Facilitating knowledge of how core ideas have affected, are affecting, or could affect the world around us is the ultimate goal of content instruction. If the instruction provided in the content area does not result in students making these kinds of connections, then why bother teaching it? While good teachers facilitate reflection throughout the process of content instruction, thinking back about what has been learned and making connections between and among important ideas can be a meaningful and effective way to bring closure to a lesson or unit. It is important to realize, however, that this kind of content instruction is much more than a set of “neat tricks” that can be used to end a lesson. The kinds of connections that are made during these activities are often among the most important in the entire lesson!
Think-Back routines can be employed at a variety of times. Some can be used as new content is being explored (i.e., think back about a main idea just presented); many can also be employed at the end of a lesson to provide closure, and they can be employed at the end of a unit encompassing several days of teaching.

This section of the program addresses Think-Back reflection routines that involve using graphic organizers along three dimensions. The first provides guidelines for implementing basic routines for facilitating review. The second addresses teaching routines that are more oriented to reflecting on the core ideas of the lesson and making connections to the world. Finally, the third addresses routines for facilitating reflection about thinking itself and about the strategies students are using.

A few words about facilitating use of higher-order thinking with less capable learners

Reflection activities can be viewed along a continuum ranging from simple review of what was taught to higher-order analytical, critical, and creative thinking activities. There are several traps that are easy to fall into, all of which result in providing less capable learners less opportunities to participate in higher-order thinking activities, thus denying opportunities for them to become more sophisticated at these essential life skills.

**Trap #1** Belief that less capable students cannot engage in higher-order

Less capable students’ initial responses to reflective thinking questions (e.g., *Ugh, I don’t know*) make it easy to conclude that they are not capable of thinking at these higher levels and, thus, these kind of activities should not be provided. This is often a *serious misnomer*. Very often, these kinds of responses are an indication that students are unwilling to take risks by sharing their understanding of something because they are afraid they will be laughed at or ridiculed or that they will “say the wrong answer.” If you create an environment where risk-taking is encouraged, and you set the stage by not allowing teasing to occur, you may find that the higher-order thinking responses from these kinds of students eventually become more robust and meaningful.
Another trap that is very easy to fall into is not providing students with sufficient “wait time” -- that is, sufficient time to process the question, reflect on it, and formulate responses to it. Providing all students with sufficient time to formulate responses almost always results in considerably more sophisticated responses -- especially from less capable learners.

Putting too much emphasis on “right” or “wrong” answers during reflective activities often KILLS the activity, especially for less capable learners. While we want students to be as precise and accurate as possible and not to have erroneous understandings, sometimes precision and errors become confused with right and wrong answers. Less capable learners are often also reluctant to take risks in reflective activities because they are afraid that they will be wrong.

Characterizing connections as “close connections” or “distant connections” provides an alternative to dichotomizing responses as right or wrong; the result is a safer environment for students to take risks when sharing their understanding. For example, after a student has responded to a reflective question, you might ask

*Do you see that as a close connection or distant one? Why do you think so?*

Because less capable students often provide considerably less sophisticated responses that may also be somewhat erroneous, it again becomes easy to conclude that activities requiring reflection are not appropriate for them and should be reserved for the brighter students in the class. Unfortunately, the result is that less capable students are not provided opportunities to make connections between various core ideas of the curriculum as well as to practice reflection; thus the students don’t develop reflective skills, even at superficial levels.
Students’ responses to reflective questions or activities may be best viewed as falling somewhere along a continuum (see the figure below ranging from erroneous, unsophisticated understanding to those that are highly sophisticated.

Thus, the notion is to move the student, wherever s/he falls on the continuum, toward deeper and more sophisticated and precise responses.

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The Pause Procedure

The Pause Procedure is appropriate for when you are presenting content to students, and they are taking notes on either a partially completed or blank graphic organizer. You plan ahead by scheduling a pause at various points in your instruction (e.g., about every 10 minutes). During the pause, students compare notes and fill in missing information.

Aside from the obvious advantage of students having a more complete set of notes on their graphic organizer as a result of each instructional pause, the procedure also serves as a mini-review because, as students are comparing notes, they must briefly think about and reflect on what was said by the teacher that was important. Thus, the procedure also promotes self-monitoring.

