



Indiana K-12
Educators' Resource Toolkit
Updated April 2017

**Indiana Academic Standards for
English/Language Arts and
Content Area Literacy (2014)**

Indiana Resource Toolkit

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I. Introduction

The goal of this document is to provide local school districts with guidance for K-12 educators to use in supporting instruction based on Indiana Academic Standards. This document houses resources for selecting text and reading strategies to use when interacting with texts. The IDOE has also included resource links to sites that are ever evolving with new texts and strategies to consider. It is important to keep in mind that literacy can be the bridge across curriculum, culture and interests and the expectation would be that texts would evolve to adapt to students' interests and curriculum.

The Indiana Department of Education's The Learning Connection, hosted at <https://learningconnection.doe.in.gov/>, contains content and grade specific resources along with a forum for locally developed resources to be shared and opportunities for educators to link with others and share ideas.

The Indiana Department of Education will house a Sample Draft List of Reading Selections on the English Language Arts Standards webpage, hosted at <http://www.doe.in.gov/standards/englishlanguage-arts>. However, it is not intended to be a required reading list, nor all inclusive, but rather a sample for districts to use as a model.

Classroom instructional plans should include the careful selection of appropriate reading resources that span all genres. The goal should be for educators to provide as many opportunities to link rich, engaging texts across the curriculum that ensure a variety of genre areas being incorporated into instructional plans based on college and career ready Indiana Academic Standards. The genres that should be considered for read aloud or instruction include the following:

- Fiction: Classic and Contemporary
- Historical Fiction
- Short Stories
- Essays/Speeches (grades 6-12)
- Poetry
- Folklore/Fairytales/Mythology
- Non-Fiction: Science, Social Studies, and Mathematics
- Biography/Autobiography

The types of and difficulty levels of the materials selected should be based on the academic needs and interests of diverse student populations and on the text complexity definitions found in Indiana's "[Guide to Text Complexity](#)." The process for the selection of reading materials should include the following:

- follow local School Board policy or procedures for evaluating and approving locally selected reading materials
- provide a balance of literature and nonfiction reading selections
- provide parent awareness and participation in reading selection options
- consider interests of individual students in the classroom
- consider complexity and appropriateness of grade-level reading resources to support both student independent reading, teacher-guided reading and teacher read-alouds

II. “Things to Consider” for Elementary Grades K-5 Texts

- Books read aloud to students should be on or above grade level.
- Books for shared reading should be at grade level.
- Books matched to the reading levels of students who struggle may be within the grade level.
- Books matched to the reading levels of proficient students may be well above grade level.
- Library policy should not limit student choices on the basis of reading scores.

Furthermore, teachers should

- exercise caution concerning the social appropriateness of fiction or nonfiction that is written above grade level.
- consider selecting informational books and other reading materials on the basis of science, social studies, and career-based standards.
- ensure that the books and other reading materials selected represent a variety of cultures and viewpoints.
- broaden your scope to include online sources, both text and media.

III. “Things to Consider” for Middle and High School Texts

- Reading volume matters for adolescents; provide opportunities for students to read widely and to choose books and other reading materials related to their interests.
- Challenging books and other reading materials can be accessible with teacher support (e.g. by building background knowledge, previewing vocabulary, and providing reading guides).
- Content and Career and Technical Education (CTE) teachers should consider including texts related to curricular topics.
- Classroom and/or library policy should not limit student choices on the basis of reading scores.

Additionally, teachers should

- identify texts in sets that work together to prepare students to read more challenging texts – include appropriate grade-level nonfiction text and literature.
- identify books and other reading materials that represent a variety of interests and reading levels.
- exercise caution concerning the social appropriateness of fiction or nonfiction written above grade level.
- ensure that the books and other reading materials selected represent a variety of cultures and viewpoints

IV. “Things to Consider” for Content Area Literacy Standards and Disciplinary Literacy; Grades 6-12

Foundational literacy strategies support content acquisition across multiple disciplines. However, for students in grades 6–12, coursework, vocabulary, and text structures become increasingly specialized. The advanced ways of reading, writing, and thinking within individual disciplines begin to diverge. For example, the thinking required to compare the characters of Romeo and Tybalt is markedly different than that required to compare the usefulness of three different ways of solving quadratic equations. Through Disciplinary Literacy and the Content Area Literacy Standards, Indiana students can acquire more advanced disciplinary literacy skills when educators recognize and strategically address the unique literacy demands of different contents. Using common strategies within each discipline across grade levels encourages consistency and skill development in each content area. The literacy team can assist teachers within each department to select the most appropriate strategies for their students and for the specific needs of the discipline.

A. English/Language Arts

The discipline of English language arts is heavily dependent on interpretive and inferential thinking. Although the narrative structure of a story is something most students are familiar with, literary analysis involves the capacity to track multiple narratives through a text and to draw connections in a nonlinear fashion. Students examine a number of diverse, complex texts within the secondary English/language arts classroom. From author biographies and memoirs, to novels, short stories, plays and poetry, students will read a variety of texts throughout their 6–12 school careers. Vocabulary in the ELA classroom includes metaphorical and figurative language that requires students to connect highly disparate elements in order to analyze and synthesize information effectively. Students will need to use specific strategies to address literary and textual analysis, as well as increasingly complex vocabulary and figurative language. Several tools in this section focus on building skills that are heavily utilized in the English language arts classroom. [Instruction Tool: Question the Author \(QtA\) \(Template\)](#) encourages students to consider an author’s message, point of view, and/or analysis within the text. The students consider the author’s background, writing style, and evidence within the text to form their conclusions. This is especially useful when completing literary analysis, using a difficult or challenging text. [Instruction Tool: Group Summarizing \(Template\)](#) asks students to determine the main idea and supporting details within the text, and agree upon a group version of the summary. This challenges students to be concise, which can be difficult when using a lengthy piece of text. Finally, [Instruction Tool: Save the Last Word for Me \(Template\)](#) focuses on the identification and use of quotes from a piece of text. Within the English classroom, students are often asked to support their ideas with direct quotes from the text. This strategy allows students to select and organize the most relevant quotes for use in future assignments.

B. Social Studies/History/Humanities

The use of primary documents, nonfiction articles, textbooks, and other historical documents in the social studies/history classroom poses unique needs for students and educators. Research demonstrates that students often struggle with comprehending nonfiction texts. The variety of text sources commonly utilized in these disciplines requires students to anticipate and understand multiple text structures in order to access the content. The structures vary greatly from source to

source, which challenges many students, especially struggling readers. In addition, textbooks often introduce complex, Tier 3 vocabulary terms. In order to fully access the content within these resources, students need high impact strategies to support their learning. The strategies included in this section aid students as they navigate the complex demands of these texts. [Instruction Tool: Textbook Reading Strategy \(Template\)](#) is a six-step method, which includes support before, during, and after the reading process. It is a systematic way of approaching a piece of text. [Instruction Tool: Frayer Model \(Template\)](#) builds students capacity to make sense of the abstract concepts endemic to these disciplines. It asks students to brainstorm essential characteristics versus non-essential characteristics, and then complete their own definition of the term or concept based on their findings. The word sort template asks students to carefully consider and categorize content specific vocabulary. Finally, [Instruction Tool: Proposition Support Outline \(Template\)](#) guides students to gather facts, resources, and examples from multiple sources, while drawing their own conclusions.

C. Science/Agriculture

Scientific disciplines depend heavily on both inductive and deductive reasoning, the precise application of the scientific method as a way of knowing the world, and the ability to learn from dense, concise text.

Within the science classroom, students are asked to read multiple texts, including textbooks with diagrams and charts, detailed lab reports, and complex scientific studies. These types of text generally lack the narrative “story” structure which students are most familiar. Without this content, students must find alternative ways to acquire, process, and analyze new information from the texts, and draw their own conclusions based on their findings.

