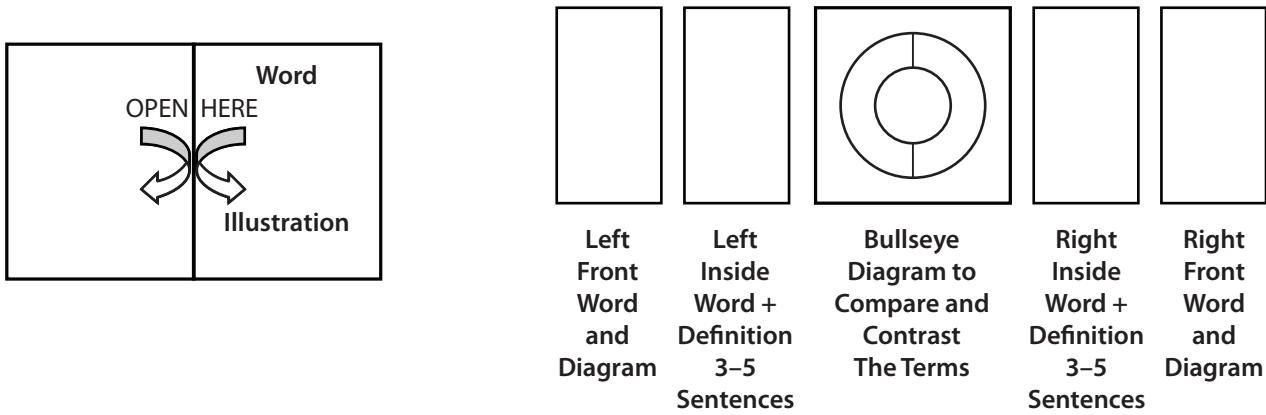| Left Front Word and Diagram	Left Inside Word + Definition 3–5 Sentences	Bullseye Diagram to Compare and Contrast The Terms	Right Inside Word + Definition 3–5 Sentences	Right Front Word and Diagram

Fold-It 4: Concept Map—Visual Writing

Purpose: *Differentiate among four different vocabulary terms.*

1. Hold the paper landscape in front of you. Fold the two side edges (the shorter of the edges) inward until they meet in the center. Crease the sides.

2. Cut each flap in two (to form two 'doors').

3. Outer flaps—place a riddle and a multicolored illustration on each flap.

4. Inside each flap—write the riddle answer and the reason why the riddle and diagram show this.

5. Central area—construct a concept map with the terms as spokes. Be sure to have the reason connecting the term to the central concept.

CUT

Riddle 1	Riddle 2
Riddle 4	Riddle 3

Answer 1 Why and Definition	Terms as Spokes	Terms as Spokes	Answer 2 Why and Definition
	Central Concept Identified		
Answer 4 Why and Definition	Terms as Spokes	Terms as Spokes	Answer 3 Why and Definition
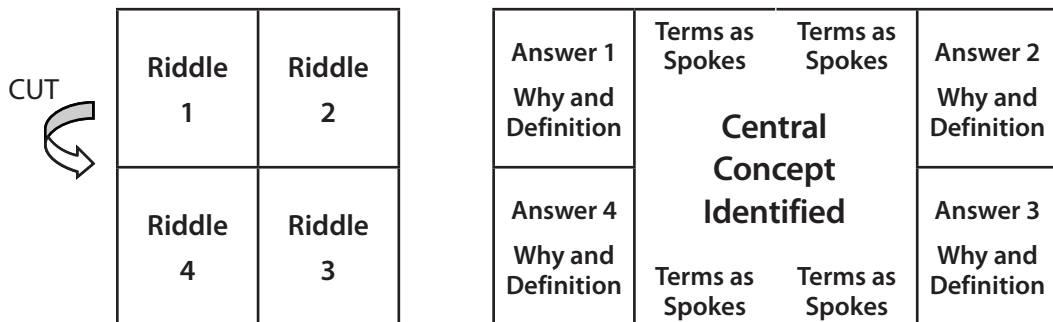
Bull's-Eye Comparison: Visual Writing

Purpose: *Compare and contrast two or three concepts using a bull's-eye diagram.*

1. Draw the bull's-eye diagram for the number of terms that you are comparing.

2. Label each area with one of the terms.

3. Make a comprehensive list of the differences between the two topics on the outside sections. List unique characteristics for the appropriately labeled section.

4. Make a comprehensive list of similarities between the topics in the center of the bull's-eye.

5. To the right of the bull's-eye, create a multicolored illustration that shows how the topics are related.

6. Below the bull's-eye, write a paragraph that explains how the illustration and similarities are connected.
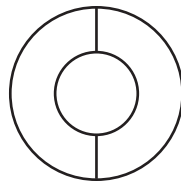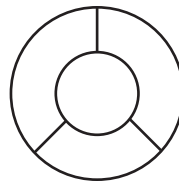
2 Topic   3 Topic

The Ring of Truth: Visual Writing:

Purpose: *Identify misconceptions about science concepts.*

1. Draw the Ring of Truth diagram on the left side of the INB.

2. In the inner circle, write the term or concept being reviewed.

3. In the outer circle, list specific facts, ideas, and information about the term or concept.

4. Outside the Ring of Truth, write down common wrong or incorrect ideas or information that the Person On The Street (POTS) might have about the term or concept.

5. To the right, include a multicolored diagram showing one main idea, fact, or concept about the main term or concept.

6. Underneath the Ring of Truth, write at least two paragraphs explaining why the wrong ideas are incorrect and why people might have these misconceptions.

Facts

Main Concept

Info

Ideas

Common Wrong Ideas

Illustration:
one main idea, fact, or concept
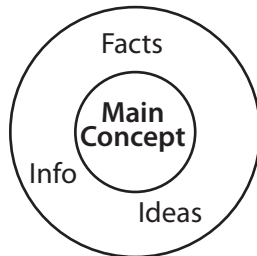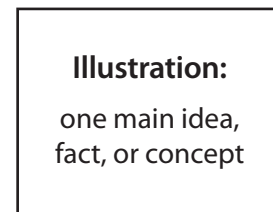
addressing misconceptions

Single Frame Cartoon Project: Genre Writing

Purpose: *Visualize a concept in a different way.*

The Top Half of the Left Side of the INB

1. Create a multicolored, single-frame cartoon (like *The Far Side)* representing the assigned concept.

2. The only text allowed is a maximum of two lines for a caption. Speaking bubbles are okay, but not encouraged.

The Bottom Half of the Left Side of the INB

1. State the concept, event, or figure being shown. Center under the cartoon.

2. Write a paragraph explaining how the cartoon shows or addresses the assigned concept, event, or figure.

3. Write a paragraph explaining how the caption represents and reflects the assigned concept, event, or figure.

Grasping a Concept: Analogy

Purpose: *Identify key ideas related to a concept studied in class and explain the connections.*

Imagine a hand with five digits around a palm. The palm holds the main concept. Each digit is one aspect of the concept.

1. Trace your non-writing hand.

2. In the palm area, write the concept and make a simple multicolored sketch representing it.

3. On each digit, write a vocabulary term, minor concept, figure, event, or equation related to the topic on the palm.

4. At the end of each digit include a simple multicolored sketch representing what is on the digit.

5. The thumb opposes the other digits, so the thumb should have a related but somewhat opposite or different slant than the other digits.