In addition to just having students check to see if their notes are complete, you can have them explain to their partners the key ideas that were just
presented in the previous segment of instruction. This practice promotes elaboration as students use their own words to revisit the key ideas.

The Pause Procedure is best implemented purposefully and intentionally, thus, plan ahead for its use. The following steps are recommended.

Teaching Tips

Step 1: Reflect on your content and identify logical places to implement an instructional pause.

* A good time to pause is immediately following the presentation of an important point or main-idea.

* Ideally, pauses should occur about every 10 minutes.

If there does not appear to be a logical point to schedule a pause in your presentation (e.g., immediately following the unpacking of a main idea), use a minute timer (also called kitchen timers or egg timers) and set it for 10 minutes at the beginning of the presentation. When the bell goes off, force yourself to implement the Pause Procedure. If you don’t use a timer and force yourself to pause when it goes off, you will be very tempted to sacrifice the Pause Procedure in favor of taking more time to present more information.

Caution! It is really easy to forget to implement the Pause Procedure when you get caught up in the excitement of presenting and discussing the content.

Step 2: Have students identify partners.

To accommodate the needs of students who have poor note-taking ability, it is often desirable to pair these students with more competent note-takers. However, if you do this, be sure to frequently rearrange partners so that this burden is shared among all students. Otherwise, individual students who are consistently paired with a less competent student will likely develop resentment.

Step 3: At the beginning of the instructional pause, set the minute timer for two or three minutes, and then cue students to compare their notes.
**Step 4:** At end of the pause (e.g., when the minute timer goes off), promptly resume the content instruction.

Often students request more time to compare notes (especially when you first begin implementing this procedure in your class), but you should resist this. Students soon learn that they can’t waste time and that they need to “get the job done” within the timelines of the pause.

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**Think/Pair/Share**

Of all the basic instructional techniques, questioning ranks among the most important tools for facilitating learning. Providing students with sufficient “wait time” (time to think about the question and formulate a response) and ensuring that all students (not just the quickest and brightest students in the class) respond to questions are two critical components of effective use of questioning techniques that are frequently overlooked. Think/Pair/Share effectively facilitates both of these and promotes student elaboration of the elaboration of the to-be-learned content subject as well.

To implement Think/Pair/Share, a question is posed and students are given time to reflect on the answer. Only after you give the signal do students turn to a partner and share their response to the question with him or her. Afterward, a few pairs are asked to share their response with the class as a whole and discussion ensues.

**Teaching Tips**

**Step 1:** Reflect on your content and identify specific question(s) to pose during the Think/Pair/Share activity.

Open-ended questions that require explanations for answers (as opposed to one-word responses) are best for Think/Pair/Share activities. A wide variety of open-ended questions can be used. Some samples are provided below.


*What was the most important thing you learned about this?*
*So what? Why do you think it’s so important?*
Now what? What will you do with what you learned?

What was an idea from this lesson that you’d like to “trash”?
So what? Why do you think it should be trashed?
Now what? What can you do to promote trashing of this idea?

Metaphorical questions

The core idea of today’s lesson was about how, during the Spanish Inquisition, people who the Roman Catholic Church considered “heretics” were summarily executed or otherwise severely punished. What would be a good metaphor for how people were treated? In what forms does this idea show up in today’s world?

We’ve been examining how the first printing press and its first product, the Guttenburg Bible, impacted history. What would be something that’s happening right now that historians a thousand years from now might say had a profound impact on our current society? Why or in what way?

The core idea of today’s lesson about the Progressive Era has been about how muckrakers made citizens aware of the social problems of the day -- especially the abuses of core businesses and government. Although we don’t call them muckrakers now, in what forms do we have similar things happening today?

Application questions

The core idea of today’s lesson has been about how muckrakers made citizens aware of the social problems of the day -- especially the abuses of core businesses and government. How could we apply this idea today to improve things?

Extrapolation questions

What if? What if there had never been a Martin Luther King, Jr.? How would things be different today?

Given LBJs approach to overseeing the Viet Nam war, what should have been done differently that would have produced a better result? Why do you think so?

Forecasting future learning questions
So, far, we’ve been learning about the Lincoln-Douglas debates. Based on what you learned today, what do you think happened next? What do you think we’ll be learning about next?