These are difficult and complex skills, so students need a range of strategies for support throughout the process. [Instruction Tool: Semantic Feature Analysis \(Template\)](#) asks students to focus on certain terms or concepts, comparing them by examining specific features of each. This works well with many scientific concepts and species introduced at the secondary level. [Instruction Tool: Word Sort \(Template\)](#) develops students’ ability to make sense of the large numbers of complex vocabulary common to science classrooms by engaging them in classifying groups of these terms. [Instruction Tool: Science Word Journals](#) encourages students to identify new or unknown vocabulary terms in a science journal. Within the journal, students keep track of the words, how they are used in context, students use the word in a context specific sentence, and they draw a picture or a symbol of the word as a reminder. When students use a journal word, they record the new sentence in their journal as well. Students can be asked to share their words with the class or with a small group. This increases the number of content specific terms students can learn and retain throughout a unit or lesson.

D. Mathematics/Business/Technology

Obviously, mathematics requires a strong sense of numeracy as well as the ability to learn from extremely dense text. However, because mathematics constitutes a language through which mathematicians view the world, the discipline has much in common with world language courses. To learn the language effectively requires students to engage in constant translation of terms from number, to picture, to word, and back again. Academic vocabulary in mathematics—words like proof, solve, and evaluate—have meanings that contrast sharply with those of virtually all other disciplines.

Math relies heavily on both spatial and linear thinking, depending on the field, and requires practitioners to be adept at identifying and classifying patterns. The textbook is often the primary text used in the mathematics classroom, and in it students are frequently required to analyze and interpret graphs, charts, diagrams, and statistics. Without strong comprehension skills, students will struggle to understand word problems, directions, and examples provided in the text.

[Instruction Tool: Five-Step Problem Solving \(Template\)](#) first asks students to examine the problem and to restate it in their own words. The protocol then walks students through the process of planning to solve, solving, and checking their answers for each problem. This tool supports each stage of solving the problem. [Instruction Tool: Math Journals](#), encourages students to write about mathematics. This includes problem solving, learning new terms, drawing, and explaining graphs. Teachers use a daily or weekly prompt to guide student writing in the journals. The journals can serve as a formative assessment and can be monitored for progress and used to drive the instruction process.

E. Fine & Performing Arts/World Language/Physical Education & Health/Technical Education

Students should also read and write in classes such as fine and performing arts, physical education and health, and technical education. Teachers can use many of the cross content literacy strategies to support the literacy needs of students within these classes. The strategies can be adapted to meet the individual needs of the content area, including reading a variety of texts, learning new vocabulary words, and communicating ideas and concepts. [Instruction Tool: Give One, Get One, Move On \(Template\)](#) is especially useful as a review strategy in these areas. In technical education courses that require multiple exposures to concepts or vocabulary, this tool can improve student retention. [Instruction Tool: Quick Writes](#) is a versatile teacher practice that can support students to process information in multiple ways and is useful for all subjects. [Instruction Tool: Question the Author \(QtA\) \(Template\)](#) is helpful in the fine and performing arts as a support for the analysis of art and performances. Because it is a powerful way to build concept understanding, [Instruction Tool: Frayer Model \(Template\)](#) can be used in all of these content areas as well. It is most helpful for helping students build an in-depth understanding of complex ideas. [Instruction Tool: Semantic Feature Analysis \(Template\)](#) is an effective way to help students learn how to analyze and compare multiple characteristics. Students in career and technical courses, for instance, could use this tool to analyze computer languages, types of engines, architects. Art students could compare types of plays, different artists within a movement, and types of painting or anything else that can be categorized. Finally, [Instruction Tool: Five-Step Mathematical Problem Solving \(Template\)](#) is a powerful way to help students break down problems and pose and test approaches to solving them. This makes this tool especially helpful any time a student must design something, plan a piece of art, or build something. Although there are many other tools in this section of the Framework that can be used here, these lend themselves particularly well to the kinesthetic and hands-on work of these courses.

V. Other Considerations

A. Identify your intended audience:

- Primary (Grades K-2)
- Intermediate (Grades 3-5)
- Middle School (Grades 6-8 including disciplinary and CTE)
- High School (Grades 9-12 including disciplinary and CTE)

B. Compiling texts that engage students with:

- a quality literary and reading experience.
- a broad selection of titles covering many genres.
- selections that include both fiction and nonfiction texts.
- reading materials that align with the school's curriculum.
- opportunities for reading outside of school requirements (e.g. pleasure reading, summer reading).
- increased rigor and relevance in a specific content area.

C. Selection of Titles:

Some considerations for the selection process of reading materials might include:

- grade, age and developmentally appropriate literature.
- materials of interest to both genders.
- availability of the reading materials, including electronic formats.
- classic titles and newly published materials.
- varied types of literature (fiction and nonfiction/informational text), including different genres (mystery, science fiction, poetry, drama, biography, essays, sports, read-alouds etc.).
- multicultural interests.
- materials recommended by teachers, media specialists, parents, and students.
- range of authors.
- materials that are likely to engage and interest the reader.
- materials that are of high literary quality.
- range of reading levels to meet the needs of struggling, proficient, and advanced readers.
- varied levels of the same text for exceptional learners to keep their instruction aligned with curriculum and instruction requirements.

VI. Website Resources

The links compiled and posted in this Educator Resource Toolkit have been provided by the Indiana Department of Education and other sources. The IDOE has not attempted to evaluate any posted materials. They are offered as samples for your reference only and are not intended to represent the best or only approach to any particular issue. The IDOE does not control or guarantee the accuracy, relevance, timeliness, or completeness of information contained on a linked website; does not endorse the views expressed or services offered by the sponsor of a linked website; and cannot authorize the use of copyrighted materials contained in linked websites. Users must request such authorization from the sponsor of the linked website.

American Library Association: Recommended Reading

<http://www.ala.org/tools/libfactsheets/alalibraryfactsheet23#yateens>

Indiana County Public Library: Lake County Public Library – Grade Level Lists

<http://www.lcclin.org/kids/reading-lists.html>

TeachersFirst

<http://www.teachersfirst.com/100books.cfm>

International Literacy Associations-Choices Reading Lists

<https://www.literacyworldwide.org/get-resources/reading-lists>

National Science Teachers Association-Outstanding Science Trade Books for Students K-12

<http://www.nsta.org/publications/ostb/>

Notable Social Studies Trade Books for Young People

<http://www.socialstudies.org/notable>

Scott O’Dell Award for Historical Fiction

<http://www.scottodell.com/pages/ScottO%27DellAwardforHistoricalFiction.aspx>

The Charlotte Zolotow Award

<http://ccbc.education.wisc.edu/books/zolotow.asp>

Poetry.org

<http://www.poetry.org/>

Read Alouds Too-Good-to-Miss

<http://www.ilfonline.org/?page=readaloudbooks>

Eliot Rosewater Indiana High School Book Award

<http://www.ilfonline.org/?eliotrosewateraward>

Young Hoosier Book Awards

<http://www.ilfonline.org/?page=YHBA>

VII. Credits

National Council of Teachers of English: *Guidelines for Selection of Materials in English Language Arts Programs* <http://www.ncte.org/positions/statements/selectingelamaterial>

International Reading Association <http://www.reading.org/>

Georgia Department of Education

VIII. Guide to Text Complexity

What is Text Complexity?