6. Below the hand, write a three-paragraph explanation. The first paragraph explains the sketch in the palm of the hand. The second paragraph explains how the information on the digits relates to the topic on the palm. The final paragraph must explain how the thumb information is related but is opposed to the other digits' information.
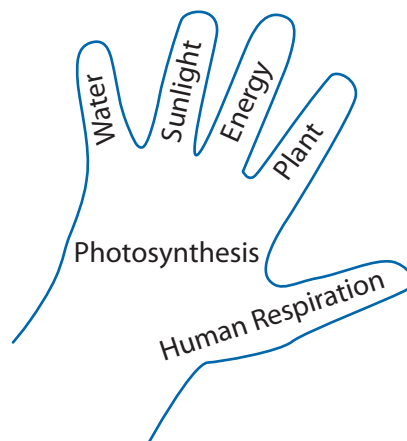
Diamante (Diamond): Poetry

Purpose: Compare and contrast two science terms or concepts.

A diamante poem compares and contrasts two terms using the format shown in the diagram. The top three lines describe topic 1 while the bottom three lines describe topic 2. The middle line has two words for topic 1 and two for topic 2. Be sure to make the poem make sense and convey a clear thought even though you have a limited number of words. *Poetry does not just list words!* (See *Comparative Analysis* lesson in Unit 5 for a larger diamante diagram.)

1. Write topic 1 on the top line and topic 2 on the bottom line.

2. Create a multicolored diagram that helps to visualize topic 1 outside the diamond shape on the top left. Do the same for topic 2, but place the multicolored diagram outside the diamond on the lower right side.

3. Think of two adjectives that describe topic 1 and write them on the second line.

4. Think of three "-ing" words that relate to and describe topic 1.

5. Think of two more words that describe topic 1 and write them on the first two lines of the middle line (line 4).

6. Repeat this process using the template for topic 2. Start at the bottom and work your way to the middle line on the right side of the poem.

7. Write an explanation of how the terms and diagrams relate for each topic. Place it outside the diamond on the top right for topic 1 and the lower left for topic 2.

Topic 1

Topic 1 Diagram

Topic 1 Explanation

_____
(noun)

_____   _____
(adjective)   (adjective)

_____   _____   _____
(-ing verb)   (-ing verb)   (-ing verb)

_____   _____   _____   _____
(word describing noun 1)   (word describing noun 1)   (word describing noun 2)   (word describing noun 2)

_____   _____   _____
(-ing verb)   (-ing verb)   (-ing verb)

_____   _____
(adjective)   (adjective)

_____
(noun)

Topic 2 Explanation

Topic 2 Diagram

Topic 2
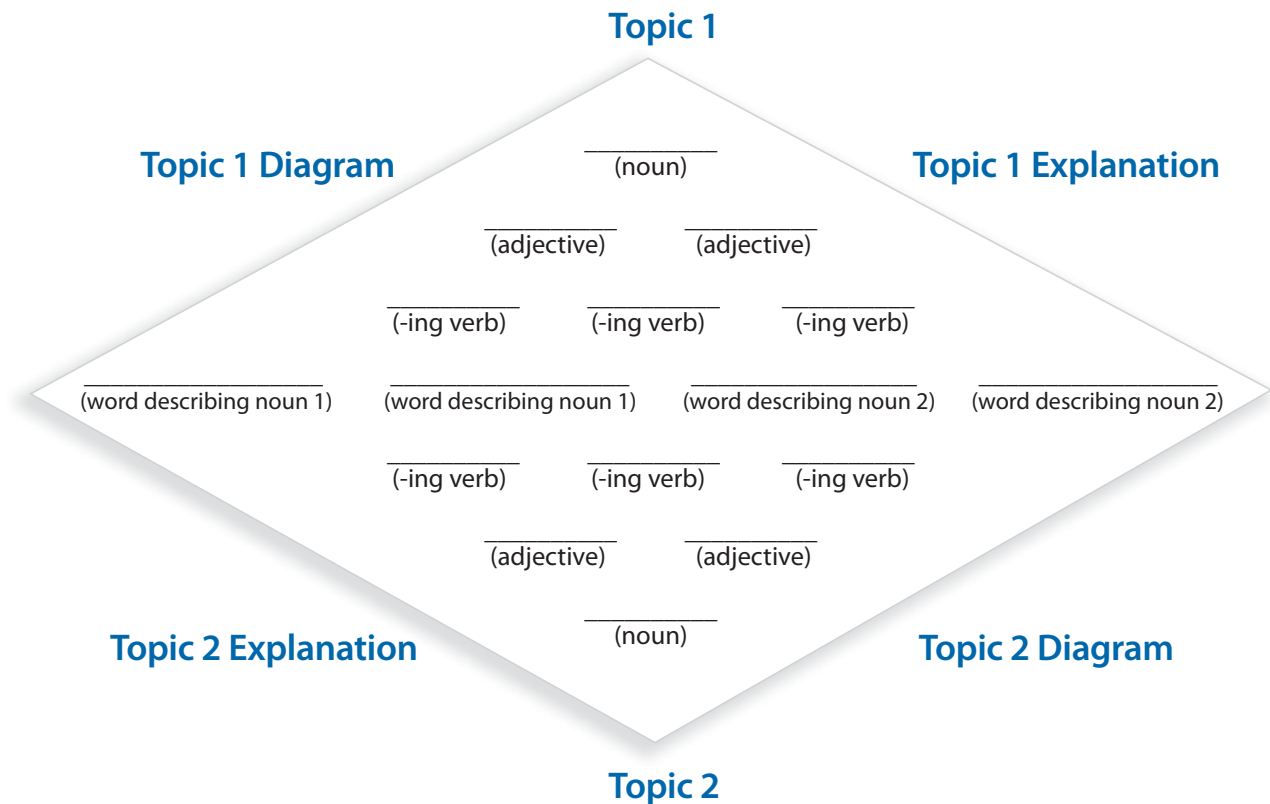
Haiku: Poetry

Purpose: *Limit student writing length to select most powerful words.*

Haiku is a minimalist, contemplative poetry style from Japan that emphasizes nature, color, season, contrasts, and surprises. Usually it has three lines and 17 syllables distributed in a 5-7-5 syllable pattern. It should show a sensation, impression, or drama of a specific fact or concept. It may require several haikus to illustrate a complete concept. Be sure to make the poem make sense and convey a clear thought even though you have a limited numbers of words. *Poetry does not just list words!*

1. Follow the strict pattern to demonstrate understanding of the assigned concept, vocabulary, event, or figure.

2. Create a border for the poem or include multicolored artwork reflecting the topic.

3. There must be a short three- to five-sentence explanation telling how the haiku shows an understanding of the assigned topic.

Cinquain: Poetry

Purpose: *Limit student writing length to select the most powerful words.*

A cinquain is a five-line poem written about a single concept, object, or idea. The format is a short, unrhymed poem of 22 syllables and five lines. The five lines contain 2, 4, 6, 8, and 2 syllables. Each line is supposed to deal with a specific aspect of the cinquian's topic. Be sure the poem makes sense and conveys a clear thought even though you have a limited number of words. *Poetry does not just list words!*

1. Write a cinquain on the assigned concept.

   The first line consists of two syllables/one word (the title).

   The second line consists of four syllables/two words (describes the title).

   The third line consists of six syllables/three words (states an action).

   The fourth line consists of eight syllables/four words (expresses a feeling).

   The last line consists of two syllables/one word (another word for the title).

