Support Materials and Training Activities

Appendix A

TRAINING ACTIVITIES FOR THE SURVEY ROUTINE (TRIMS)

Before the workshop, request that workshop participants bring to the workshop the written materials on which they base their reading assignments (e.g., textbooks, articles, stories). Bring extra textbooks to the workshop session in case some participants forget to bring materials.

- At the beginning of the training session, ask the participants to describe the difficulties that students with disabilities and other low-achieving students have with reading assignments. Make a list of the difficulties and the reasons for those difficulties. Throughout the remainder of the workshop session, keep referring back to the items on the list, and show how the Survey Routine addresses the difficulties.
- 2. Provide a model of how to do the Survey Routine. Explain to the teachers that you will show them exactly how you would do the routine with a group of students and that they are to pretend that they are students in your classroom. Then involve them in the demonstration, showing how to create a partnership with students in co-constructing the Learning Sheet.
- 3. Once you have introduced the Checklist for Considerate Text Features, pass out blank Checklists, and ask participants to analyze one chapter out of a textbook using a Checklist. Divide the participants into small groups and have them meet in their groups and share what they have found. Ask each group to compile a list of their most important findings/realizations and to identify the top three. Then call on one person from each group to share the top findings. Make a consolidated list of the top findings.
- 4. Prior to the workshop, fill out a TRIMS Learning Sheet for a reading assignment, like a short textbook chapter. Make several factual and conceptual errors in filling out the Learning Sheet. After you have described the TRIMS Learning Sheet, distribute copies of the Learning Sheet you've created and the chapter to the workshop participants. Have the participants review the Learning Sheet and critique it. Have the small groups share their findings with the whole group.
- 5. Have the participants create a TRIMS Learning Sheet for one of their reading assignments. Ask them to share with a partner what they learned about the assignment that they had not known.
- 6. Divide the participants into small groups, and ask them to brainstorm ideas about activities/devices that they might use to teach their students the idea of surveying a reading passage ("trimming it") before they read it. Ask each small group to share its best idea(s) with the whole group.
- 7. Divide the participants into small groups, and ask them to brainstorm ideas about activities/devices that they might use to teach their students the concept of using authors' cues to find the most important information. Ask each small group to share its best idea(s) with the whole group.
- 8. As a whole group, brainstorm the skills students are using and learning if they use the TRIMS Learning Sheet well. Make a list of the skills on a blank overhead transparency.
- 9. Divide the participants into small groups, and ask them to brainstorm ideas about activities/devices that they might use to teach their students to generalize their use of the TRIMS Learning Sheet and the skills associated with use of the sheet to a variety of tasks and situations. Ask each small group to share its best idea(s) with the whole group.
- 10. If the participants have learned other routines and/or strategies, ask them to make a list with you of ways to integrate this routine with the other methods.

WELCOME

Self/Participants

Progress of for Unit Organizer

sign in sheet

INTRO

Let's talk about textbook reading in your

classrooms

what do you do?

what do they do? what do you expect? what do they expect?

OBJECTIVES • You will evaluate how "user friendly" your textbook is.

objectives on flip chart

- 2 You will know the linking steps of the Survey Routine
- You will experience a model of the routine and use the routine to survey a chapter in vour textbook.
- You will understand how the routine is used to:
 - enhance student reading assignments
 - maximize their ability to use their textbooks
 - ✗ improve comprehension
- You will plan your implementation of the Survey Routine

Premise: "Much of what is taught is not learned. If we reduce the gap between teaching and learning, we can increase effectiveness & productively - of our teaching and their learning."

Remember our Content Enhancement motto:

LEARNING over COVERAGE

TEXTBOOK **EVALUATION** Activity

Complete the teacher checklist for Considerate Text Characteristics Score it Identify Considerate & Inconsiderate features

Discussion: What did you learn/discover?

checklist relationships handouts

The Problem of the Inconsiderate Text

Armbruster handout

Analogy + puzzle

Jigsaw puzzle

The SURVEY ROUTINE

Rationale/Purpose

2 goals when using our textbooks: understanding information provided by text learning how to read & use textbooks

TRIMS Linking Steps

mnemonic?

CUE-DO-REVIEW Sequence

Model Activity:

America Will Be Chapter 4 (Houghton Mifflin Social Studies Book - grade 5)

Practice Activity

Select a chapter in your textbook that you use.