Every text has a level of complexity or readability that affects the way the reader interacts with it. Novels, articles, poems, short stories, textbooks, etc. have wide ranges of complexity that are appropriate at different grade levels and for a variety of purposes. An important focus of the Indiana Academic Standards is making sure students are being exposed to texts with increasing complexity in all subject areas as they move toward being college and career ready. While determining the appropriate placement of a text in accordance with the reading standards for text complexity (English/Language Arts Indiana Academic Standards Learning Outcome RL.1 and RN.1/ Content Area Literacy Indiana Academic Standards Learning Outcome LH.1/LH.2 and LST.1/LST.2), it is important to evaluate quantitative measures, qualitative measures, and reader and task considerations.

Quantitative Measurements of Complexity

Quantitative dimensions and factors are those aspects of a text (e.g., word length and frequency, and sentence syntax) that are not easily measurable by a human and are typically measured by a program. While these tools are helpful, they should NOT be the only measures for determining text complexity. Poetry, plays, and texts below a second grade reading level cannot typically be measured by quantitative means.

Multiple measures are recommended when possible.

Qualitative Measurements of Complexity

Qualitative dimensions and factors are those aspects of text complexity (e.g., levels of meaning and structure) only measurable by an attentive reader.

The [Qualitative Considerations for Literature](#) and [Qualitative Considerations for Nonfiction](#) that are included in this document can assist in making finer distinctions about where a text should fall in the grade-level span. There are three categories: accessible, moderately complex, and highly complex. An accessible text should be accessible for students to be able to interact with independently at the low end of the grade-level span. A moderately complex text may require scaffolding for students at the low-end of the grade-level span, but should be accessible with no scaffolding once they reach the middle or high-end of the grade-level span. A highly complex text will require scaffolding for students until they reach the high-end of the grade-level span, at which point they should be able to interact with the text independently.

Reader and Task Considerations

Reader and task considerations can be individual to schools, classrooms, and students. This includes taking factors like cognitive capabilities, reading skills, and motivation into consideration.

Also included in this document are [Suggested Considerations for Reader and Task](#).

IX. Measurement of Complexity for Literature

(TEMPLATE)

Text Title:

Genre:

Quantitative Measure(s):

Qualitative Considerations:

How much background knowledge is necessary to understand the text?

(Consider cultural familiarity and literary knowledge necessary to understand allusions to other works)

Does the text have a single level of meaning or are there multiple/hidden levels of meaning?

(Consider the clarity of the theme(s))

How is the text structured?

(Consider if the structure is conventional or unconventional, if there is a single narrator or multiple narrators, if events are related in chronological order or if there are flashbacks and other manipulations of time)

What are the language features of the text?

(Consider if the language used is mostly literal or figurative, clear or abstract, familiar/contemporary or archaic/jargon)

How are illustrations/graphics (if included) used?

(Consider if they add clarification or add to the complexity)

Holistically, this text should be considered: ACCESSIBLE MODERATELY COMPLEX HIGHLY COMPLEX
for grade _____

Text Title: *Charlotte's Web* by E.B. White

Genre: Classic Literature (novel)

Quantitative Measure(s): Lexile 680L, AR 4.4, DRA 40

Qualitative Considerations:

How much background knowledge is necessary to understand the text?

(Consider cultural familiarity and literary knowledge necessary to understand allusions to other works)

- The general understanding of a farm may be helpful to understanding the setting, but not necessary. No additional literary knowledge is necessary for understanding the story. The text should be accessible without much prior background knowledge.

Does the text have a single level of meaning or are there multiple/hidden levels of meaning?

(Consider the clarity of the theme(s))

- The text has a single level of meaning with multiple themes that may be moderately complex for a reader. The complexity of the meaning comes from two of the central themes- the cycle of life and death and appreciating life. The themes are fairly straight forward but would still require careful reading for understanding.

How is the text structured?

(Consider if the structure is conventional or unconventional, if there is a single narrator or multiple narrators, if events are related in chronological order or are there flashbacks and other manipulations of time)

- The structure of the text should be accessible for students. The narration is consistently third-person with a shift in focus from Fern, at the beginning of the story, to Wilber.

What are the language features of the text?

(Consider if the language used is mostly literal or figurative, clear or abstract, familiar/ contemporary or archaic/jargon)

- The meaning is largely literal and familiar with some figurative language (e.g., "like a delicate veil" and a reference to St. Vitus' dance). There are some higher-level vocabulary (e.g., *compunctions*, *idiosyncrasy*, and *monotonous*). The occasional use of higher-level vocabulary makes the language features moderately complex.

How are illustrations/graphics (if included) used?

(Consider if they add clarification or add to the complexity)

- Illustrations may contribute to helping readers picture scenes in the story, like Charlotte wrapping up a bug in a web. The illustrations add to the accessibility of the text.

Holistically, this text should be considered: **ACCESSIBLE** MODERATELY COMPLEX HIGHLY COMPLEX for the grade 4-5 span.

X. Measurement of Complexity for Nonfiction

(TEMPLATE)

Text Title:

Genre:

Quantitative Measure(s):

Qualitative Considerations:

How much background knowledge is necessary to understand the text?

(Consider content-specific knowledge and references/allusions to other works)

How clear are the purpose, point of view, and central idea of the text?

(Consider if they are explicitly stated or implicit)

How is the text structured?

(Consider if it is a familiar structure [e.g., chronological] or a more complex structure that may be unfamiliar to students at this level)

What are the language features of the text?

(Consider if the language used is mostly literal or figurative, clear or abstract, familiar/contemporary or archaic/jargon)

How are illustrations/graphics (if included) used?

(Consider if the illustrations/graphics add clarification or add to the complexity)

Holistically, this text should be considered: ACCESSIBLE MODERATELY COMPLEX HIGHLY COMPLEX
for grade _____

(SAMPLE ANALYSIS)

Text Title: *The Voice that Challenged a Nation: Marian Anderson and the Struggle for Equal Rights* by Russell Freedman

Genre: Biography

Quantitative Measure(s): Lexile 1180, 8.2 AR

Qualitative Considerations:

How much background knowledge is necessary to understand the text?

(Consider content-specific knowledge and references/allusions to other works)

- Some background of the Civil Rights Movement is helpful in understanding the challenges faced by Marian Anderson and the importance of her impact on the country.

How clear is the purpose, point of view, and central idea of the text?

(Consider if they are explicitly stated or implicit)

- The purpose and central idea of the text are clear but somewhat complex. This is a biography of Marian Anderson that illustrates her musical career, social struggles she faced, and her impact on the Civil Rights Movement. In addition to being about Marian Anderson, it is also a story of the United States during the Civil Rights Movement.

How is the text structured?

(Consider if it is a familiar structure [e.g., chronological] or a more complex structure that may be unfamiliar to students at this level)

- The structure is common of biographies and should be familiar to students.

What are the language features of the text?

(Consider if the language used is mostly literal or figurative, clear or abstract, familiar/contemporary or archaic/jargon)

- The language is largely literal and clear but contains extensive academic vocabulary.

How are illustrations/graphics (if included) used?

(Consider if the illustrations/graphics add clarification or add to the complexity)

- Photos are used but not necessary to understanding.

Holistically, this text should be considered: ACCESSIBLE **MODERATELY COMPLEX** HIGHLY COMPLEX
for the grade 6-8 span.

XI. Suggested Considerations for Reader and Task

Cognitive Capabilities

Do readers at this grade level possess the necessary...

- attention to read and comprehend this text?
- ability to remember and make connections among the various details presented in this text?
- visualization skills to imagine what is occurring or what is being discussed in the text?

Also consider if this text will help to develop the attention, memory, and critical/analytical thinking skills necessary for future reading endeavors.

Reading Skills

Do readers at this grade level possess the necessary...

- inferencing skills to make connections among elements that may not be explicit in this text?
- visualization skills to imagine what is occurring or what is being described in this text?
- questioning skills to challenge the ideas being presented in this text and consider multiple points of view?
- comprehension strategies to manage this text?

