ORDER Routine
for summarizing & clarifying learning

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Open your mind and take notes.

This first step of the new *ORDER Routine* embodies what the routine is all about: It doesn't just advise students to take notes, but tells them to open their minds and think about the information they are learning. Every class presents some information, mostly factual, that students must learn whether they think they are interested in it or not. As all good teachers know, that does not mean that if we dictate it and they memorize it, the learning we hoped for will occur. We want students to think *about* and *with* the information we share with them. Students have to think about information to learn it initially, and as they continue to think about it, they become able to use it—that is, think with it.

Critical Thinking Demands for Higher-Order Learning

Cognitive psychology has taught us that memorizing information is good for little more than short-term recall. Truly remembering information for the long haul requires that it be practiced and used. Indeed, when you meet new people, quickly memorizing their names may get you through the cocktail party or SIM conference, but when you meet them again a year later, your memory likely will fail you unless you have done something meaningful to remember their names. The same thing is true for your students and their 10 vocabulary words per week. Simple memory tricks might work for names and vocabulary quizzes, and good tricks might even last a full year, but there aren't enough tricks for the volumes of information we expect students to learn across a school year. Additionally, the ability to name people, facts, or ideas (although important) is not the same as learning and thinking about the information. Recall is important, but it is one piece of the learning process.

Truly learning information means that it can be recalled, explained, thought about, and applied. We know that this type of higher-order learning involves making rich connections between new and known information. That is the reason for the current emphasis on students making semantic maps or webs, such as the expanded visuals of the *Course, Unit,* and *Lesson Organizer* routines. Drawing the maps helps them to see how the information is related. Much of what we know about this aspect of the learning process comes from studies of the reading process. Researchers such as Bonnie Meyer (e.g., 2003; Meyer & Poon, 2001) have found that students use their prior knowledge to make sense of information they are reading (also see Rosenblatt, 1978). Understanding new, and sometimes confusing, information involves not just relying on familiar prior knowledge but also thinking about what each piece of information has to do with any other they are learning. For

example, an average high school science textbook introduces more new vocabulary than students learn in an entire year of a foreign language class (Yager, 1983, as cited in Mastropieri, Scruggs, and Graetz, 2003)! That's a lot of new science vocabulary (facts and concepts) for students to comprehend, recall, and apply as they read their way to the end of the chapter. The successful student will need more than a memory trick to sort through and learn the useful information from such a book.

The Demands of the Content-Area Classroom

Yager's finding about science textbooks is emblematic of the problems many learners face at the middle/junior and high school levels, in both class work and reading. A tremendous amount of new and complex information is expected to be learned. And the learning expectations go beyond recall. The learning and skills gap (Deshler et al., 2001) that many of our students encounter only exacerbates the challenges of learning in content-area classes. Students at the secondary level are expected to be able to apply a wide array of strategic skills for both participating in the classroom routine and for meaningfully learning new information (Scanlon, 2003).
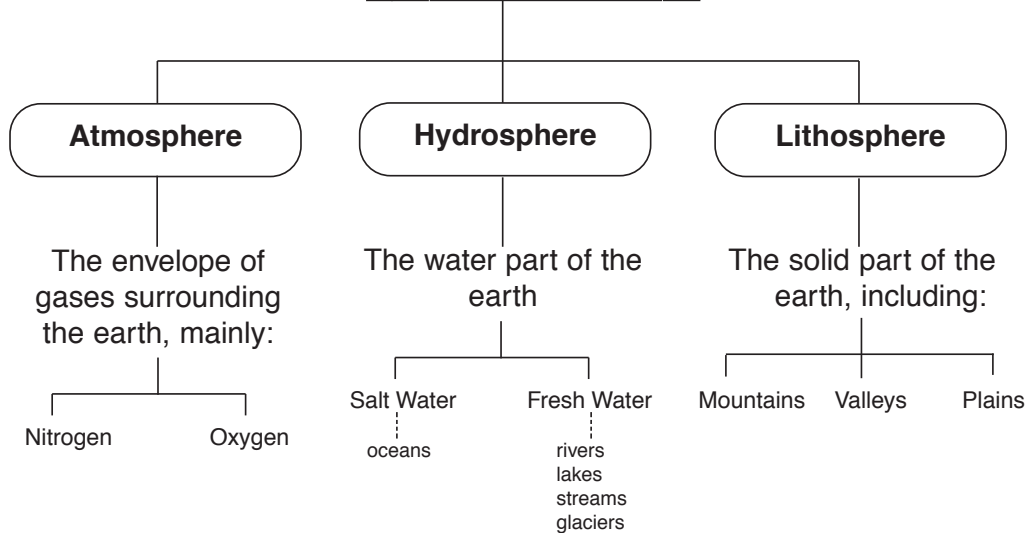
The ORDER Routine for Aiding Comprehension

The *ORDER Routine* responds to the demands upon secondary content-area learners by guiding them through both the routines of classroom learning and the critical thinking skills for truly comprehending new information.