**Step 2:** Teach the content.

**Step 3:** Pose the question and structure think time.
   - Have students identify partners.
     - Inform students that they are to think of an answer to the question that you are about to pose, but not to say anything out loud until you give a signal.
     - Pose the question and then provide about 1 minute of think time.

**Step 4:** Cue students to share their responses with their partner.

**Step 5:** Call on two different students (each from a different pair) to share their responses with the class; facilitate class discussion around similarities or difference in opinions that various pairs generated.

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Priority-share is a powerful activity for promoting reflection and elaboration about the content being addressed. This activity is best used in conjunction with your direct explanation of content depicted on the graphic. You may have noticed that the various idea-boxes on graphic organizers in this program contain small circles next to many of them. These come in play in a significant way during this activity.

Priority-share is implemented following the presentation of a set of main-ideas or a set of details associated with a specific main-idea. Students (in pairs or small groups) reflect on the set of ideas and then impose some form of priority on them (e.g., most-to-least important idea; idea which had the most-to-least impact on..., etc.). The process of determining a priority for a set of ideas depicted on the graphic results in mini-debates within each of the small groups -- thus facilitating reflection and elaboration.
To indicate their perceptions of priority, students note numerals in the small circles next to idea-boxes on the graphic. Later, groups report to the class their conclusions with regard to the priority they determined for the set of idea, and they must explain why or their reasoning behind their decision. For example, in the Problem/solution graphic depicted in the figure below, students debated about which of the basic problems were the greatest, and then rank ordered them accordingly.

Priority-share can be applied both to (a) rank order the relative importance of a set of main-ideas as well as (b) rank the relative importance of a set of details associated with a specific main-idea. For example, the graphic below depicts an overview of U.S. Presidents during the Progressive Era as well as significant events that took place during each President’s period in office.

To implement Priority-share, the teacher asked his students to decide which of the progressive presidents ultimately had the greatest impact on today’s society (and to be prepared to tell why they think so). In addition, since Teddy Roosevelt was associated with so many different events, students were asked to rank the significance of them as well.

**Teaching Tips**

**Step 1:** Reflect on your content and identify the sets that students will examine for rank ordering.

You should ask students to rank order a set of main-ideas, OR a set of details associated with one main-idea.

It’s usually not a good idea to ask them to rank order the set of main-ideas as well as each set of details for each main-idea at the same time because it takes too long. However, as illustrated in the above figure, rank ordering a set of main-ideas plus one set of details often works well.

**Step 2:** Identify question(s) you will pose that will require rank ordering of the information.
There are a variety of other forms of questions you can pose that will require reflection and ranking of ideas. The best ones are content-specific. For example...

“Which is the most important/least important idea?”

“Which of these three presidents do you think had the greatest impact on the way we live today? Why do you think so?”

“Which of these three presidents do you think were the most controversial during their terms? Why?”

“Which of these three presidents do you think experienced the greatest challenge when trying to get his ideas implemented during the Progressive Era?”

“Which of these three presidents do you think would be a good replacement for our current President? Why?”

You can pose the same question to each of your groups, or you can have each group respond to a different question.

**Step 3:** Teach the pertinent content.

**Step 4:** Have the students form groups, and then assign each group their question.

**Step 5:** Establish activity parameters and expectations.

*Allot a specific time for completing the activity. In many cases, a lot of class time is NOT needed for students to complete the prioritizing of the ideas. If you allow too much time, students may get off task and even become disruptive. Use of a minute-timer is recommended. Generally, a groups’ “think-and-discuss” time needed to

**Caution!** You need to be very clear about expectations. Students will often relatively quickly discuss and then rank order the ideas, but fall short on identifying the reasons why they assigned the respective ranks. You may need to place extra emphasis on cueing students to also prepare reasons why they assigned certain ranks. In some cases, you can require students to list a specific number of reasons (e.g., “Once you’ve completed your rankings, you need to compose a list of at least three different reasons why you ranked the ideas the way you did.”).
complete this activity is between 2-3 minutes and a maximum of 5 minutes.

**Step 6**: Have different groups share with the class their rankings.

- **If each group responded to a different question...**
  a. Each group should share with the class their question and their response to it.
  
  b. The teacher should prompt class reactions to the group’s response (e.g., agree or disagree with that group’s conclusions and why).