Also consider if this text will help to develop the inferencing skills, visualization skills, questioning skills, and comprehension strategies necessary for future reading endeavors.

Motivation and Engagement with Task and Text

Will the readers at this grade level be able to...

- understand the purpose of reading this text- which might shift over the course of the reading experience?
- be engaged with the topic of this text?
- be engaged with the style of writing and the presentation of ideas within this text?

Also consider if this text might help readers develop an interest in the content.

Prior Knowledge and Experience

Do the readers at this grade level possess adequate prior knowledge and/or experience regarding the . . .

- topic of this text to manage the material that is presented?
- vocabulary used within this text to manage the material that is presented?
- genre of this text to manage the material that is presented?
- language (i.e. syntax, diction, rhetoric) of this text to manage the material that is presented?

Also consider if this text might help readers develop knowledge of topic, vocabulary, genre, or language.

Content and/or Theme Concerns

Do the readers at this grade level possess the . . .

- maturity to respond appropriately to any potentially concerning elements of content or theme?

Also consider if there are any potentially concerning elements of content or theme that might contribute to students, teachers, administrators, and/or parents feeling uncomfortable with the reading of the text.

Complexity of Associated Tasks

Will the complexity of . . .

- any tasks associated with this text interfere with the reading experience?
- any questions asked or discussed concerning this text interfere with the reading experience?

This guide was developed using the Reader and Task Consideration document created by the Kansas Department of Education.

<http://communities.ohiorc.org/ela-supervisors/files/2012/05/KansasReaderconsiderations.pdf>

XII. References

Perfetti, Charles A., Nicole Landi, and Jane Oakhill. "The Acquisition of Reading Comprehension Skill." *The Science of Reading: A Handbook* (227-247). Oxford, England: Blackwell, 2005. PDF e-book.

"Questions for Professional Reflection on Reader and Task Considerations." Accessed November 5, 2012.

<http://communities.ohiorc.org/elasupervisors/files/2012/05/KansasReaderconsiderations.pdf>.

"Ready or Not: Creating a High School Diploma That Counts." *American Diploma Project* (December 10, 2004). Achieve, Inc. Accessed April 25, 2014. <http://www.achieve.org/ReadyorNot>.

Shanahan, Timothy, Douglas Fisher, and Nancy Frey. "The Challenge of Challenging Text." *Educational Leadership* (March 2012): 58-62. Accessed April 25, 2014. www.ascd.org.

XIII. Appendix: Instruction Tools for Content Area Literacy Standards and Disciplinary Literacy

Instruction Tool: Give One, Get One, Move On

Purpose

This tool is used before and after reading to improve comprehension:

- *Use before reading* to help students brainstorm key ideas on a topic/reading to activate prior knowledge and build background knowledge
- *Use after reading* to help students to summarize and synthesize key concepts in the reading

Description

This strategy supports collaborative reflection on, interaction with, or review of a reading selection by using a protocol to solicit responses from multiple readers.

Directions

1. Set up a box matrix with six or nine boxes and hand out copies.
2. Ask students to write the topic of the template in the topic section. Then ask them to think of an important idea about the topic and write it in the first box.
3. Set up a rotation pattern (e.g., pass to the left) by telling students to pass the sheet to another student.
4. Students read what was written in the first box and write an idea in box 2. It can be the same idea they put in box 1 on their own sheet, as long as it is not the same idea that appears on the sheet that was passed to them. No ideas can be repeated on a paper. If their idea already appears on the paper, the student has to think of another idea to write.
5. Students continue passing on each paper, reading the ideas, and adding new ideas until all the boxes are filled with ideas.
6. Each sheet is returned to the original owner to read and reflect upon.

Tips

- Use as a summary of different text around the same topic.
- Set up a template to reflect different points of view or different arguments.
- Have students write summaries based on the sheets that they get back.
- Use to generate ways to respond to a text, story ideas for writing, etc.
- Use to help students summarize/reflect on a lecture/presentation.

Give One, Get One, Move On Template

Name

Date

Topic

Directions

Write the topic in the first section. Think of an important idea you have learned today. Write it down in box 1. Pass the sheet to another student who will read silently what was written in the first box. That student will add an idea in box 2. Do not repeat ideas that are already listed. Continue passing on the paper and adding ideas until all the boxes are filled with ideas. Return the sheet to the original owner.

1	2	3
4	5	6
7	8	9

Instruction Tool: Quick Writes

Purpose

This tool is used before, during, and after reading to improve comprehension:

- Activate prior knowledge by preparing students for reading, writing, or a discussion
- Help students make personal connections
- Promote reflection about key content concepts
- Encourage critical thinking
- Organize ideas for better comprehension
- Increase background knowledge when shared
- Synthesize learning and demonstrate understanding of key concepts
- Reinforce vocabulary
- Provide a purpose for reading
- Assess student knowledge on the topic prior to reading

Description

A versatile strategy used to develop writing fluency, to build the habit of reflection into a learning experience, and to informally assess student thinking. The strategy asks learners to respond in 2–10 minutes to an open-ended question or prompt posed by the teacher before, during, or after reading.

Directions

1. Explain that a *Quick Write* engages students in thinking about a content topic before, during, and after reading. Stress that in a *Quick Write*, students respond to a question or prompt related to the text by writing down whatever comes to their minds without organizing it too much or worrying about grammar. Typically, a *Quick Write* is graded only for completion, not for quality or accuracy.
2. Select a topic related to the text being studied and define the purpose for the *Quick Write*.

Examples:

- Summarize what was learned
 - Connect to background information or students' lives
 - Explain content concepts or vocabulary
 - Make predictions, inferences, and hypotheses
 - Pose a question that addresses a key point in the reading selection
3. Tell the students how long they will have to do the writing, typically 2–10 minutes.
 4. Use the *Quick Write* as part of instruction, assessment, and discussion.

Tips

- *Quick Writes* can be assigned as part of students' Learning Logs or Journals.
- Students can generate their own *Quick Write* questions and prompts.
- Students can share their responses in small groups and compare their answers.

Instruction Tool: Question the Author (QtA)

Purpose

This tool is used during reading to improve comprehension:

- Build students capacity to determine author point of view while reading
- Support comprehension of difficult but important sections of text
- Develop meta cognitive thinking to monitor and enhance comprehension

Description

This strategy asks students to pose questions that interpret and critique what the author is saying, thereby engaging them to construct meaning beyond what the text states.¹

Directions

1. Introduce and discuss the topic of authorship of text materials, emphasizing nonfiction.
2. Explicitly teach and discuss ideas related to authors' opinions and decision-making about what to put in their writing. Discuss the author's biographical information and how it might affect the author's writing. Discuss the potential strengths and fallibility of the author in terms of the currency of their knowledge base, their ability to communicate ideas and information, and their assumptions about the audience that reads their writing.
3. Select a text passage to model the *Question the Author* process with students, choosing pre-determined pause points where you will initiate discussion to clarify the author's writing. Share questions you would ask the author about the messages or informational clarity or assumptions about the audience's knowledge, and so on.
4. Have students generate questions that query the author's intentions, not the text information itself. Discuss what the author is trying to communicate. Continue this guided practice with a series of passages across several different texts.
5. Ask students to generate their own *Question the Author* questions during paired reading, then independent reading. Post a list of example questions to help them get started, while making clear your expectation that they should formulate their own questions as well.

Tips (Examples of *Question the Author* Queries²)

- What is the author trying to say? What is the author's message?
- How does this (section) connect with what the author told us before?
- What does the author assume we already know?
- Does the author say why? Is something missing, or something the author did not tell us?

¹ Beck, I.L., McKeown, M.G., Hamilton, R.L., & Kucan, L. (1997). *Questioning the author: An approach for enhancing student engagement with text*. Newark, DE: International Reading Association.