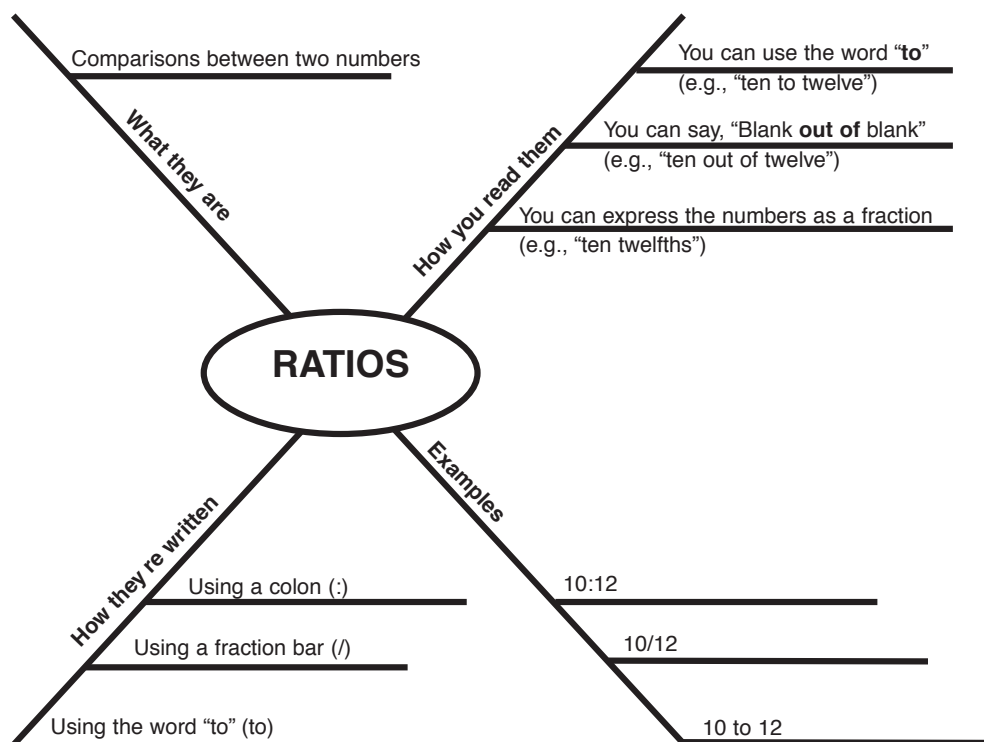The *ORDER Routine* may be thought of as a summary routine: It is used to organize and make sense of information once it has been "received." It is designed to help students reflect on what they have just been asked to learn. *ORDER* may be applied at the end of a class lesson in which notes have been taken or when a reading assignment has been completed. By using *ORDER*, students take a second pass at the new information, think about what they have just learned or read, understand how it all fits together, look for any missing information or errors in their notes, and begin to apply it by trying to fit it together to make a graphic organizer.

Borrowing from Meyer's and others' (Armbruster, Anderson, & Ostertag, 1987; Bos & Anders, 1990; Englert, Stewart, & Hiebert, 1987; Robinson & Kiewra, 1995) research on expository text structures, the *ORDER Routine* guides students to think about how the myriad facts and concepts in their notes fit together. Thus, students start to think about the "big ideas"

Parts of the Earth

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                    Parts of the Earth
        ┌────────────────┼────────────────┐
   Atmosphere        Hydrosphere       Lithosphere

The envelope of     The water part     The solid part of
gases surrounding   of the earth       the earth, including:
the earth, mainly:
                    Salt Water  Fresh Water   Mountains  Valleys  Plains
  Nitrogen  Oxygen   oceans      rivers
                                 lakes
                                 streams
                                 glaciers
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The ORDER Routine guides students to think about how facts and concepts in their notes fit together.
Students then construct graphic devices depicting these connections, as illustrated
in this descriptive ORDER device showing the parts of the earth.