2. Create a multicolored illustration of the concept to the right of the cinquain.

3. Write a one-paragraph explanation of how the cinquain and illustration relate to the assigned topic below the cinquain.

Raindrop

Moisture, Falling

Sustain, Nourish, Cleansing

Teardrop, Diamond, Dropping, Earthward

Dewdrop

Limerick Assignment: Poetry

Purpose: *Limit student writing length to select most powerful words.*

A limerick is a five-line poem with a strict sound pattern as follows: Da DUM da da DUM da da DUM. The last words of the first, second, and fifth lines rhyme with each other. The first, second, and fifth lines are longer than the third and fourth lines. The last words of the third and fourth lines rhyme with each other. Your limerick must be school appropriate and G or PG rated. Be sure that the poem makes sense and conveys a clear thought even though you have a limited number of words. *Poetry does not just list words!*

1. Write a limerick to address the assigned concept, vocabulary, event, or figure.

2. Create a multicolored illustration about the topic following the limerick.

3. Write a one-paragraph explanation of how the limerick and illustration relate to the assigned topic below the limerick.

Fables: Genre Writing

Purpose: *Create a short story with a moral to illustrate a concept.*

A fable is a short story with animals as main characters. There is a moral or point to this story of two to three paragraphs.

1. Write a fable that highlights the assigned concept.

2. Include and underline the moral or point to the story in the last paragraph.

3. Create a multicolored illustration showing the key concept following the fable.

4. Write a one-paragraph explanation of how the fable and illustration relate to the assigned topic to the right of the illustration.

Acrostic Poem: Poetry

Purpose: *Limit student writing length to select the most powerful words.*

An acrostic poem uses a word for its subject. This type of poetry does not have to rhyme, but it does need to make sense. *Poetry does not just list words!*

1. Write the assigned concept vertically (up and down).

2. Write words, terms, and concepts related to the term horizontally (back and forth) off the letter in the vertical term. The letter may be the start of a word or in the center of a word—*teacher's choice!*

3. Create an illustration representing the term or word following the acrostic poem.

4. Write two paragraphs of three to five sentences explaining how the horizontal words and terms AND the illustration fit the vertical term.

Rhyming Poem: Poetry

Purpose: *Demonstrate concept mastery in restricted format.*

The poem must use the assigned vocabulary terms or concepts. This poem includes a title reflecting the major concept, vocabulary, event, or figure of the poem. The poem includes a minimum of five couplets (two lines which rhyme with each other) and five vocabulary terms. Be sure that the poem makes sense and conveys a clear thought even though you have a limited numbers of words. *Poetry does not just list words!*

1. Write a rhyming poem using at least five vocabulary terms.

2. Highlight vocabulary terms.

3. To the right of the poem, create a multicolored diagram with at least one vehicle, one animal, and one vegetable.

4. Below the poem and illustration, write a minimum of two paragraphs which explain how the poem and illustration demonstrate the assigned topic.

Letter to the Editor: Genre Writing

Purpose: *Write a letter to the editor expressing an opinion about a scientific concept, event, or figure.*

Letters to the editor have a definite point of view and express an opinion about the topic. This letter will be two to four paragraphs long and addresses an assigned concept, vocabulary word, event, or figure. It includes a minimum of five vocabulary terms and five scientific facts to support your opinion.

1. Write a letter to the editor about the assigned concept, vocabulary, event, or figure. Use formal letter writing formats.

2. Create a multicolored illustration showing the concept.

3. Write a minimum of two paragraphs which explain how the letter and illustration demonstrate the assigned topic.

Newspaper Article: Genre Writing

Purpose: *Write a newspaper article about a scientific concept, event, or figure.*

Newspaper articles focus on facts such as the five Ws: who, what, when, where, and why about the topic. These articles include interesting facts that people can use in everyday conversation and are written for the everyday person. New vocabulary must be explained so that the reader understands the information. The format includes the article title, the byline, and the story. Make sure all ideas are expressed in your words. Give credit for ideas that are not yours in MLA or APA style.

1. Write a two- to three-paragraph article suitable for the school newspaper about the assigned concept, vocabulary, event, or figure. Include at least two interesting facts people could use in common everyday conversations and a minimum of five vocabulary terms underlined in the text.

2. Create a multicolored graphic or diagram to support the article that represents the concept or equation being applied or shares interesting data. Include a caption of two to three sentences explaining the graphic.

Box of Colors: Analogy Writing

Purpose: *Demonstrate content mastery in a strict format.*

As part of a campaign to make learning more color-conscious, colored markers are given names describing both the color and concept, vocabulary, event, or figure.

1. Sketch a crayon or marker box with a minimum of six colors of crayon sticking out of the box: blue, red, green, yellow, and two of your choosing.

2. Name each color as seen on the crayon wrappers using scientific concepts and color words. Examples are "Revolution Red" or "Photosynthesis Purple."

3. Select crayon colors that relate to the scientific concept.

4. Draw the outside of the box with a slogan to entice people to purchase this mix of colors.

5. Create a safety warning label across the bottom of the box.

6. Write a one-paragraph explanation of the reasons that the colors naturally fit together and are related to each other.

Clothing Line: Analogy Writing

Purpose: *Create an analogy for a scientific concept.*

Your love of learning and fashion has led you to the owner of a company offering a clothing line named after an assigned concept.

1. Describe one item from the clothing line and how it represents the concept.

2. Create a multicolored illustration of the article of clothing with the logo advertising the concept. One portion of the logo must use or apply the concept as part of the illustration.

3. Write two to three paragraphs which describe how the name of the clothing line will help it sell, how the illustration shows the concept, and how wearing the clothing would help a student learn the information behind the concept.

Toy Design: Analogy Writing

Purpose: *Create an analogy for a scientific concept.*

Apply your knowledge of fun and learning to design the hottest and bestselling toy of the season. It must be able to fit into a standard backpack. The toy must apply an assigned concept and not cause serious bodily injury as part of normal use. As part of the campaign to promote sales the following information must be provided:

1. What is the name of the toy?

2. What is the basic concept used when playing with the toy?

3. What are the most fun features of the toy?

4. What age group is the toy designed to reach?

5. How will playing with the toy help teach the concept?

6. Make a multicolored illustration of the toy being used by a happy consumer.

7. Use at least two paragraphs to describe the slogan to sell the toy. Part of the slogan must contain an everyday application applying the toy's concept.

Public Service Announcement (PSA): Genre Writing

Purpose: *Demonstrate concept mastery through a public service announcement.*

You are charged with writing a public service announcement on an assigned concept. The PSA must be no longer than 30 seconds when read aloud. The concept, event, or figure must be identified at least twice during the PSA and include a minimum of five vocabulary terms or phrases from the current unit.

1. Write the PSA so it is no longer than 30 seconds when read aloud. Include a minimum of five vocabulary terms. Underline each vocabulary term.

2. Write a one-sentence declaration of the organization responsible for developing the PSA following the PSA.

3. Create a multicolored billboard or sign for the side of a bus advertising the PSA. The science concept must be addressed here.

4. Write a two-paragraph explanation of how and why the PSA would influence people to better understand the main concept, event, or figure.

T-Shirt Design: Visual Writing

Purpose: *Demonstrate concept mastery in visual format.*

Design a slogan and artwork for a T-shirt representing one of the assigned concepts, events, figures, variables, or terms. Include artwork and slogan for T-shirt.