² Buehl, D. (2009). *Classroom Strategies for Interactive Learning*. Newark, DE: International Reading Association.

Question the Author (QtA) Template

Name _____

Date _____

Reading Selection _____

Question the Author (Q&A) Template

Biographical Information about the Author:

Your Questions for the Author:

- What is the author telling us (the reader)?
- That is what the author wrote, but what is the author really saying?
- What does the author want us to understand/know?
- Does the author explain _____ clearly?
- What prior knowledge about _____ does the author think the reader has?

Your Answers to these Questions:

Your Conclusions about the Author's Writing:

Instruction Tool: Group Summarizing

Purpose

This tool is used before, during, and after reading to improve comprehension:

- Involve students in constructing a meaningful synthesis of what they have read
- Help students learn how to do a summary before they are asked to create their own
- Provide practice in paraphrasing
- Allow students to demonstrate understanding of concepts through the completed group summary chart
- Link the different parts of the reading process

Description

This strategy encourages students to work together to preview text before reading, locate supporting information and examples during reading, summarize their ideas on a four-quadrant chart after reading, and use the notes as a structure to write the group summary.

Directions

1. Providing four major topics, model the group summary process by preparing a sample of a completed chart. Then set up the topics for a chart, with prepared summary sentences. After students read, have them link the sentences to the appropriate topic/concept and write sentences in the correct chart quadrant.
2. Divide students into small groups.
3. Have each student create a four-quadrant chart and label each quadrant with the topic or concept. Explain that the purpose for reading is to learn important information about each of the topics or concepts they selected.
4. During reading, students jot down notes under each heading with page number references.
5. After students have read the text and made their notes, tell the group to discuss what information and ideas they found that were important about the key words or concepts on the chart.
6. When the group agrees that the supporting information is important, it is added to the chart.
7. Once the charts are finished, ask the group to re-read what they have written and be sure their ideas are clearly expressed.
8. Have the group collaboratively put the ideas together in a written summary, typically one-three paragraphs on chart paper so they can share their summaries with other groups.

Tips

- Ask students to preview the text passage or chapter before reading to identify four major topics or concepts presented by the text author.
- Have students create their charts on the whiteboard or wall poster, so others in the class can see how the ideas of different groups are similar or different.
- Have students use the group summary chart to write an individual summary.

Group Summarizing Template

Name _____

Date _____

Title of Reading Selection

Directions

1. As you read, take notes on your Individual Summary Chart about important information related to the four key topics or ideas. List the paragraph or page numbers next to each note.
2. Form small groups to discuss your ideas and come to agreement on important information that should be listed in each of the four key topic/idea quadrants. Add the agreed-upon ideas to the Group Summary Chart. Re-read the final chart to be sure all ideas have been clearly expressed.
3. Collaboratively write a group summary, typically one to three paragraphs. When you have finished, copy it onto a large sheet of chart paper so it can be shared with other groups.

Individual Summary Chart	
Key Topic/Idea	Key Topic/Idea
Key Topic/Idea	Key Topic/Idea
Group Summary Chart	
Key Topic/Idea	Key Topic/Idea
Key Topic/Idea	Key Topic/Idea

Important! On separate paper, collaboratively write a summary of one to three paragraphs using the group notes. When the group has reviewed and agreed-upon the summary, copy it onto large chart paper so it can be shared with other groups.

Instruction Tool: Save the Last Word for Me

Purpose

This tool is used after reading to improve comprehension.

- Support students' interaction with text
- Promote reading comprehension
- Clarify and deepen thinking about content

Description

This strategy uses a collaborative format for the discussion of text developed by Daniel Baron and Patricia Averette.³

Directions

1. Divide students into groups of three to five. Give each student three to five index cards.
2. Assign a text to read. Ask students to write quotations they find interesting on one side of the card and why they find each quote interesting on the opposite side of the card.
3. After everyone is finished reading the selection and preparing their cards, the first person in each group shares one of his/her quotes but does not say why this interested him/her.
4. After everyone has taken about one minute to react/respond to the shared quote, the person who chose the quote shares why s/he selected it.
5. Discussion continues in this fashion with each person in the group taking one to three turns as time permits.

Tips

- Have the group complete a group summary of the text that was read
- Have the group debrief the session
- Have each person select a quote to write about in a response journal
- Ask each group to select the most important quote to share with the class with justification about why it was seen as significant

³ Baron, D., & Averette, P. (n.d.). Save the last word for me. Available from <http://www.delmarvaed.org/PBE-Save-the-Last-Word-for-Me.aspx>

Save the Last Word for Me Template

Name

Date

Title of Reading Selection

Directions

Fill in the three boxes below with quotes that strike you as particularly interesting from the text. Make sure to copy the quote accurately and note the page where the quote is found. Then, below each quote, write why the quote interested you or what it made you think about. Bring the completed template to the meeting with your small group.

Quotes	Page
<p>First Quote</p> <p><i>Reason for selecting this quote:</i></p>	
<p>Second Quote</p> <p><i>Reason for selecting this quote:</i></p>	
<p>Third Quote</p> <p><i>Reason for selecting this quote:</i></p>	

Instruction Tool: Textbook Reading Strategy

Purpose

This tool is used before, during, and after reading to improve comprehension:

- Help students set a purpose for their reading
- Develop understanding of different types of informational text structures
- Build vocabulary and comprehension
- Review information after reading to check for understanding

Description

The *Textbook Reading Strategy* is designed to support students while reading complex, nonfiction textbooks. Students are often challenged when reading textbooks. The format of textbooks changes from source to source, and uses complex, Level Three vocabulary. The strategy encourages students to focus on the format of the text, the important features of the text, and provides support before, during, and after the reading process.

Directions

1. Preview the Text:
 - a. Read the chapter title, headings, sub-headings, and bold faced words.
 - b. Look at pictures, charts, graphs, and diagrams. Read the captions.
 - c. Read the introduction or the 1st paragraph of the section/chapter.
Notes for the teacher: Model this process to start. This step should only take 1-2 minutes when students are proficient.
2. Setting a Purpose for Reading:
 - a. Use the headings and sub-headings to create questions. The questions include who, what, when, where, and how formats.
Notes for the teacher: Teachers may need to model this process several times. They may also opt to assign a specific number of questions to create if there are a number of headings/sub-headings in the text.
3. Choose a Note-Taking Strategy:
 - a. Ask students to decide what type of notes would work best with the assigned text. Have students set up the notes during this step.
Notes for the teacher: Teachers will need to pre-teach note taking skills. They can choose different note-taking methods to teach and introduce each one to students. This step is meant to help students decide which method matches the text best, and allows them to set up the notes before beginning the reading process.

4. Read and Take Notes:
 - a. Students read the text and take notes as they go. Some students may opt to read the entire piece first and then go back, reread and take notes. Either method is fine with this strategy.
Notes for the teacher: This step is fairly independent, but teachers may need to provide shorter or longer reading assignments for students. Considering student needs and abilities is an important part of this step.
5. Go Back and Review the Notes:
 - a. During this stage, students examine their notes and look for any gaps. Are there terms left to define? Did students miss a section? Do they need to fill in their notes? Students ensure their notes are complete.
Notes for the teacher: Modeling this step is important. Many times students are unsure of how to check their notes. With adequate modeling and support, students will become proficient at filling in any gaps.
6. Answer the Questions and Self-Test:
 - a. Using the questions created in step 2, students use their notes to answer the questions in complete sentences. This serves as a review of the material. If needed, students can go back into the text to answer the questions. If this occurs, then students should add to their notes as well as answer the question.
 - b. Once the questions are completed, students can self-test by looking at the questions, covering up the answers, and trying to answer them aloud. This can also be done in pairs or groups of three. Students can use the variety of questions to review the material.
Notes for the teacher: This step is used to review the material in the text. It can be repeated in several different ways including in pairs or small groups, or even as a whole class.