Comparisons between two numbers

What they are

You can use the word "**to**"
(e.g., "ten to twelve")

How you read them

You can say, "Blank **out of** blank"
(e.g., "ten out of twelve")

You can express the numbers as a fraction
(e.g., "ten twelfths")

RATIOS

How they're written

Examples

Using a colon (:)

10:12

Using a fraction bar (/)

10/12

Using the word "to" (to)

10 to 12

Students begin to apply newly learned information by constructing graphic organizers, such as this ORDER device describing ratios: what they are, how to write them, how to read them, and examples.

that explain what all the information in a lesson or reading has to do with one another. (Those who have used the *Unit Organizer Routine* or *Concept Mastery Routine* know what a challenge this can be.) Learning four major expository structures for the organization of information (sequence, compare and contrast, descriptive, problem-solution), students work together as a class to predict what information from the lesson is necessary to know to understand the big ideas of the lesson, they predict which expository structure helps explain the relationships among that important information, and they create a graphic organizer that depicts the "story" of that connected information.

Thus, the students actively think about the content and how it all relates, they discuss their ideas and learn from others, they realize what they don't understand, and they conclude with a graphic (the organizer) that explicates the big idea of the information in their notes or just completed reading. The graphic becomes a tool for later study.

The *ORDER Routine* involves five steps:

Step 1: Open your mind and take notes. This step may not mean much to students the first time they hear it. However, as they practice the routine as a class, they will build understanding, and it will become more meaningful.

Step 2: Recognize the structure.

With this step, the first one after notes have been taken (or reading is completed), students begin to critically reflect on the information. They will have learned the four relationship structures, and now predict which one they think best represents how the important content is related.

Step 3: DRAW an organizer. To test and refine their prediction from step 2, the students create a graphic organizer (see examples above and on pages 2 and 6) of the important content. The DRAW substeps guide them to evaluate what content is important, whether their predicted relationship structure is appropriate, and how best to graphically depict it all.

Step 4: Explain it. Students use

this step to "read" their graphic organizers. It requires them to explain what is depicted and to go into greater detail than just stating the terms written on the organizer.

Step 5: Recycle it. Finally, this step reminds students to use their graphic organizer for further learning. To recycle is the opposite of creating and discarding (even from memory) a product. Teachers can encourage recycling by making ORDER organizers an assignment for credit.

Supporting Research

When a group of middle-school social studies teachers were asked what learning strategies their academically diverse learners most needed to learn, they identified three top priorities for their students:

1. the ability to form relationships within information sets,
2. the ability to organize information, and
3. the ability to create visual devices for learning (for example, timelines and graphic organizers).

From these priorities, the *ORDER Routine* was developed. Research into the effectiveness of the routine began with these same

teachers and continued with many others.

In one study conducted on the *ORDER Routine* (Scanlon, Deshler, and Schumaker, 1996), six middle-school teachers used the *ORDER Routine* with their students, and six comparison middle-school teachers used another experimental routine that did not address the same skills as the *ORDER Routine*. The students in the experimental classes (the *ORDER Routine* classes) included 11 students with learning disabilities (LD) and 98 other students; students in the comparison classes included six students with LD and 89 other students.

Pre- and post-intervention data on the students' ability to recognize the expository relationships among content in a reading passage and to create an appropriate graphic organizer indicated *ORDER Routine* students earned significantly higher scores on the posttest than did comparison classes [$F(1,199)=13.590$, $p<.0005$]. In fact, students with

> The ORDER Routine is used to organize and make sense of information. It is designed to help students reflect on what they have been asked to learn.

LD made greater pretest to posttest gains than did students without LD. However, in both the pretest and posttest, students without learning disabilities earned higher average scores than the students with LD.

A later study included two high school social studies teachers plus one health teacher and their 137 students, and two additional social studies teachers and their 82 students for a comparison condition. The students read four passages and created a graphic organizer for each during the pretest and posttest. The organizational structures of the four passages in each set were sequential, descriptive, compare and contrast, and problem-solution. Students without LD in the ORDER classes far outperformed the comparison students during the posttest, despite the fact that comparison students, on average, earned more points on each of the four graphic organizers during the pretest. (See *Figure 1: Mean points earned on graphic organiz-*

Step 1:	**O**pen your mind and take notes
Step 2:	**R**ecognize the structure
Step 3:	**D**RAW an organizer
Step 4:	**E**xplain it
Step 5:	**R**ecycle it

ers, below.) A separate analysis of covariance was used for each passage. Students in the experimental condition were found to have statistically outperformed the comparison students on all four types of graphic organizers. Significance levels were at the $p < .05$ level for three of the structures, and at the $p < .01$ level for the problem-solution structure.