Survey it with TRIMS; complete TRIMS Worksheet

Complete the **Textbook Survey Debrief** form

Discussion:

What did you discover about your textbooks?

What did you observe about your thinking & information processing?
How could you incorporate it into you teaching?

What do you do if . . . ?

STRATEGIES for **ENHANCING TEXT PROBLEM AREAS**

- Identify problem areas in your textbook; plan enhancements
 use checklist -TRIMS Worksheet
 your own difficulties surveying the chapter
- Discussion

TRIMS

Demonstrations

Activity:

Form groups of 4; each with different textbook
Survey the chapter for your team
1 & S steps . paraphrase or provide

Comments/Observations/Questions

STUDENT BENEFITS

- Select 4 students [HALO] to target
- Rate the ability of each to currently:

 survey a chapter independently
 read the chapter independently
 participate in class activities
- After routine use of TRIMS, what would you predict the ability of each to be?

COSTS versus BENEFITS?

USE OPTIONS

- #1 Teacher surveys chapter explicitly using TRIMS, involving students, and providing enhancements for problem areas of text.
- OH/Handout
- #2 Using TRIMS, the teacher surveys the chapter with students who then complete sections of the Learning Sheet when prompted.
- #3 Students are assigned to survey a chapter and complete the TRIMS Learning Sheet as homework. Then the teacher will call on students to contribute survey information.
- #4 Students are assigned to survey a chapter as a mental task without using the worksheet and be prepared for less/quiz/discussion.
- #5 Form cooperative groups to survey a chapter(s).
- #6 Target difficult chapter for the Survey Routine.

Other suggestions. . . .

Implementation

KEYS to SUCCESS USE IT or LOSE IT

Assignment:

- 1) use routinely
- 2) do classroom research (optional)

OH

3) be prepared to share results at followup meeting

CLOSURE

Questions

Evaluations

ACTIVITY:

1) Give article to teachers as a "reading assignment" as if they were students in a class and are required to be ready for class discussion or quiz. Allow only 2 minutes for them to begin, then interrupt and give a quiz for which they may use their notes but not the article.

What was your reading strategy?
Puzzle analogy = creating a framework/big picture/surveying

2) Use this article to model TRIMS

"Teaching Thinking Skill," Innovation Abstracts, Vol. VII, No 23, October 1985.

What is the title of the article?

"Teaching Thinking Skills"

What word does the author use to characterize problem-solving ability, inventiveness, and other thinking skills we might want to develop?

WIT

How does the author define wit?

Wit = thinking tactics

How many principles does the author discuss?

7

What are the principles which enhance the teaching of thinking?

#1 Foster a tactical attitude

#2 Make tactics explicit

#3 Students need managerial as well as particular tactics

#4 Teach to task

#5 Teach knowledge in action

#6 Teach for transfer

#7 Bear in mind the generality/power trade -off

What is the source of this article?

David Perkins, Harvard NISOD, Univ. of Texas

What does this article have to do with this workshop?

Tactics = Strategies

INNOVATION ABSTRACTS

VOL. VII, No. 23

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TEACHING THINKING SKILLS

What can you do to teach thinking? I am going to condense what I take to be the trend of contemporary, research into seven principles, each one of which seems to enhance the teaching of thinking, whether in a subject matter context or in a stand-alone course. For convenience, let us use the one word "wit" to stand for problem-solving ability, inventiveness, and whatever other capacities for thinking one might want to develop. All seven of the principles have to do with two questions: "What is wit made of?" and "How does it get into your head?" The general answer is: Wit in considerable part is made of thinking tactics, and we can improve students' thinking by imparting a greater and more effective repertoire of tactics. Three principles follow from that, principles substantiated to some degree by existing research.

First Principle: Foster a tactical attitude. This broadest principle is perhaps the most important, too. It recommends teaching in such a way that students begin to attend to their own processes and consider the tactics they use to deal with a particular kind of situation, such as solving a math problem or writing an essay. By and large, we tend to focus on the product in progress, the essay, for instance, or the problem solution, with little attention left over for the process by which we create that product. A good deal of research suggests that skilled problem solvers are often rather aware of the processes they use and that less skilled problem solvers can learn to attend to and enhance their own processes simply by focusing on them from time to

time and proceeding more mindfully.