1. Design the front and back of a T-shirt with multicolored artwork showing the concept, event, figure, variable, or term on at least one side.

2. The back of the shirt must have a one- or two-line "cute or clever (but clean)" saying/slogan using the concept, event, figure, variable, or term.

3. Write two paragraphs explaining how the artwork and saying explain the concept.

Radio Commercial or
Thirty Seconds of Fame and Glory: Audio Writing

Purpose: *Demonstrate mastery of homework concept in limited format.*

Write a 30-second (maximum) radio commercial advertising the assigned concepts. The main message must reflect the assigned content.

1. Write a radio commercial that does not exceed 30 seconds in length and focuses on the main idea of the assignment. Include five vocabulary terms and underline each.

2. Include three sound effects (PG rated) in your commercial by describing the sound effect or music that would accompany the commercial. List these in parentheses.

3. Create a multicolored illustration showing a print advertisement to accompany the radio campaign.

4. In a paragraph, explain how both the radio commercial and the print advertisement meet the key points of the assignment.

Song or Rap: Poetry

Purpose: *Demonstrate concept mastery in strict format.*

Write a song that explains the assigned concepts. Underline key vocabulary words. Include a minimum of five terms.

1. Use a song, tune, or nursery rhyme familiar to you.

2. Create a multicolored illustration of the cover art for the CD or computer icon for the song showing an understanding of the assigned concepts.

3. Write a two- to three-paragraph explanation that clarifies how the art and the song support each other and demonstrate the scientific concept.

4. Present the song to the class in person.

Designing a Magazine Ad: Visual Writing

Purpose: *Demonstrate mastery of a concept in limited format.*

Design a magazine advertisement on one of the assigned concepts for a favorite magazine of teenagers or young adults.

1. At the top of the page, write the magazine title.

2. On the top half of the left side of the INB, create the multicolored advertisement. It must be no more than a half page in length. The ad is limited to 15 words of copy (text).

3. Below the advertisement, write at least two paragraphs that explain why the magazine was selected, how the artwork gets across the concept or equation used, and why the claims or selling points help explain the importance or develop the understanding of the concepts.

Don't Break the Bank: Summary Writing

Purpose: *Demonstrate concept mastery using limited word count.*

Words are at a premium these days, and messages are capped even on tweets and cell phone text messages. At ten cents per word, you have three dollars to spend on a message to explain the concept, event, figure, or variable.

1. Explain the assigned concept in 30 words or fewer.

2. Create a multicolored illustration that shows the key points of the assigned concept.

3. Write no more than two paragraphs explaining how the illustration and message are related to the assigned concept, event, figure, or variable.

Equation Bookmark: Visual Writing

Purpose: *Demonstrate concept mastery in visual format.*

Design a bookmark that is no more than 5 cm wide and 20 cm long.

On the Front

1. Draw a multicolored picture or illustration representing the main concept.

2. Write the assigned equation.

On the Back

1. Write the assigned equation.

2. Describe each variable in the equation.

3. Identify the correct units for each variable in the equation.

4. Write a paragraph to explain how the front illustration shows the equation in use. Highlight key vocabulary terms in the explanation.

A Fibonacci Sequence Poem: Poetry

Purpose: *Demonstrate concept mastery in limited format.*

Write a poem following the beginning of the Fibonacci sequence (1, 1, 2, 3, 5, and 8). The numbers represent the number of words to be used in each line of the poem. The poem must use at least five vocabulary terms and reflect a major concept. Be sure to make the poem make sense and convey a clear thought even though you have a limited number of words. Poetry does not just list words!

1. Write a title reflecting the major concept of the poem on the top of the left side of the INB.

2. Write the Fibonacci sequence poem:

    > **Line 1:** One word

    > **Line 2:** One word

    > **Line 3:** Two words

    > **Line 4:** Three words

    > **Line 5:** Five words

    > **Line 6:** Eight words

3. At least five vocabulary terms must be used. Underline them!

4. Create a multicolored diagram reflecting the assigned concept, event, figure, or variable with at least one plant, one historical figure, and one piece of sports equipment. In the diagram, some aspect of the Fibonacci sequence must be represented.

5. Write at least three paragraphs explaining how the poem and diagram demonstrate the assigned topic and how the Fibonacci sequence is represented in the diagram.

Portmanteau Words: Blending Words

Purpose: *Develop vocabulary by creating new words.*

Lewis Carroll coined the word *portmanteau* in *Through the Looking Glass*. Portmanteau is now used to describe the process of combining words to create a new one. Many words used in today's language are portmanteau words.

Sample portmanteau words:

because	by + cause	**fortnight**	fourteen + nights
breathalyzer	breath + analyzer	**ginormous**	giant + enormous
brunch	breakfast + lunch	**goodbye**	God + be (with) + ye
motel	motor + hotel	**guesstimate**	guess + estimate
Muppet	marionette + puppet	**hassle**	haggle + tussle

Create a portmanteau term using two of the assignment vocabulary terms.

1. Write the created portmanteau term at the top of the page with the words it blends underneath.

2. Write a one- or two-sentence definition of the created portmanteau underneath the blended terms.

3. Write a series of sentences allowing a person to figure out what the created portmanteau term means from the context clues in the sentence.

4. Make an illustration showing the portmanteau in action.

5. Write at least two paragraphs explaining how the sentences and diagram explain what the created portmanteau means. Be sure to highlight vocabulary terms used in the explanations.

6. Write a paragraph explaining why the created portmanteau should be adopted and used and what *major concept* with which it would be most appropriately associated.

Vehicle Name

Purpose: *Demonstrate concept mastery in limited format.*

As part of the design team for a new model vehicle, you must select a name for the model. The name must reflect the vehicle's abilities and an assigned concept. Include the following:

1. What is the model name of the vehicle?

2. Explain how the model name of the vehicle fits its abilities.

3. Write the advertising slogan to be used to represent and show the vehicle. At least two related vocabulary terms must be used in the slogan.

4. Create a multicolored magazine advertisement showing the vehicle and emphasizing its abilities and name.

5. Explain in at least two paragraphs how the slogan and magazine advertisement represent the concept.

Free Fall Sporting Event

Purpose: *Demonstrate concept mastery in limited format.*

Newtonia is a new, non-injurious sporting event that requires a team of players to work together to win. The sporting event will take place in free fall (no apparent gravity) inside a large air filled bubble.

Players are *not* allowed to use any electrical devices or electronic enhancements. The sporting event must apply at least five different concepts, events, figures, or variables during play.

1. Write the rule or rules to win.

2. Describe and illustrate the uniform or equipment needed to play.

3. Write each of the concepts or principles to be applied during the game and describe how applying each will help a team win the game.

4. Describe any special problems that would have to be solved due to the game being played in free fall (no apparent gravity).

Tree Timeline

Purpose: *Demonstrate understanding of a sequence of events.*

Create a timeline showing the development, major figures, technological and social developments, and consequences of a major event. The event is the "trunk" of the tree. The ground needs to list the major and minor conditions leading to the major event. An illustration of each condition must be made around the term.

1. Each of the major figures, technological and social developments, or consequences is a "branch" off the trunk.

2. Each branch has leaves or fruit developed from the major event. Diagrams, sketches, and representations of the figures, technological or social developments, or consequences are the "fruit" hanging off the branches.