An examination of average pretest to posttest gains for students with LD in the experimental condition indicates a magnitude of change greater than that for their experimental counterparts without LD and the comparison students on all passages except the problem-solution. Even in the case of the problem-solution passage, though, the students with LD did make a mean gain nearly equal to their peers without LD.

Classroom (and Beyond) Applications

The *ORDER Routine* has been used in a variety of content-area classes. Despite being a summary routine, many teachers consider it more a part of the teaching process than a review. They know that students who have been introduced to new content through a lesson (or reading) need to go back and think about it. Some students are so busy getting new information into their notes that they don't concentrate on "getting" it. Within a single class period, new information can be taught and then the lesson can be continued using ORDER. This will cause the students to immediately interact with their notes and to start thinking about the new information. Because ORDER is a routine,

they will have your guidance and that of their peers, while they also contribute to others' learning.

The teacher can lead the class in constructing an organizer on the overhead. Once the students have practiced the routine a few times, they can work in small cooperative groups. The E step of ORDER, "Explain it," provides them opportunities to explain the information represented in their organizers. Thus, if the discussion used to create the organizer didn't provoke them to clarify certain confusion, this step provides another chance.

Although the *ORDER Routine* is most easily learned in a class-wide routine format, each step of the ORDER mnemonic and DRAW substeps can be followed by a student working in isolation. Thus, performing ORDER can
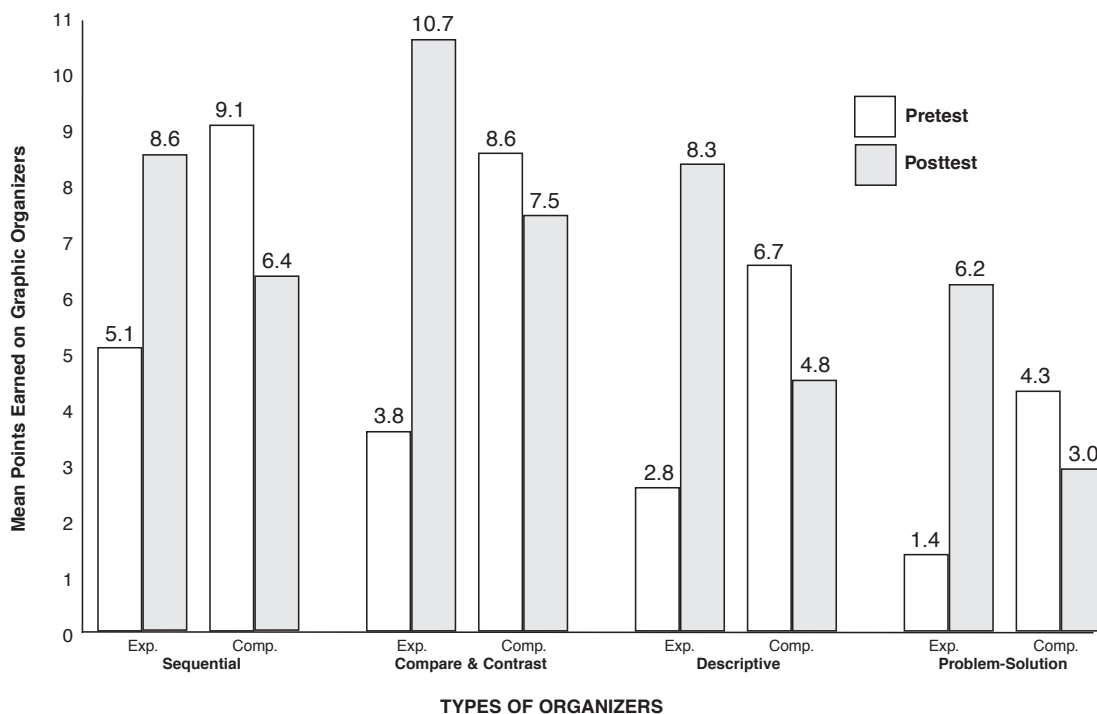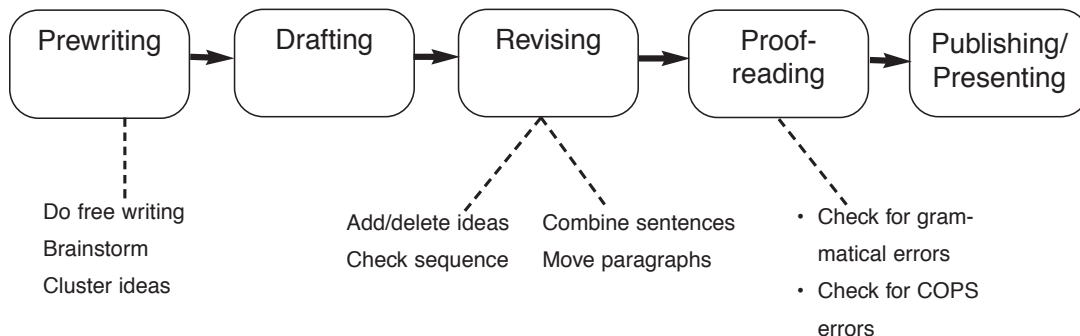

Figure 1: Mean points earned on four types of graphic organizers by students without LD in experimental and comparison classes.