Tips

- This method can be used with long articles or other complex texts that include headings and sub-headings.
- Students can use the notes to keep track of vocabulary terms and this strategy can supplement one focusing on vocabulary acquisition.
- Answering the questions as a review can be done several times as the unit progresses to reinforce the material presented in the text. Teachers can vary the format using pairs, small groups or whole class instruction.

Textbook Reading Strategy Template

Name _____

Date _____

Title of Reading Selection

Step	Student Plan	Student Reflection
Preview the Text	Did you: <ul style="list-style-type: none">• Read the title• Read headings/subheadings• Look at the pictures/graphics/charts etc.• Read the captions• Read the first paragraph	
Set a Purpose for Reading	Did you: <ul style="list-style-type: none">• Create questions using the headings and subheadings• Form questions in who, what, when, where, how format	
Choose a Note-Taking Strategy	Did you: <ul style="list-style-type: none">• Decide how to format your notes based on the text• Set up your notes using the chosen format	
Read and Take Notes	Did you: <ul style="list-style-type: none">• Read carefully• Take notes• Look for new vocabulary	
Review the Notes	Did you: <ul style="list-style-type: none">• Look through your notes to identify any gaps• Go back into the text and reread as needed• Fill in any missing gaps in your notes	
Answer the Questions and Self-Test	Did you: <ul style="list-style-type: none">• Use your notes to answer the questions from step 2• Check your answers in the text• Self-test using the questions and answers	

Instruction Tool: Frayer Model

Purpose

This tool is used before or after reading to improve comprehension:

- Help students form an understanding of an unknown word or concept
- Help students differentiate between a definition of a concept or vocabulary word and those characteristics that are associated with it
- Build students' capacity to analyze and synthesize information

Description

A *Frayer Model* is a graphic organizer that helps students form concepts and learn new vocabulary by using four quadrants on a chart to define examples, non-examples, characteristics, and non-characteristics of a word or concept.⁴

Directions

1. Select the word or concept to be defined using the *Frayer Model*.
2. Show the *Frayer Model* and explain the four quadrants.
3. Model how to use the *Frayer Model* to define a concept, using a simple example that students can understand.
4. Have students brainstorm a list of words and ideas related to the concept and then work together to complete a *Frayer Model*.
5. Have students create a definition of the concept in their own words.

Tips

- Describe rationale for examples and non-examples.
- Use the *Frayer Model* as a note taking strategy during reading.

⁴ Frayer, D., Frederick, W.C., & Klausmeier, H.J. (1969). *A schema for testing the level of cognitive mastery*. Madison, WI: Wisconsin Center for Education Research.

Example

Brainstorming List		
checkbook calendar	small box with former or next month	photos or illustrations
yearbook	dates of holidays	diary
birthday chart	days of the week	months
dates placed on correct day of week for the year of the calendar	desk calendar	
wall calendar	space to record notes or plans	

Concept Analysis	
<p>Essential characteristics</p> <p>days of the week dates placed on correct day of week for the year of the calendar</p>	<p>Non-essential characteristics</p> <p>Month view/week view photos or illustrations dates of holidays small box with former or next month space to record notes or plans</p>
<div style="border: 1px solid black; border-radius: 15px; padding: 5px; display: inline-block; margin: 0 auto;"> CALENDAR </div>	
<p>Examples</p> <p>wall calendar desk calendar phone calendar</p>	<p>Non-examples</p> <p>yearbook birthday chart game schedules</p>

Definition
<p>A calendar is something that has dates on it placed on the correct day of the week for a given year. It might have views. It may have different views for months or weeks, images, places for notes and designations for holidays. Calendars can be on your wall, your desk, or your phone or computer. Birthday charts, game schedules and yearbooks aren't calendars, even though they may have dates on them and images, because they don't have every date listed on the correct day.</p>

Frayer Model Template

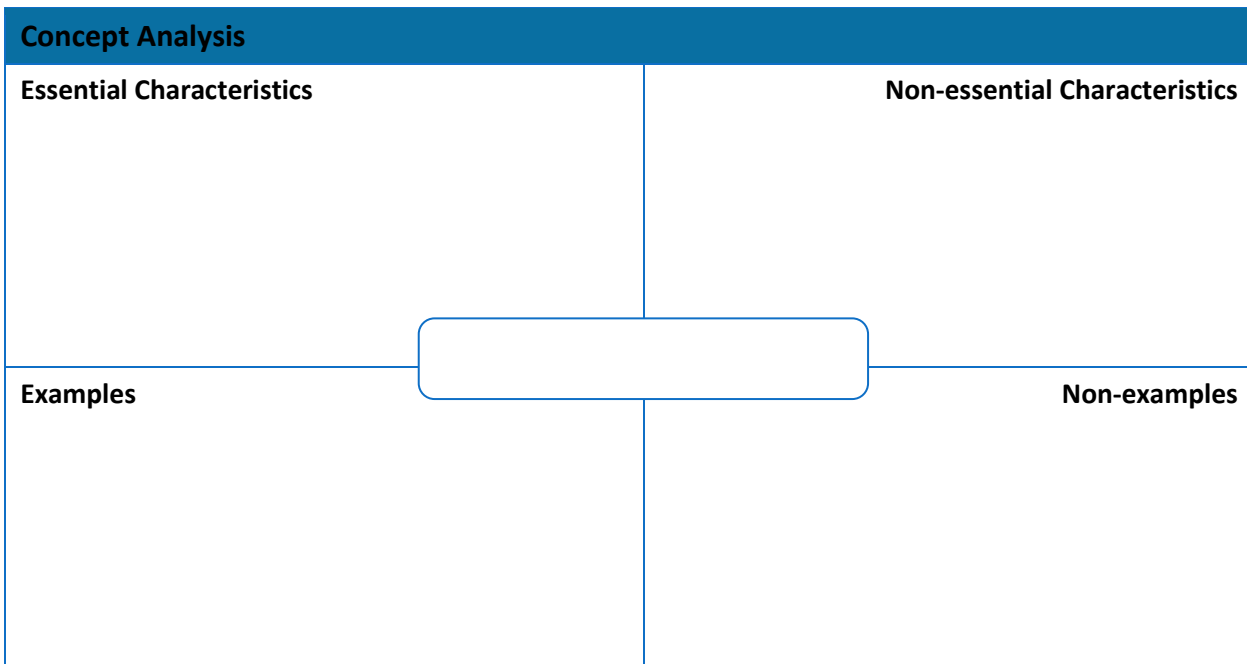
Name _____

Date _____

Directions

Place the concept to be defined in the center square of the chart. Brainstorm a list of all the words you know that relate to the word or concept. Classify all of the brainstormed words into one of the four boxes in the chart. Use the information to write a definition of the concept.

Brainstorming List		



Definition

Instruction Tool: Proposition Support Outline

Purpose

This tool does is used before, during, and after reading to improve comprehension:

- Develop higher order critical thinking skills, particularly analysis and evaluation
- Help students focus during reading as they look for supporting arguments and draw conclusions
- Help students separate fact and opinion in a reading selection and analyze the justification given to support conclusions or generalizations
- Help students learn to identify information that reflects opinion, bias, personal viewpoints, hypotheses, and debatable assumptions or assertions

Description

This analytical graphic organizer asks students to set forth a hypothesis/proposition and list the arguments and evidence from the text to support or refute the statement.