3. Write a short advertisement describing what was made or developed from the "wood" and "fruits" of the tree.

4. Write a minimum of three paragraphs about the tree, growing conditions, and fruit. At least one paragraph describes the growing conditions needed for the event. At least one paragraph describes the fruit of the tree. At least one paragraph must explain the claims and statements of the advertisement.

Writing

- 2-Column Notes
- 3-Column Notes
- Cornell Notes
- Interactive Notebooks
- Learning Logs
- Quickwrites
- Summaries
  - DLIQ
  - Say–Do–Mean
- One-Pager

- Process Writing
  - Prewriting
  - Drafting
  - Reader Response
  - Revising
  - Editing
  - Final Draft/ Publishing
  - Self-Evaluation/ Reflection
- Dialectical Journal
- 3–2–1
- Sentence Frames
- Timed Writing

Inquiry

- Socratic Seminar
- Philosophical Chairs
- Costa's Levels of Thinking and Questioning

- Tutorials
- Collaborative Study Groups

Collaboration

- Gallery Walk
- Jigsaw
- Numbered Heads Together
- Four Corners
- Give One/ Get One
- Inside/Outside Circle or Parallel Lineups ("Conga Line")

- Note-Checking Pairs
- Think–Pair–Share
- Whip Around
- Team Huddle
- Stand–Share–Sit ("Stand and Deliver")

Organization

- Binders/Organizational Tools
  - eBinders
- Calendars, Planners, and Agendas
- Graphic Organizers
- (SMART) Goals
- Time Management
- Backwards Mapping
- Portfolios

Reading

- Vocabulary Building
- Word Wall
- Deconstructing Reading Prompts
- Anticipation Guides
- KWL
- Marking the Text
- Writing in the Margins
- Charting the Text
- Reciprocal Teaching
- Rhetorical Précis
- Text-Dependent Questions

???

- 10–2–2
- Academic Language Scripts
- 3-Part Source Integration

Section 1.9

Setting Up The Interactive Notebook

Introduction

The AVID science organizing tool is the Interactive Notebook (INB). It is a tool that teachers and students can use to organize the content information of the course. The INB is quite similar to a scientist's lab notebook filled with data, hypotheses, conclusions, and new experiments.

In this lesson students will set up their spiral or bound Interactive Notebooks so they can be used to record information (INPUT), filter it (PROCESS), and produce a product (OUTPUT). They will number the INB pages and glue reference pages into the notebooks. For many of the students, this will be their first time to use this organizational tool. In the beginning they may not see the value of the notebooks, but as the course progresses, they will soon find that the notebooks are important to their academic success in science and that this method of organizing, learning, and thinking is enjoyable.

Timeline

50–60 minutes to set up the INB the first time. Time will vary over the course of the first few weeks after the set-up depending on the classroom management and room set-up. The time requirement decreases daily as students become familiar with using the INB.

Objectives: The Students Will . . .

• Set up and use the Interactive Notebook organizational system

WICOR Strategies

All of the WICOR strategies are used when the notebooks are implemented in a content class

National Science Education Standards

Standard A (Grades 5–8): Science as Inquiry

- Identify questions that can be answered through scientific investigations.
- Develop descriptions, explanations, predictions, and models using evidence.
- Communicate scientific procedures and explanations.

Standard A (Grades 9–12): Science as Inquiry

- Identify questions and concepts that guide scientific investigations.
- Communicate and defend a scientific argument.

Materials

- Scissors
- Colored pencils or markers
- Spiral or bound notebook with heavy cover

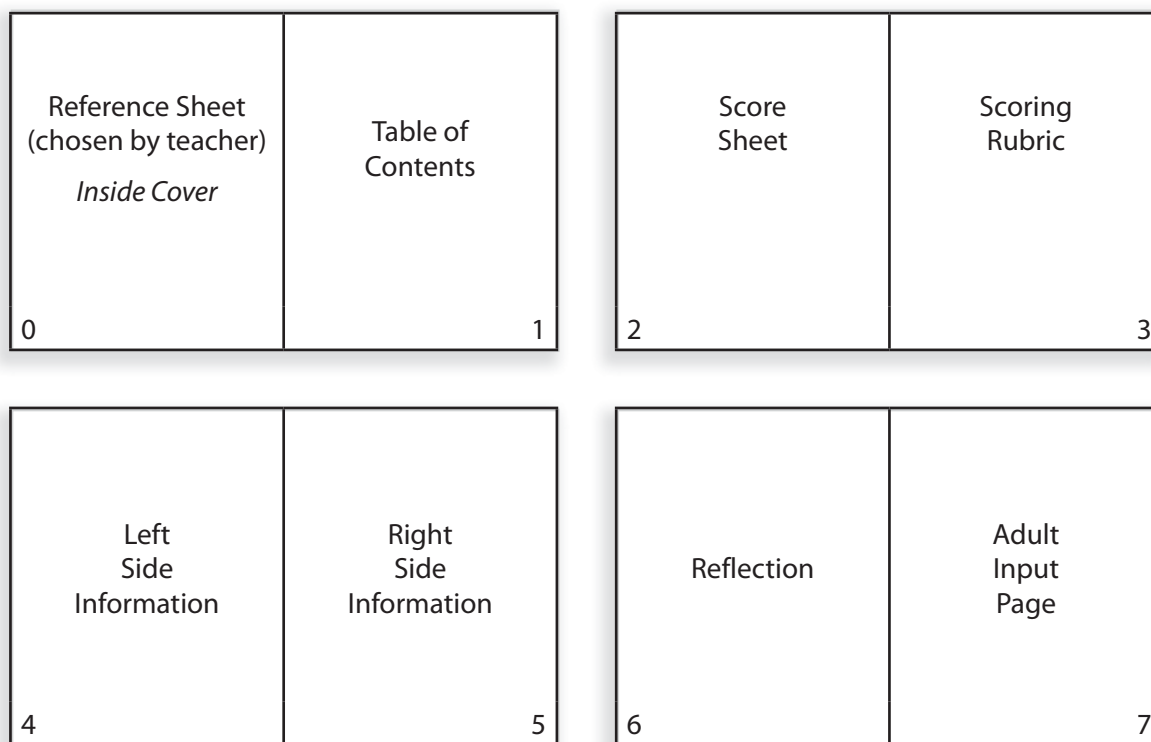- Pens/pencils
- Highlighters
- Glue sticks

Handouts

Student Handout 1.9.1:   *INB Letter-Grade Rubric*

Student Handout 1.9.2:   *INB 5-Point Scoring Rubric*

Student Handout 1.9.3:   *INB Score Sheet*

Student Handout 1.9.4:   *Interactive Notebook Table of Contents*

Student Handout 1.9.5:   *Keeping Interactive Notebooks in Science: The Right Side*

Student Handout 1.9.6:   *Keeping Interactive Notebooks in Science: The Left Side*

Student Handout 1.9.7:   *Keeping Interactive Notebooks in Science: The Reflection*

Student Handout 1.9.8:   *Adult Input Page (Multiple Response)*

Student Handout 1.9.9:   *Adult Input Page (Single Response)*

Teacher Reference 1.9.10: *Processing Activity Samples*

Teacher Reference 1.9.11: *Interactive Notebook Sample*

Teacher Directions

- Read and review the introductory information on Interactive Notebooks before beginning this lesson.

- Introduce students to the INB by briefly explaining what it is and how it will be used. Emphasize to students that the INBs are valuable organizational and learning tools.