Second Principle: Make tactics explicit. This can mean one of two things. It can mean direct teaching of explicit tactics--for instance, for mathematical problem-solving or writing. In the case of mathematical problem solving, students can be taught strategies for making a diagram. considering a special case, or breaking problems down into parts. But making tactics explicit does not necessarily mean "spoon-feeding" tactics to the students. Direct teaching aside, it can also mean establishing an instructional context in which the attention of students is drawn to the tactical side of things, and they are provoked into designing their own tactics and explicitly articulating their tactics to themselves. Such an approach has been used for remedial math education where students are asked to problem-solve by sitting with one another in pairs and talking about how they go about doing what they are doing.

In regard to making tactics explicit. many people feel that this is somehow unwise, that what you should do is set up a situation which is rich 'with the kind of thinking involved and expect students to soak it Regrettably, the evidence is that this does not work, except for the more able student w!-.o will detect the pattern even when it is not made explicit. Beware of the myth of

"soaking up!"

Third Principle: Students need managerial as well as particular tactics. Managerial tactics mean tactics controlling the overall process of problem-solving or writing or whatever. Particular tactics are matters handling particular sub-problems that arise, like wilting a paragraph or constructing an example. But besides that, there is evidence that students need overall task management tactics, such as asking themselves these questions every few minutes: "What approach have I been taking?" "Has that approach been working out well?" and "Should I try a different approach?" Unless these high-level questions are asked fairly often, students tend to lose their way amid the forest of lower-level tactics they may have acquired.

These three principles relate to the general point that wit is made up partly of tactics. Four more principles are related to another notion—that wit is somewhat context specific. Research over the past decade has disclosed that in such areas as mathematical problem-solving, history, problem-solving in physics, and so there are a number of tactical principle that are particular to the discipline. You cannot expect to teach a general problem-solving course that applies to everything in sight and have that course empower students widely across all subject matters.

What do we do about this?

Principle Four: Teach to the task. Think about what you want students to do and teach to that. For instance, if you want students to reason well in writing essays, you do net teach symbolic logic. True, symbolic logic may have something to do with reasoning well in essays,

but characteristically, not enough; it is too different. Teach reasoning in essayistic contexts if you want reasoning in essayistic contexts. Oddly enough, it is one of the standard pitfalls of education that to get result A we teach B and hope it will somehow transfer to A! Why not teach A in the first place?

Principle Five: Teach knowledge in action. There is a problem in psychology we call the problem of inert knowledge. For instance, it is commonplace in medical training where students memorize a large body of facts; they prove unable to martial these facts when it comes to diagnosis and treatment. The remedy for inert knowledge is to teach knowledge in the context of active problem-solving, where the knowledge is put into use as it is being acquired.

Principle Six: Teach for transfer. In the past, it has been thought that if you learn some general principle in context A, it would handily transfer to contexts B, C, D, and E. In the last decade, the problem of transfer has emerged as one of the principle difficulties of teaching thinking skills. It turns out that people often do not generalize; they do not carry principle over to other contexts. We have to fight against this by teaching for transfer.

There are two broad ways to do this. One is by varied practice. Very often in instructional contexts the practice is narrow. A few types of problems repeat over and over, and this tends to lead to learning that is context-bound. If you calculatedly and drastically vary the kinds of problems to which principles are being applied, you can help generalize the learning. The second method is explicit abstraction and application. That is, students are directly provoked to generalize and apply in odd circumstances what has been taught.

Principle Seven: Bear in mina the generality-power trade-off. As mentioned previously, wit is somewhat context specific; but it is not completely context specific. There are some general strategic principle that cut across problem-solving of all sorts. For instance, spending time defining the problem is a time allocation principle that applies in nearly any context and one that is widely neglected, too. In trying to capture both the generality and the context that are there, psychologists have come to speak of a generality-power trade-off. This means that the more general a tactical principle is, the less power it has in any one context. If you want math scores and math scores alone to go up, then you teach to the task, focusing on general and specific tactics that apply to mathematics. Some of them do not apply in general. If you want gains on a broad front, you may teach tactics of general problem-solving; and you will find gains on a broad front, but modest ones. This tradeoff between generality and power has to be kept in mind when you make choices between such options as a stand-alone course which is aimed at affecting change over a wide range of subject matters versus integrating the teaching of thinking skills into a particular subject matter.

Let me review. "What is wit made of?" and "How does it get into your head?" I have argued that, according to recent experiments, it is quite possible to teach thinking skills. And I have urged that we, in fact, know some general principles to guide the teaching of thinking skills both in standalone courses and in subject matter contexts. The principles again were: foster a tactical attitude, make tactics explicit, teach managerial strategies as well as particular strategies, teach to the task, teach knowledge in action. teach for transfer, add bear in mind the generality-power trade-off in your instructional planning.