- **If each group responded to the same question...**
  a. Ask one group to share with the class their response to the question.
  
  b. Ask a different group who generated a different ranking of ideas to share their response.
  
  c. Facilitate a mini-debate/discussion among the class members about these two groups’ responses.

It is usually not necessary to ask every group to share their response to the original question, but the whole class should participate in the mini-debate/discussion.

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**Jig-saw Re-teaching**

In this procedure, each student has a turn at being the "peer-teacher" for the rest of the group or his/her partner. Using the graphic organizer as a guide, the student re-teaches others in the group the information depicted on the graphic. Each member in the group has assigned a specific different idea depicted on the graphic that must be explained to the group. After each idea on the graphic is explained, the group members add additional information or clarifies and then proceeds to the next idea to be explained by a different group member.

Jigsaw Re-teaching is best used immediately after the pertinent information on the graphic organizer has been taught. The procedure can be applied after all of the information on the graphic organizer has been taught, or it can be applied following instruction in one of the main-ideas and set of supporting details. The procedure is also an excellent way to review at the end of a chapter or unit.
Teaching Tips

Step 1: Teach the pertinent content on the graphic organizer.

Step 2: Assign each member of a group one of the ideas depicted on the graphic to re-teach to their group (can be a main-idea or supporting detail).

Caution! You should avoid allowing students to self-select which ideas they will re-teach because they will almost always select the ones easiest to explain or the ones they know the most about. Thus, it is a good idea to assign ideas to students.

Step 3: Provide think-time (e.g., 2 minutes) at the beginning of the activity.

Students should be cued to mark on their graphic organizer or write key words on a separate paper that they want to mention during the re-teaching of their idea. This should be quiet time when students are thinking, so you may want to require silence during this ‘get-ready’ time.
Step 4: Have each student re-teach his/her assigned idea; following the individual student’s re-teaching, cue other students in the group to add additional information they can recall about the idea or express any connections to other ideas they can make.

Caution! You may find that when teaching the information on the graphic organizer, some students will just read the notation on the graphic to their group (as opposed to explaining the information). When you first begin implementing this procedure, encourage students to use their graphic as a guide to help them remember what points to explain instead of reading each idea box to their peers.

To accommodate the needs of less capable learners, it is a good idea to inform them well ahead of time (e.g., at the beginning of class) which idea they will be expected to re-teach during the activity. For example, you might say something like:

“Sam, at the end of the lesson today, we’ll be using Jig-saw Re-teaching. That’s when each student will have an idea from the graphic organizer and teach it to their group. One of the things I’ll be teaching today in class is the “abuses of child labor.” See, its here on the graphic organizer (pointing). That will be the idea you will have to re-teach during the jigsaw activity we’ll do after my teaching. When I’m talking about these abuses, keep in mind that you will be re-teaching it and be thinking about what you will say.”

Many students with learning difficulties are very intelligent and can generate substantive responses, but they require more time to process information. This “advance notice” can be a powerful accommodation because it provides student with the time they need, while it also maintains high expectations and avoids watering-down (or dumbing-down) the curriculum.
Paraphrased Upside-down Graphics

Upside-down graphic organizers are, as the name implies, upside-down. The lesson topic and main-ideas appear at the bottom of the graphic rather than the top. The activity occurs in three phases. In Phase 1, a group of students take a traditional graphic that has been completed from an earlier lesson, and re-write it, in upside-down fashion. Each idea must stay the same, but the wording must be changed, or paraphrased (the act of thinking about the idea and paraphrasing it serves as an effective review). The figure below illustrates a graphic that might be constructed during the normal course of instruction.

Accommodations for less capable learners may be needed during Phase 1 when students paraphrase ideas to construct the upside down graphic. Many of these students experience great deal of difficulty paraphrasing, thus this component of the activity can be either eliminated, or, more desirably, you can help the students create the paraphrases.

This next graphic shows how, during Phase 1 of this activity, students can paraphrase key ideas on the graphic and construct an upside-down version.
In Phase 2, the group meets with another group to share their upside-down graphic, but revealing only one idea at the time (all other ideas on the upside-down version are covered with paper and/or sticky-notes). Each idea presented serves as a “hint.” The other group uses these hints to try to guess what the main idea is that’s depicted on the graphic. After the hint is revealed, the second group momentarily “huddles” to discuss it, and then presents their guess. Only one guess is allowed per hint.