- Build your own skeleton INB as the students build theirs.

- Ask students to number the pages of their notebooks starting with 1 on the lower right side of the first blank page—right-side pages are odd numbers, and left-side pages are even numbers. They should number pages 1–20 in their INBs. The remainder of the pages can be numbered later.

- In keeping with the idea that students are creating an individual book, they will create a reference section at the start of the INB. This will require scissors, glue sticks, and photocopies of the handouts. The reference sheets provided are important ones for students to keep in their INBs, but you may also choose to use additional reference pages that are important for your content area.

- Distribute the handout sheets to the students. Have them trim the edges of each handout so that it fits on the appropriate page of the INB as shown in the diagram below. Do this together as a class to ensure accuracy.

Suggested INB Set-Up

Reference Sheet (chosen by teacher) *Inside Cover*	Table of Contents		Score Sheet	Scoring Rubric
0	1		2	3

Left Side Information	Right Side Information		Reflection	Adult Input Page
4	5		6	7

- If desired, you can have students place an important reference page specific to your course on the inside cover of the INB. This can be a periodic table, formula sheet, lab report format, unit syllabus, or any other page that would be useful to the students. You could also have students create a table for recording important terms or equations and their page numbers in the INB.

- Briefly introduce how each of the handout pages will be used:

  Letter-Grade Rubric or *5-Point Scoring Rubric:* Choose which of the rubrics you prefer to use (5-point rubric, letter-grade rubric, or another one of your choice). The rubrics describe the general, basic criteria for assignments and can be used when the teacher reviews student work or when students review their own assignments. You can substitute number grades in the letter grade rubric or use your school's number grades that correspond to the letter grades.

  Score Sheet: The score sheet provides a location to enter INB grades on an ongoing basis.

  Table of Contents: Students should enter the title and page numbers at the time of each activity.

  Keeping Interactive Notebooks in Science: The Right Side: This page provides guidelines and examples for the INPUT information for the INB.

  Keeping Interactive Notebooks in Science: The Left Side: This page lists examples of the types of processing assignments students can use to illustrate understanding of content information.

  Reflections: Students will use this page to reflect on their learning at the end of a unit, which will help them improve their future work.

  Adult Input Page (multiple response or single response format): The adult input page provides a place for the parent/guardian or other adult to review and comment on student work. The multiple response format can be glued onto the inside back cover of the INB. The single response format will be used after a unit or grading period and can be glued under the student reflection page for the unit.

- After the notebooks are prepared for use, emphasize to students how extremely valuable the INBs will be to them throughout the science course. Also let them know how you will use the INBs and how and when they will be graded.

Differentiation Strategies

- Refer to the "Differentiation for Student Population Groups" information in the introduction to the Interactive Notebook, Section 1.8.

Rubrics

- The rubrics provided use a holistic overview of the INB based on student implementation of the left page-right page guidelines. A required element is commentary from a parent or another adult. Other options include creating a checklist for the required elements or assignments for the unit.

INB Letter-Grade Rubric

A	• Contents are complete, dated, and labeled • Left sides/right sides show mastery pattern of organization • Notes are Cornell style with excellent questioning as well as going beyond basic requirements • Notebook integrates other sources of information • Demonstrates extensive left-side processing of information • Uses color in a meaningful way throughout notebook • Includes effective diagrams and pictures • Shows excellent, in-depth reflection about the work • Includes adult signature and comments • Pages are numbered correctly
B	• Contents are mostly complete (~2–3 missing/incomplete pieces) • Pages are numbered, dated, and labeled and table of contents current • Left sides/right sides show basic pattern of organization • Notes are Cornell style with questions • Demonstrates some left-side processing of information • Uses color, includes diagrams and pictures • Shows reflection about the work • Includes adult signature
C	• Contents are somewhat complete (~4–5 missing/incomplete pieces) • Pages are numbered, dated, labeled, and legible • Notes are Cornell style with some questions • Left sides/right sides show developing pattern of organization • Left sides include some processing of information • Uses color, includes diagrams and pictures • Contains reflection • Includes adult signature
D	• Contents are partially complete • Pages are numbered, dated, labeled, and legible • Notes are Cornell style • Left sides/right sides show random pattern • Few left sides include processing of information • Has minimal reflection
F	• Contents are too incomplete to evaluate • Some attempt at maintaining entries is made • Left sides/right sides show little pattern • Minimal left-side processing of information/No reflection

5-Point Scoring Rubric

5	• All requirements exceed expectations • Notebook contents are complete, dated, labeled, and organized • Information on right-side and left-side topics is correct • Notes are Cornell style, with questions • Displays superior understanding of content material • Well-developed processing assignments that use color and effective diagrams • In-depth reflection about the work done
4	• All requirements are evident • Notebook contents are almost complete, dated, labeled, and organized • Information on right-side and left-side topics is correct • Notes are Cornell style, with questions • Displays good understanding of content material • Satisfactory processing assignments that use color and effective diagrams • Thorough reflection about the work done
3	• Most requirements are evident (one or two are missing) • Notebook contents are almost complete, dated, labeled, and organized • Notes are Cornell style, with some questions • Information on right-side and left-side topics is mostly correct • Displays limited concept of understanding of content material • Processing assignments incomplete or lack use of color and effective diagrams • Shows reflection about the work done
2	• Most requirements are evident • Notebook contents are incomplete or not dated, labeled, or organized • Notes are Cornell style, with few or no questions • Information on right-side and left-side topics is partially correct • Displays superficial understanding of content material • Processing assignments show minimal processing of information • Shows little reflection about the work done
1	• Many requirements not present • Product is very poorly done and poorly organized • Few or no processing assignments included

INB Score Sheet

Grading Period: _____   Name: _____

Week #	Notebook Pages	Notebook Score	Teacher Stamps (# and highlight stamps)	WEEKLY POINT TOTAL	Peer Initials	Teacher Initials or Stamps
1		_____/5	_____ / _____	_____ / _____		
2		_____/5	_____ / _____	_____ / _____		
3		_____/5	_____ / _____	_____ / _____		
4		_____/5	_____ / _____	_____ / _____		
5		_____/5	_____ / _____	_____ / _____		
6		_____/5	_____ / _____	_____ / _____		
7		_____/5	_____ / _____	_____ / _____		
8		_____/5	_____ / _____	_____ / _____		
9		_____/5	_____ / _____	_____ / _____		
10		_____/5	_____ / _____	_____ / _____		

Name of Special Assignment	Score	Date Scored	Peer Initials	Teacher Initials or Stamps
	_____ / _____			
	_____ / _____			
	_____ / _____			
	_____ / _____			
	_____ / _____			
	_____ / _____			
	_____ / _____			
	_____ / _____			
	_____ / _____			
	_____ / _____			

Interactive Notebook

Table of Contents

Unit: _____

Name: _____ Date Submitted: _____

Left-Side Items	Page	Right-Side Items	Page

Notebook Feedback:

Frequent Issues

☐ Weak reflection/no signature   ☐ Missing assignments
☐ Left side/right side confusion   ☐ Content processing does not support content learning

Keeping Interactive Notebooks in Science

The Right Side

Interactive notebooks will be used in class daily to help you learn and remember important science concepts. The right-side notebook page contains the information you put into the notebook and the information you need to learn—the INPUT.

What goes on the right side?