I find it very encouraging that at this point in time we have even those broad principle to guide such efforts. Because, as broad as they are, those principles do argue against a number of approaches to the fostering of thinking skills that have been taken in the past. I am encouraged by the notion that we may be able to engineer such instruction.

David Perkins, Harvard University Edited from his oral presentation at the 1985, AAHE National Conference.

For further information, contact the author at Harvard 'University, 315 Longfellow Hall, Appian Way, Cambridge, MA 02138. - Suanne D. Rouecne, Editor - October 4, 1985, Vol. VII, No. 23

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The Problem of the "Inconsiderate Test" by Bonnie Armbruster

(work presented in 1982 at Research Foundations for a Literate America, a conference organized by the Center for Study of Reading and sponsored by the Hegeier Institute, the Johnson Foundation, the Exxon Education Foundation, the University of Illinois Educational Fund, the Monsanto Fund, and the National Institute of Education.)

During a decade of classroom observations, John Goodlad (1976) discovered that "the textbook predominated throughout as the medium of instruction, except in kindergarten. With each advance in grade level, dependence on the textbook increased..."

A study in Texas (EPIE 1974) concluded that students spend 75%, of their classroom time and 90% of their homework time using textbooks and related materials.

Characteristics of the textbook will have a dramatic influence of how much and what student learn from reading a textbook.

"To be effective textbooks must be well-organized. Textbooks must lay bare the fundamental structures of history, geography, health and science -- and in a manner that permits children and youth to grasp the structures. . . Scholars who have examined subject matter textbooks have failed to discover a logical structure. Sections of many textbooks consist of little more than fists or facts loosely related to a theme. Abrupt, unmotivated transitions are frequent. Textbooks are as likely to emphasize a trivial detail or a colorful anecdote as a fundamental principle."

p. 68 Becoming a Nation of Readers:Report of the Commission on Reading

ARMBRUSTER CONCLUSION: "I cannot accurately estimate what proportion of the prose in textbooks is inconsiderate. However, my investigation of textbooks over the past 3 years has convinced me the during their elementary school years, children read many pages of inconsiderate text from poorly written textbooks."

"Teachers need to be aware of the problems of inconsiderate test in order to help students cope with such materials."

Appendix B

Checklist for Considerate Text Characteristics

Textbook Title:					
Che	Check each questions with a yes or no .				
	YES	NO			
Т			Does the title reflect the main idea/topic of the chapter?		
R			2. Does the table of contents show relationships or organizational patterns between the unit and the current chapter?		
	×		3. Are the headings listed in the table of contents or is there an expanded table of contents?		
			4. Does the table of contents show a clear arrangement of ideas by use of one of the most common relationship structures? Check the structure used:		
			Order Explanation Process Comparison Causality Deliberation Problem/Solution		
			5. Is there a clear relationship or structure of ideas between the current chapter and the immediately preceding and the following chapters?		
ı			6. Is there a clearly identified introduction to the chapter?		
			7. Does the introduction specify chapter goals/objectives for reading? Are the goals/objectives: Explicit (stated /listed)? Implied (embedded)?		
			8. Does the introduction provide an overview of the chapter?		
			4. Does the introduction specify the relationship or organization of ideas/events in the chapter through use of one of the most common relationship structures? Check structure used: Order Explanation Process Comparison Causality Deliberation		
			Problem/Solution		
			10. Does the introduction state the rationale/relevance of the chapter content? Are the rationales/relevance statement: Explicit? Implied ?		
			11. Does the introduction: review previously studied relevant material/information? relate it to the topic of the current chapter? explicitly state the relationship? imply the relationship?		

Checklist for Considerate Text Characteristics (con't)

М	*/ */	12. Do titles of main headings and subheadings clearly reflect the main idea structure of information presented?	
		13. Do subheadings follow a clear sequence of information directly related to the main headings?	
		14. Does the author use size, shape, color, and/or placement to distinguish types of headings?	
		15. Are new/key vocabulary highlighted in the text? In bold print or italics? Listed at end of chapter, bottom of page, or margin?	
		16. Does the text provide A definition of key terms? A pronunciation guide for key terms?	
		17. Do graphics enhance the most important information contained in the chapter and/or related directly to headings?	
		18. Do graphics depict information in a succinct, easy-to-read format with instructions provided for interpretation or use of charts and graphs?	
s		19. Is there a clearly identified summary?	
		20. Does the summary synthesize chapter contents?	
		21. Does the summary review chapter goals/objectives?	
		22. Does the summary focus student attention on the most important concepts, ideas, and information?	
		23. Are there chapter review/study questions?	
		24. Are chapter review questions based on the critical key concepts and ideas?	
		25. Is there a good balance among main idea, detail/fact, and critical thinking (applications, analysis, synthesis) questions?	