Points can be used to make the activity more fun. To establish points, count the number of details that accompany a main idea, assigning two points for each detail and 5 for the main idea itself. The figure below illustrates how this can be calculated.
Points are subtracted from the second group's score for each hint revealed that doesn't result in the identification of the main idea, with the exception of deducting points for the first hint.

Phase 3 is used in those instances where the second group guesses the main idea before all of the details have been revealed. In these cases, the group earns “bonus points” (e.g., 5 points per hidden detail) for each additional detail hidden under the sticky-notes on the graphic they can identify and explain. The group is given two guess per hidden detail, and they are allowed to huddle between each guess.

For example... If there are four details to begin with, and the group correctly identifies the main idea after two have been revealed, they would have already earned 11 points; there are two hidden details remaining that they can attempt to guess. Since two details remain, they have four guesses to identify them. If, after expending their four guesses, they identify one of the hidden details, the group earned an additional 5 bonus points, resulting in a total score of 16.
Bottom-Up Graphic Organizers

This review activity is very similar to that one above, but it does not involve having students paraphrase the keys to construct an upside-down graphic. Essentially, Parts 2 and 3 of the above activity are used on the original graphic that was constructed in previous lessons. All of the supporting points for a main idea are covered, and then each is revealed as hints one at a time while the opposing team tries to guess the main idea. Once the main idea is guessed, the then opposing team attempts to identify and explain other details associated with it.

Phantom Teacher

Phantom Teacher is review activity based on basic pair-share techniques. Students are paired, and then one of the students acts as a teacher and uses a completed graphic as a guide to explain the information on it to another student. Each idea on the graphic is explained, and then the partner adds any addition information that might be pertinent.
There are a wide array of ways Phantom Teacher routines can be used. For example...

* One student can act as a teacher and explain the entire graphic;

* After each idea has been addressed, students can switch roles so that the other acts as the Phantom Teacher.

* The Phantom Teacher can use the graphic as a guide to pose questions, etc.

Caution: Some students acting as Phantom Teachers simply read the information depicted on the graphic rather than explaining it. You can avoid this problem by (a) explicitly communicating your expectations with regard to wanting them to provide explanations rather than recitations, and (b) model and examples and nonexamples of what you want, and (c) monitor the dialogue among the students as they engage in the activity.

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Graphic Organizer Re-constructions

This review activity occurs in these phases. In Phase 1, teams of students are provided with a blank graphic organizer and then asked to re-construct from memory a complete graphic based on information on a completed graphic from previous lessons. For some students, it may be helpful to provide them with partially completed graphics where the main ideas have already been listed.

In Phase 2, teams combine to share their work, merge ideas, and refine their re-constructed graphics. In Phase 3, students crosscheck the information from the original complete graphic, notes et., and then put the finished touches on their re-constructed version. Once the re-constructed graphic has been completed, this activity can be followed by additional activities where the focus is more on facilitating elaborative review of the content.

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Revisited Rainbow Webs

The Revisited Rainbow Webs activity is very similar to the one titled “Co-constructing Spontaneously Emerging Sticky-note Webs” and detailed in the “Think During” section of this program. As a review activity toward the end of a content lesson, students are asked to write important ideas that emerged from the lesson on sticky-notes. The sticky-notes are then added to an existing web showing additional new information that has been learned. Thus, as a unit of instruction proceeds over the course of several lessons, the web is revisited, new ideas are added, and it gradually grows so that it depicts all of the important ideas encountered.

To produce a multi-colored rainbow effect, you can color-code sticky-notes to represent information from different lessons. For example, sticky-notes added to the web that came from a lesson on Monday might have a red bar across the top of each. Those that came from a Tuesday lesson could have a blue box around the edges of the note, and so forth. Since sticky-notes can be purchased in a wide variety of colors, these can also be used to produce the same effect.

The different colors of sticky-notes can also have designated meaning. You and your students can decide what the designations should be. For example...