The Writing Process

| Prewriting | → | Drafting | → | Revising | → | Proof-reading | → | Publishing/Presenting |

Do free writing
Brainstorm
Cluster ideas

Add/delete ideas   Combine sentences
Check sequence   Move paragraphs

• Check for gram-
matical errors
• Check for COPS
errors

This ORDER device depicting steps in the writing process is an example of a sequential organizer.

become an individual homework assignment, or students may generalize use of the *ORDER Routine* to other contexts.

When students use ORDER, they more than recall; they think.

• *The ORDER Routine manual, published by Edge Enterprises, is available only through professional development sessions conducted by certified SIM instructors.*
See kucrl.org for more information.

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New materials on kucrl.org

2005 CEC Annual Convention

KU-CRL staff and doctoral fellows organized a series of sessions into a strand called "Radical Reform for Secondary Schools: Or, Where do We Find Success for Students with Disabilities?" for the 2005 Council for Exceptional Children annual convention.

These presentations addressed why single-dimensional and quick-fix solutions will never be adequate to meet the needs of students at risk for school failure. The answer to the question in the title is, "At the intersection of effective behavior management practices and sound instructional methodology." Brief descriptions of each session follow. Strand leaders were Jean Schumaker, associate director, and Don Deshler, director, KU-CRL.

*• A pdf file of the PowerPoint for sessions marked * may be downloaded from kucrl.org. See the "Materials from the 2005 CEC Conference" link on our home page.*

* Session 1: Can Secondary Schools Reform to Meet the Needs of all Students? Schools have pressure to perform like never before. Neither behavioral nor academic interventions alone can result in the kind of change required. If a classroom is out of control, no learning will occur. If there is control, but instruction is not creating student success, students will soon become unmotivated. Presenters: Don Deshler, KU-CRL, and Randy Sprick, Teaching Strategies, Educational Consultant, Eugene, Ore.

Session 2: The Advantages, Difficulties, and Limitations of Comprehensive Behavior Support. This session described a model of behavior support based on the Safe and Civil Schools approach. This approach focuses on behavioral interventions that are proactive, positive, and instructional. Presenter: Randy Sprick

• An interview with Randy Sprick is available at kucrl.org/archives/classroom/sprick.shtml

* Session 3: Ensuring success in subject-area courses. To promote the success of students with disabilities in the secondary school setting, mastery of content in subject-area classes must be an important goal. Presenters: Keith Lenz and Monica Harris, KU-CRL

* Session 4: Teaching Learning Strategies in Subject-Area Courses and Support Settings. To promote their success in the secondary school setting, students must learn and practice important learning strategies. Presenters: Jean Schumaker, Amy Scheuerman, and Michael Faggella-Luby, KU-CRL

* Session 5: Meeting the Needs of Adolescents with Severe Skill Deficiencies and Language Problems. Secondary students with severe skill deficits and underlying language problems need intensive and specialized instruction to be successful at the secondary level. Presenters: Nanette Fritschmann and Patty Graner, KU-CRL

* Session 6: Academic and Behavioral Coaching—The Tool for Insuring Progress and Sustainability. Years of staff development research has demonstrated that the way to achieve implementation of new practices is to provide support, feedback, modeling, and encouragement to staff. Presenter: Jim Knight, KU-CRL

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Instructional Coaching
(see the link under "Related Projects and Information" on the kucrl.org home page)

Instructional coaches are on-site professional developers who teach educators how to use proven teaching methods. This site draws on nine years of research to provide information about what an instructional coach does as well as instructional coaching theory and tools. KU-CRL offers an Instructional Coaching Institute to explore issues and ideas related to this popular and effective form of professional development. Details about the institute are available on this site. Two more Instructional Coaching Institutes are scheduled during the second half of 2005:

• August 11-13, 2005
• October 13-15, 2005

Both institutes will be held in Lawrence, Kan. See the web site for deadlines and registration forms.

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