Total number of questions answered "YES"

The higher the score, the more considerate and "user friendly" the textbook. The more considerate a textbook, the more likely that students will be able to use it independently. The more inconsiderate a textbook, the more teacher facilitation and intervention will be required.

TRIMS

Strategies for Enhancing Text Problem Areas

Possible Problem Area	Teacher Strategies
Title Students are unable to paraphrase title because it contains: a) unknown vocabulary b) concepts not previously defined or studied	 Assist students in paraphrasing title by eliciting or providing synonyms for unknown vocabulary in the title. Have students change title to a question and find answer to the question in chapter introduction. Assist students in dividing concept vocabulary into "word parts" to paraphrase definition of concept, e.g.: humanism = human + ism human = mankind ism = system of belief. Paraphrase title for students to provide a paraphrase for them in order to give a general definition of the title/chapter topic.
Relationship Students are unable to determine he relationship of information due to a) unknown vocabulary and/or concepts in the chapter or unit titles b) lack of understanding of and/or inexperience in identifying relationship structures The order of chapters in the text does not match the order assigned by the teacher.	 ✓ Provide practice in identifying relationships - use preceding chapters (familiar materials) as a basis for identifying relationships. ✓ Provide examples of the 3 most common relationship structures used in text; elicit "real life" examples of the specific relationship; cite examples in text; have students find additional examples. ✓ Name the relationship for students and provide text examples for them. ✓ Direct students to analyze the order & relationship of assigned chapters. ✓ Explain the relationship of chapters assigned by the teacher. ✓ Compare order selected by teacher to order in the text.

Strategies for Enhancing Text Problem Areas (con't)

Possible Problem Area	Teacher Strategies
Introduction ☐ There is no introduction	 ✔Introduce the chapter to students. ✔Provide a rationale for the importance of the chapter content. ✔Review previously learned material and establish a link to chapter content.
☐ Introduction does not provide any goals/objectives for the chapter.	 ✔Provide students with goals/objectives for reading. ✔Continue with the survey, then have students use chapter summary, review questions, headings, etc. to develop goals/objectives for their reading.
☐ Introduction does not explicitly state (embeds) chapter goals/objectives.	 ✔Change the introductory sentences with implicit statements of goals/objectives to explicit statements and list on chalkboard. ✔Provide students with vocabulary usually employed in goal/objective statements (e.g. should, will). ✔Assist students in identifying goals/objectives embedded in the introduction's implicit statement.

Strategies for Enhancing Text Problem Areas (con't)

Deschlam Area	Teacher Strategies
Possible Problem Area	✓Direct students to examine the size,
Main Parts and Terms □ Students cannot differentiate main headings from subheadings and sub/subheadings.	 shape, color, & placement of headings to help identify types of headings. Teach students the outline notations, symbols, and patterns. Guide students through the outlining process.
☐ Students cannot diagram the headings into content map form.	✔Guide students through the mapping process.✔Provide a content map.
Students have difficulty changing headings into questions.	 ✔Guide students through the process of formulating questions. ✔Provide students with a list of questions and have them match them to appropriate headings.
 Students cannot find key terms in the chapter. Students cannot find definitions of key terms. 	 ✓ Direct students to look for: words highlighted in bold print words footnoted at bottom of each page words noted in margins a list at the end of the chapter a glossary. ✓ Identify key terms and list on chalkboard.
□ Students' limited background knowledge/experience makes understanding of key terms/concepts difficult.	 ✓ Pre-teach vocabulary critical to understanding key concepts in the chapter. ✓ Have students create vocabulary cards with terms on one side and definitions on the reverse side. For ESL students both languages may be used to facilitate understanding. Use cards to create concept/content maps, as a self-testing tool, etc.
☐ Students cannot relate enrichment features to appropriate headings.	✔Guide students through process.