Directions

1. Introduce the term *proposition* as a statement that can be argued as true.
2. Discuss fact and opinion. Brainstorm examples and have students offer criteria for separating fact and opinion.
3. Test the student criteria using the list of proposition statements for students to identify as fact or opinion.
4. Assign a reading selection that features one or more strong propositions and have small groups of students identify the key propositions of the selection.
5. Have student groups then evaluate each of these statements, looking for evidence of opinion, bias, or personal viewpoints.
6. Have student groups identify the statement as fact or opinion after taking notes that describe the supporting evidence: facts, statistics, examples, expert authority, logic, and reasoning. (These can be put on a graphic organizer chart.)
7. Have the groups share their conclusions with the entire class. Encourage further discussion of any statement about which the groups cannot agree.

Tips

- Use the *Proposition/Support Outline* for independent research so students scrutinize reference materials for relevant information and arguments.
- Have students write a position paper or analyze multimedia information related to a proposition, supporting it with appropriate facts, statistics, examples, expert authority, and logic/reasoning.

Proposition/Support Outline Template

Name

Date

Topic

Proposition

Evidence	Source
Facts/Statistics	
Examples	
Expert Authority	
Conclusions (Based on Logical Reasoning, not Just Preference/Opinion)	

Instruction Tool: Semantic Feature Analysis

Purpose

This tool is used before, during, and after reading to improve comprehension:

- Build vocabulary by learning key vocabulary terms as concepts
- Develop a visual representation of the elements or characteristics of key concepts
- Develop the analytical skills of categorizing and comparing/contrasting
- Activate prior knowledge when used before reading
- Assess student understanding when used during or after reading

Description

This analytical strategy helps students examine related concepts by recording distinctions between terms according to particular criteria across which the concepts can be compared.⁵

Directions

1. Select a reading that discusses many examples of a single concept, such as a chapter in a content-area textbook or a short story with many characters.
2. Select a category of concepts to be analyzed. Examples: types of government, mammals, geometric shapes, human diseases, characters in a play, ecosystems
3. Using the *Semantic Feature Analysis Template*, list several terms within this concept down the left vertical column. Across the top, list several key features (traits, properties, criteria, or characteristics) associated with any of the examples listed down the left side.
4. Model the process of completing the grid using a think-aloud to explain your thinking to the students as you determine whether to mark a term with a +, -, or ?.
5. Have students read the text selection and then code, based on their reading, what key features are associated with which terms.
6. Compare individual or paired responses in small groups. Examine the grid and discuss similarities and differences between the concept terms. If two terms have the same patterns, discuss if there is a feature that differentiates them that could be added to the list.

Tips

- Have students develop generalizations that can be tested against the grid.
- Divide the key feature columns into “before” and “after” so students can see how their thinking changes when the semantic feature analysis is done before and after reading.
- Challenge students to come up with different examples and additional key features.
- Have students create the concept terms and features on their own, based on the reading.

⁵ Anders, P.L., & Bos, C.S.. (1986). Semantic Feature Analysis: An interactive strategy for vocabulary development and text comprehension. *Journal of Reading*. 29 (7), 610-616.

Semantic Feature Analysis Example 1

Ch 3—Science Textbook

Title of Reading Selection

Animal Classification

Topic

Concept Terms	Key Features							
	Eat Plants	Eat animals	Eat dead or rotting things	Eat members of their own species				
Herbivore	+	-	+/-	-				
Carnivore	-	+	-	+				
Detritivore	-	-	+	+/-				
Omnivore	+	+	+	+/-				
Scavenger	+	+	+	+				

Semantic Feature Analysis Example 2

Various Articles

Title of Reading Selection

Impressionists

Topic

Concept Terms	Key Features	Based in Paris	Focused on Portraits	Focused on landscapes	Worked on multiple canvases at the same time	Worked largely in pastels	Worked largely in oils	Is known for sculpture	
Monet		+	-	+	+	-	+	-	
Cassat		+	-	+/-	-	-	+	-	
Pissarro		+	-	+	-	-	+	-	
Renoir		+	+	-	-	-	+	-	
Degas		+	+	+/-	-	+	-	+	

Instruction Tool: Word Sort

Purpose

This tool is used before and after reading to improve comprehension:

- Help students learn vocabulary by comparing, contrasting, and classifying words based on characteristics or meanings
- Help students recognize the relationships and differences between terms that are related to the same concept
- Develop students' ability to reason through analysis, classification, induction, and analogy
- Enhance students' interest in vocabulary development through a multi-sensory experience as they read, write, and manipulate words while sharing their thinking with others
- Develop divergent thinking when open sort is used

Description

Word Sort is a classification strategy where the teacher provides lists of words that students cluster together in meaningful ways to evolve main ideas or determine conceptual relationships (closed sort). The students may also sort the words by characteristics and meanings and then label the categories (open sort).⁶

Directions

1. Have students copy vocabulary terms onto index cards, one word per card.
2. Have students sort the words into categories, either by providing the categories (closed sort) or having the students generate the categories (open sort).
3. Have students share the reasoning and evidence for the way the vocabulary is sorted.
4. Have students copy vocabulary words onto index cards or strips of paper, one for each word.

Tips

- Have students sort the words into a [Venn diagram](#), then summarize their findings in a [Quick Write](#).
- Differentiation suggestion: Match the complexity of the vocabulary terms used in the sorts to students' varied instructional levels.

⁶ Gillet J., & Kita. M.J.(1979). Words, kids, and categories. *The Reading Teacher*, 32, 538-542.

Word Sort Template

Name _____

Date _____

Categories		
------------	--	--

--	--	--

Words to Sort		
---------------	--	--

Instruction Tool: Science Word Journals

Purpose

This tool is used before, during or after reading to improve comprehension:

- Help students identify vocabulary terms
- Build and use science vocabulary
- Increase student capacity to learn from text

Description

An adaptation of the *Triple-Entry Vocabulary Journal*, here students keep track of the words, using scientific texts to derive context clues, memory aids, and other information about the vocabulary. When students use a journal word, then they record the new sentence in their journal as well. Students are asked to share their words with the class or with a small group. This increases the number of content specific terms students learn throughout a unit or lesson.

Directions

1. Before reading: Students will record new words in their science word journals.
2. During reading: Students will read a piece of text and identify unknown or new words in their journal.
3. After reading: With a group or on their own, students will go back into the text and look for unknown or new words. They will add these words to their journal.
4. Once the words are recorded, students will complete the following items in their science word journals:
 - a. Write the word as it is used in context or as defined in the text. Record the sentence and page number.
 - b. Define the word in student friendly terms.
 - c. Use the word in a new, original sentence, using the appropriate context.
 - d. Draw a picture or a symbol to represent the word.
 - e. Create a section to add new sentence examples as the word is used again in the future. Does it have many meanings or just one?
5. Allow students to share their words with a partner, small group or as a whole class. Students should record words that their peers identified. This process can be repeated throughout the course of a unit or group of lessons.

Tips

- Science word journals can be used with films, articles or other sources of information (online, electronic etc.)
- Students can keep a group journal or use this with lab vocabulary.

Instruction Tool: Five-Step Mathematical Problem Solving Graphic Organizer

Purpose

This tool is used before, during, and after reading:

- Improve students' abilities to read and solve math word problems
- Activate prior knowledge and experience that can be used to solve new problems
- Provide a graphic structure that helps students use a step-by-step problem-solving technique and remember that a single math problem with a single conclusion may be solved in multiple ways

Description

This graphic organizer provides a step-by-step reasoning process for students to set up and solve mathematical word problems. The diamond shape of the arrows reinforces that a word problem (top point of the diamond) can be solved in multiple ways (middle of the diamond) but results in the same convergent conclusion (bottom point of the diamond).^{7,8}

Directions

Show students the diamond-shaped graphic organizer as you introduce the five-step problem solving process. Explain that the top point of the diamond is the precise problem statement and the bottom point of the diamond is the precise answer.