INPUT goes on the right side! Input is all the information that you are supposed to learn. Some examples of input include the following:

- Notes from a lecture or guest speaker
- Text or other source
- Vocabulary words
- Video and film notes
- Procedures

- Readings
- Questions and answers
- Sample problems

The Keys to Fantastic Right Sides
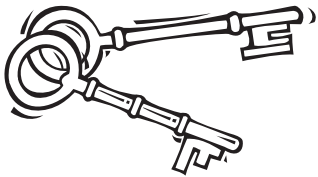
- Right sides have **ODD** numbered pages. Always start the page with the date and title at the top of the page.
- The right page is for writing down information you are given in class. Use Cornell notes for lecture, discussion, text, sample problems, etc. Write up your study questions ASAP.
- Write legibly. Use highlighting and color to make important information stand out.
- Write summaries at the bottom of each page of notes to reduce the amount of information you have to study.

Costa's Levels of Thinking

Level 3	Apply	Evaluate	Hypothesize	Imagine
	Judge	Predict	Speculate	
Level 2	Analyze	Compare	Contrast	Group
	Infer	Sequence	Synthesize	
Level 1	Define	Describe	Identify	List
	Name	Observe	Recite	Scan

Keeping Interactive Notebooks in Science

The Left Side

The left page demonstrates your understanding of the information from the right side of the page. You work with the input and interact with the information in creative, unique, and individual ways. The left side incorporates and reflects how you learn science as well as what you learn in science.

What goes on the left side?

Output goes on the left side. These are products that demonstrate understanding of the topic or content. Some examples of output include the following:

- Brainstorming
- Concept maps
- Riddles
- Illustrations
- Cartoons
- Poetry and songs
- Metaphors and analogies
- Venn diagrams
- Data and graphs you generate
- Analysis writing
- Reflection writing
- Quickwrites
- Four-square analogies
- Mnemonics
- Flowcharts
- Graphic organizers
- Writing prompts
- Other creative avenues for processing information

Things to Know About Left Sides
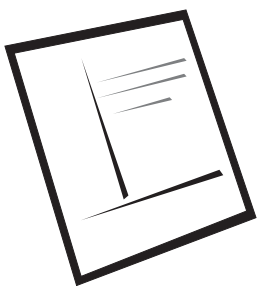
- Left sides have even-numbered pages. Every left-side page gets used and relates to a right side.
- Always use color (minimum of three per page) for learning. It helps the brain learn and organize information.
- Quizzes, tests, and other summative assessments are left-side items.
- Homework problems are left-side items (but they don't take the place of processing your notes!).

12. Make an illlustration explaining the topic.

11. Create a graph.

10. Create a Venn diagram to compare/contrast.

9. Write and solve problems using the information.

8. Create an analogy and an illustration.
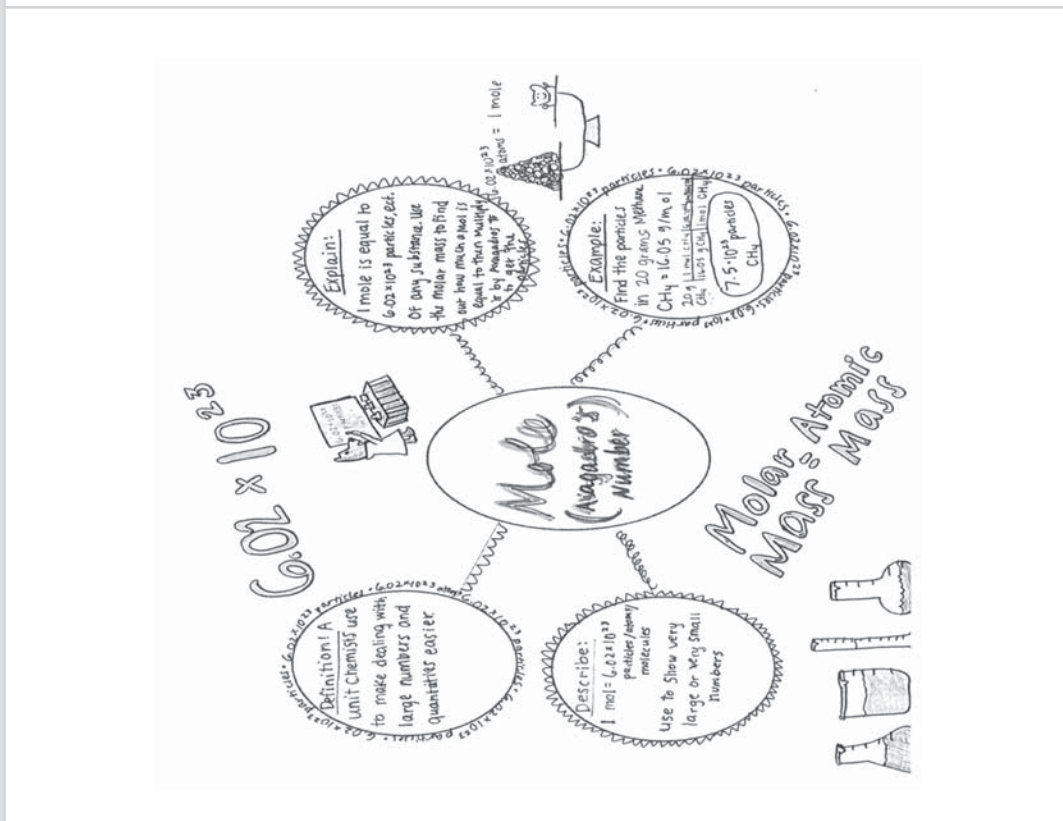
7. Write a letter about the topic to your grandmother.
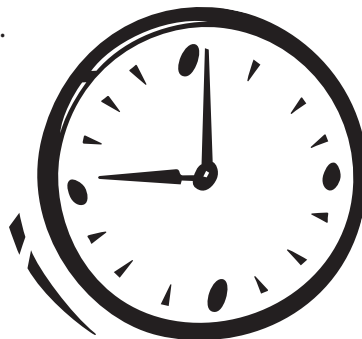
1. Write the lyrics for a song.

2. Create a bookmark for this topic.

3. Write a haiku poem.

4. Create vocabulary cards for 5 most essential terms.

5. Paraphrase information in one sentence.

6. Write four "What if" questions about the topic

Interactive Notebook

Student Sample

One-Pager

Goal: To enhance student investigation of a text through careful reading and visualization.

Key Elements	Information and Procedures
Rationale	One-pagers require students to visualize what they have read and to investigate a text at a variety of levels. One-pagers allow students to collapse information into the most important points and can provide meaningful building blocks for higher-level learning and assignments. Because of the specific requirements for the contents of the page, the process of creating a One-pager leads students to focus on what text is important for interpretation or theme (universal meaning), what visual represents the connections to the students, their world or other texts and what color, if any, ties all the concepts together. The graphic representations have strong metaphorical and analytical application to higher-level thinking. This strategy's versatility is part of its appeal because it is so easily differentiated.
Materials	Short text, such as those provided by *AVID Weekly* Unlined paper Colored pencils or markers

Instructional Steps	1. Assign a short text for reading.
	
	2. Instruct students to choose three passages that they feel are particularly meaningful to the author's central claim or theme. Depending upon the instructions, student choice of what passages are meaningful might include those that represent a character's development, relevance to current world (or personal) events, historic occurrences and so on.
	