Strategies for Enhancing Text Problem Areas (con't)

Possible Problem Area	Teacher Strategies
Summary The chapter does not contain a summary	 ✔Check introduction and review questions for summary information. ✔Using the information gained through the survey process (intro, headings, ,review questions, etc.) have students write their own summaries. ✔Summarize the chapter for students.
☐ Students have difficulty paraphrasing the summary because it is too long or summary statements are embedded in the text.	 ✓ Segment the summary to focus students on smaller units of information. ✓ Identify words in the text that cue a summary. ✓ Summarize the chapter for students.
□ No review/study questions are provided.	 ✔Provide students with review/study questions. ✔Guide students through process of formulating review questions based on what they have learned from their survey of the rifle, headings, introductions, etc.
☐ The review/study questions do not review the most important ideas in the chapter.	 ✓Identify types of information targeted by questions. ✓Provide questions reviewing most important information in the chapter. ✓Guide students in formulating appropriate questions.

Student Name:	

TRIMS Learning Sheet

T itle	;			
	Γitle:			
2.1	This is about			
Rela	ationships			
3.	•			
				2. 2. 4. s
			Unit	
	<u></u>	Last	Current	Next
Δ	The relationsh		age to the unit:	6
	1110 1010110	,		
5	The relationsh	nip of passages wit	thin the unit:	
Ο.	THE TOIGHOUSE	mp or parong		
Intro	duction			
6.				
0.				
	•			
Mai	· in Parts			
	(Fill in next pa			
		al Questions		
8.	•			
	•			
	•			

Student Name:	

	1S Tracker				
<u>T</u> itle					
1. Title:					
2. This is about					
Relationships	Unit				
3.					
Last	Current	Next			
4. The relationship of current pa	ssage to the unit:				
5. The relationship of passages	within the unit:				
5. The relationship of passages	Within the dime				
ntroduction					
6. Summarize paragraphs of int	roduction:				
•					
Main Parts					
7. (Fill in next page)					
S ummary/Critical Questions					
8. •					
•					
9. Relation to your life: ————————————————————————————————————					

Main Part #:	
Main Part #:	
Main Part #:	
Question:	?

Main Part #	
Main Part #	
Main Part #	

Main Part # :	
Main Part # :	
Main Part # :	

Main Part #: Question:	
Main Part #: Question:	
Main Part #:	

Appendix C

EXAMPLE RELATIONSHIPS

Information may be structured in one or more ways. The types of structures are not mutually exclusive, and one type of structure may be embedded in another. The various structures are subcategorized by two general types: descriptive and sequential.

Descriptive Structures

Explanation

Clustering: Information grouped by common relationships.

Parts: Arrangement of items that make up a whole. Characteristics: List of qualities that define an item.

Examples: Representatives of a group or topic (May include nonexamples for contrast.) **Hierarchy:** Information grouped by levels of specificity, importance, etc.

Categories/Subcategories: Parts of a

classification system.

Collections: Items that belong together, but that are not related in any of the above specific ways.

Comparison

Comparison: Lists of similarities among topics.
Contrasting: Lists of differences among topics.
Comparing & contrasting: List of both
similarities and differences among topics.
Analogy: Correspondence in some way(s)
between items otherwise dissimilar.

Deliberation

Pros & cons: Lists of positive and negative aspects of a topic.

Advantages & disadvantages: List of favorable or unfavorable aspects of a topic.

Sequential Structures

Order

Importance: Lists of information according to significance.

Rank: Lists information according to some comparative value (e.g., size, priority).

Enumeration: Lists information numerically (e.g.,

steps).

Descriptive timeline: Lists events that happen in an order but do not influence each other's place in the order.

Process

Timing: Lists events related by time.

Cycle: Shows process or series that repeats itself. **Flowchart:** Shows the progression of steps, events, etc., in which the order is determined by decisions or outcomes at each step.

Feedback loop: Shows a process or series that may return to the beginning (or some previous step) depending on any one intermediate outcome in the chain of events.

Causality*

Cause & effect: Shows an outcome and what led to that outcome.

Occurrence & consequence: Shows an event and the result of that event.

Cause-effect-consequence: A chain of causality showing a final outcome (consequence), an intermediate force (effect), and the initial reason for the chain (cause). Causal timeline: A timeline indicating events in the order they influence one another.

Problem and Solution

Problem and Solution: Identification of a challenging situation and its resolution (actual or potential)>

Problem, solution, and results: Potential or actual challenge(s), resolution(s), and implications of the resolution(s).

*While these structures are defined in the singular, plural forms are to be expected.