1. Explain that the process occurring in the middle section of the diamond can involve a variety of problem solving steps that depend on a person's prior knowledge and reasoning about the problem, but will lead to the same solution.
2. Explain the first step, understanding and restating the problem. Encourage students to ask themselves the following questions.
 - What are you trying to find out or solve?
 - Do you understand all of the vocabulary in the problem?
 - What information is known? What information is unknown or unneeded?
 - How can you restate the problem in your own words so it is clear and makes sense?
3. Discuss step 2, how to find needed data/information.

Prompts:

- What key words are provided that suggests the type of operation that needs to be performed?
- What formulas or equations are suggested from the numerical data?

⁷ Braselton, S., & Decker, C. (1994). Using graphic organizers to improve the reading of mathematics. *Reading Teacher, 48* (3), 276-81.

⁸ Polya, G. (1945). *How to solve it: A new aspect of mathematical method*. Princeton, NJ: Princeton University Press.

4. Discuss the types of strategies that can be used in step 3, plan what to do.

Prompts:

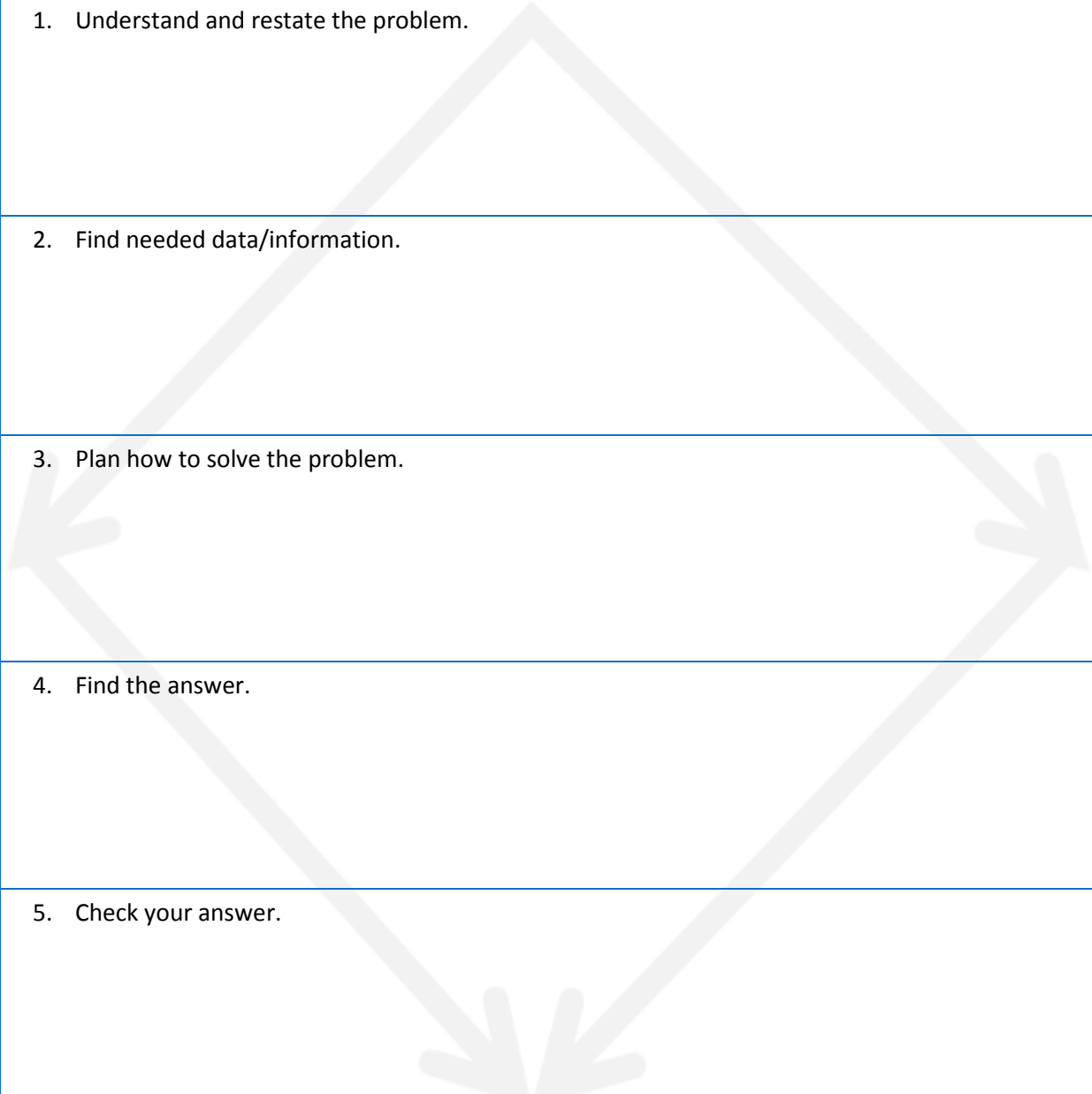
- Think of similar problems you have solved before
 - Create a chart, diagram, picture, or model
 - Determine if there are any patterns
 - Write an equation or use a formula
 - Use an estimate/guess and check it
 - Consider if the problem can be worked backward or if possibilities can be eliminated
5. Discuss step 4, finding the answer. Perform and keep any calculations or other actions needed and check each step of the plan as it is accomplished.
6. Confirm that, in step 5, the answer is reviewed against the original problem and makes sense and is reasonable. In some cases, evidence that the problem was solved correctly may be required. Emphasize that this is the most important step in the five-step process.
7. Illustrate the process by modeling the thinking involved in each step of the problem solving using a simple, actual problem.
8. After students use the five-step process to solve a problem, determine if the techniques would work for other problems or if there were multiple techniques used by students for finding the solution.
9. Have students study *heuristics*, the rules of mathematical problem solving.
10. Have students write a summary of their rationale for solving the problem the way they did.

Five-Step Mathematical Problem Solving Template

Directions

Use this organizer when working on a word problem. First, decide what you are trying to find out or solve. Then, list the data/information you need to solve the problem. The next steps are to describe your plan for solving the problem, derive the answer, and then check it against the original problem to be sure your answer makes sense and double-check that the solution is correct.

1. Understand and restate the problem.
2. Find needed data/information.
3. Plan how to solve the problem.
4. Find the answer.
5. Check your answer.



Instructional Tool: Math Journals

Purpose

This tool is used before, during, and after reading to improve comprehension:

- Help students develop the language of mathematics
- Build students capacity to explain their process and reasoning

Description

These journals include short, frequent prompts to encourage students to write mathematically. Students practice problem solving and writing about their methods, graphing, and other techniques in the journals. They are encouraged to use appropriate terminology to demonstrate their understanding of numeracy. Students can include numerical work with their written response, but they must explain it using given terminology.

Directions

1. Hand out a small journal to each student or ask them to bring in a notebook to use for a mathematics journal. (Teachers can create journals using paper and a three-hole punch if notebooks are unavailable.)
2. Provide daily or weekly prompts for students to journal about—ones that require both numeracy and literacy. These prompts are an extension of the curricular materials, but require students to write about their process, telling how they arrived at their answer. Students can also create and solve their own word problems in the journals. Teachers can rotate the types of problem solving used in the journal.
3. Students can share their answers with a partner, small group, or with the whole class. Teachers can use the journals as formative assessments to inform instruction. The journals will indicate how a student approaches a problem and whether or not they are proficient in both mathematics and literacy-based skills.

Tips

- The journals can be scaffolded and differentiated to meet the needs of different groups of students. Teachers can provide different levels for each prompt. Students can begin with the basic level and work from there or complete their assigned prompt.
- Students can work with a pair to solve the problem and come up with a written response with their partner. The pairs can share out with one another to discuss the process.
- Whole-class instruction can follow math journals based on the results of the problem given. Teachers can use the information to guide future instruction.