	3. Use a standard 8 ½ x 11 sheet of unlined paper.
	
	4. Instruct students to design a One-pager to express thoughts about the text. A One-pager should include a minimum of the following:
	   • Title and author
	   • Three or more passages from the text
	   • One or more graphic representations
	   • A personal response to each passage selected
	   • A border or other decoration as appropriate
	
	5. Guide the students to use the One-pagers in a variety of ways: as a final product, as a pre-writing exercise, a group sharing of reactions to the text, a lead-in to deeper analysis and discussion and of course, room decoration!

One-pagers make excellent five-minute exit tickets for a concept discussed during class. Shorten the required elements to fit the time needed.
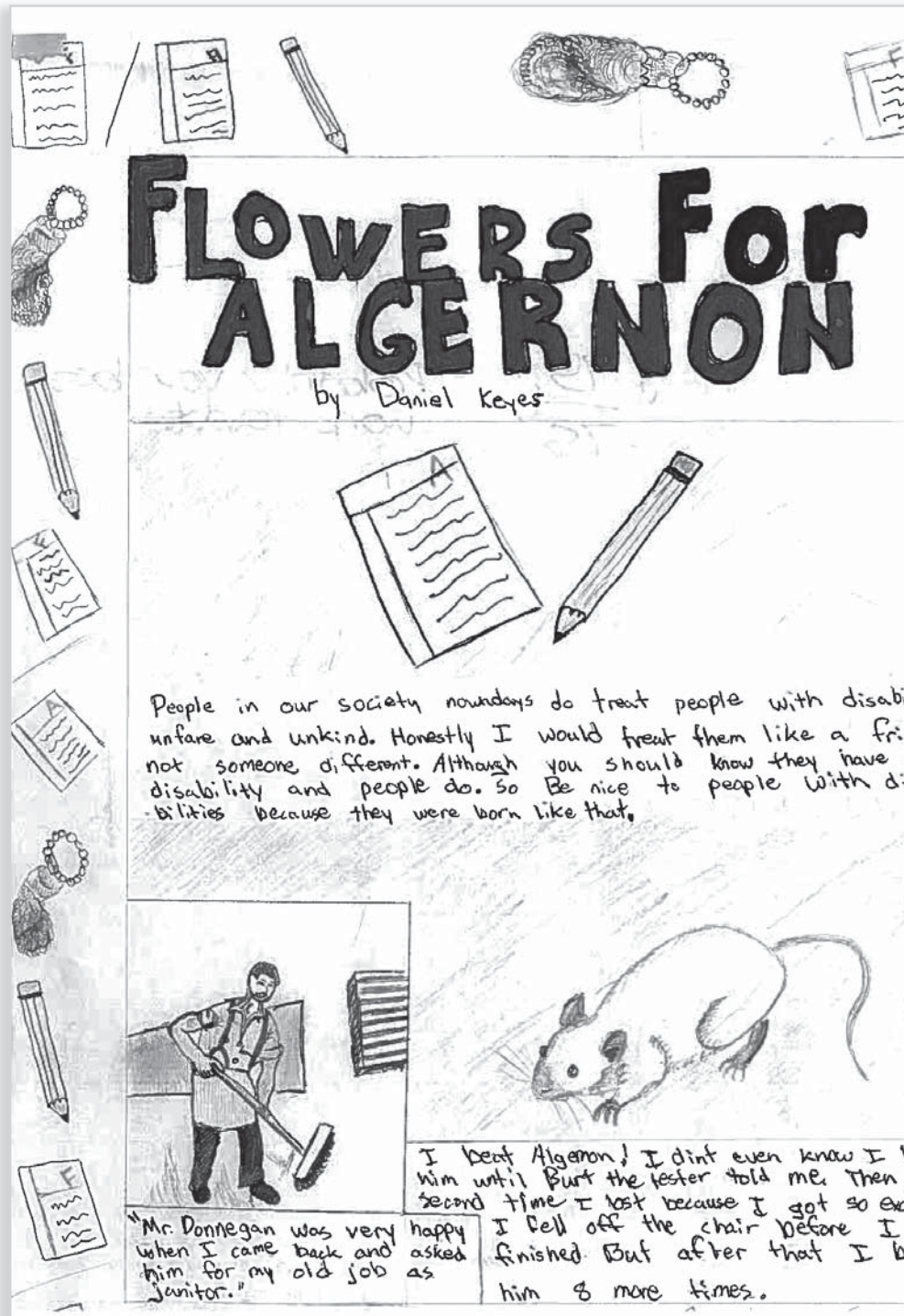
One-Pager Instructions

A One-pager is a written and graphic interpretation on a single sheet of paper of what you have just read. It may be literal or it may be a symbolic representation of the piece. The One-pager will help you visualize what you are reading and help prepare you for other activities that we may complete over this reading assignment.

Guidelines:

- Use standard (8 ½ x 11) unlined paper.

- Fill the entire page.

- Written work must be in ink or typed (no pencils).

- Use color as much as possible (unless black and white would be more appropriate in keeping with the theme/mood.)

- Include ALL of the following (arranged on the page any way you choose):

    - Title and author

    - Three or more excerpts from the reading (passages you like or think are especially important)

    - A personal response to each passage you selected (this may be a personal response, summary or interpretation depending on your assignment)

    - One or more graphic representations (illustrations, magazine pictures or computer-generated graphics that are related to the story and to the passage you selected); these might be illustrative or interpretive depending on the assignment.

- Add a border or any other decoration and you're done!

- When you are finished, put your One-pager on the wall together with the other finished One-pagers. Make sure your first and last name are on the front in a corner. Be prepared to give an oral "tour" of your One-pager.

AVID®
Proven Achievement.
Lifelong Advantage.

One-Pager

FLOWERS FOR ALGERNON
by Daniel Keyes

People in our society nowadays do treat people with disabi[lities] unfare and unkind. Honestly I would treat them like a frie[nd] not someone different. Although you should know they have a disability and people do. So Be nice to people with dis[a]-bilities because they were born like that.

"Mr. Donnegan was very happy when I came back and asked him for my old job as janitor."

I beat Algernon! I dint even know I b[eat] him until Burt the tester told me. Then [the] second time I lost because I got so exci[ted] I fell off the chair before I finished. But after that I be[at] him 8 more times.

One-Pager

A One-Pager is a creative response to your learning experience. It allows you to respond imaginatively while being brief and concise in making connections between words and images. We think about what we see and read differently when we are asked to do something with what we have seen or read. We learn best when we create our own ideas. Your personal thinking about what you have experienced should be understood by the audience that views the One-Pager.

Follow this format for your One-Pager.

☐ Use unlined white paper.

☐ Title the One-Pager appropriately to reflect the content.

☐ Use colored pens, pencils, or markers. The more visually appealing it is the more your peers will learn.

☐ Fill the entire page.

☐ Be purposeful about the arrangement of your One-Pager. For example, have a reason for using a certain color or for placing an object in a certain place.

☐ Write two quotations from the reading or activity. Use the proper grammatical format.

☐ Use three visual images, either drawn or cut out from magazines, to create a central focus to your page. If you use a computer image, personalize it to make it your own.

☐ Place five essential vocabulary words/phrases around the images. These terms/words/phrases should express the main ideas, your impressions, feelings, or thoughts about what you have seen or read.

☐ Write the main idea of the reading.

☐ Write two Costa's Level 2 or 3 questions and answer them.

☐ Put a symbolic colored border around the edges of the page.

☐ Write your name on the back.