<table>
<thead>
<tr>
<th>Sticky-note color</th>
<th>Designated Meaning on the Web</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>Factual information</td>
</tr>
<tr>
<td>Pink</td>
<td>Core ideas</td>
</tr>
<tr>
<td>Bright Red</td>
<td>Bad ideas that should be part of our society today</td>
</tr>
<tr>
<td>Green</td>
<td>Ideas that demonstrate positive values (i.e., courage)</td>
</tr>
<tr>
<td>Light blue</td>
<td>Pending questions students have about a topic.</td>
</tr>
</tbody>
</table>

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CROWN

CROWN is a lesson closure routine (as in “crowning touching on a great lesson”) that can also be used at the end of units. Each step of CROWN cues students to reflect, review, and elaborate on important aspects of both the content of the lesson and the way the lesson was provided.

Crown can be implemented in a variety of ways. For example, each team of students can assigned one of the CROWN components for which they will formulate a response (e.g., one team works on a response for the ‘C” component “Communicate what you learned,” a different team formulates a response to the “R” component, “Reactions to these ideas,” and so forth. After a few minutes of think-time, each team then shares their findings with the class.

When pressed for time, you can simply ask the whole class for voluntary responses to each of the CROWN components. For example, you might say...

“Let’s end this lesson by doing CROWN. The first step is ‘Communicate what you learned.’ O.K. First, I need some specific things we learned today. They need to be very specific. Think a minute... it’s O.K. to look at your notes if you need to. Who can give me something specific?”

When seriously pressed for time, you can ask the whole class to respond to only one of the CROWN components. For example, you might say something like...

“Let’s just do the “R” part of CROWN today. What was your reaction to these ideas? Any surprises about this stuff? Did you learn something in a way you didn’t expect? You can also react with connections -- what background experiences or knowledge that you have that an idea from class connects to?... Regrets? Hopes? Anything about these ideas that made you think of some regrets? ...or things you hope will happen in the future?”
CROWN can also be used as a homework assignment. For example, you can ask students to independently complete the CROWN graphic to bring closure to a unit of study.

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Learning Logs

Learning Logs are like diaries students keep that record reflections about what they are learning and how they are going about learning it. Learning Logs are useful because they promote metacognition. They are also useful tools for teachers because they can reveal students’ perceptions (and misperceptions) of the information, as well as reveal how they are reacting to the way the material is being taught.

You will probably find that students respond best to Learning Log activities when provided some structure. For example, you can provide a set of “guiding questions” that students can select from and respond to.

If you decide to allow students to select from a list of questions, be sure to limit the number of options from which students may choose. Often, providing students with too many questions to choose is counterproductive. Some students feel overwhelmed by a list that is too long and spend much of their

<table>
<thead>
<tr>
<th>Content Learning Log</th>
</tr>
</thead>
<tbody>
<tr>
<td>I've been learning about</td>
</tr>
<tr>
<td>How they clean up oil spills -- the different ways of doing it.</td>
</tr>
<tr>
<td>- decomposition - dispersion - physical removal</td>
</tr>
<tr>
<td>Knowing about this topic helps me</td>
</tr>
<tr>
<td>Know more about how to protect the environment</td>
</tr>
<tr>
<td>This topic reminds me of</td>
</tr>
<tr>
<td>* How expensive and how much trouble oil spills are.</td>
</tr>
<tr>
<td>* Reminds me of garbage dumps (landfills) - in a way, all three ways are used with regular garbage</td>
</tr>
<tr>
<td>The part I know the most about is</td>
</tr>
<tr>
<td>Physical removal - oil mops, etc.</td>
</tr>
<tr>
<td>The part that was the newest to me was</td>
</tr>
<tr>
<td>Emulsification (weird way of getting rid of oil)</td>
</tr>
<tr>
<td>The part that is the most confusing is</td>
</tr>
<tr>
<td>microbial degradation - I sort of understand this</td>
</tr>
<tr>
<td>photo-chemical oxidation - ??</td>
</tr>
<tr>
<td>I'd like to know more about</td>
</tr>
<tr>
<td>Which approach is cheapest and fastest</td>
</tr>
</tbody>
</table>
time just trying to decide which questions to which they will respond.

Likewise, human nature being what it is, some students will select only those questions that require minimal effort. Ultimately, what you want is for students to think deeply and grapple a little, so it is important to include some questions that require such an effort. Often the best format of Learning Log questions is to:

- Provide a limited number of questions from which students may choose to respond.
- AND-
- Provide a few questions that they are required to respond.

Below are examples of two different Learning Logs. The first is designed to facilitate students’ reflection about their understanding and learning of the content subject. The second addresses students perceptions of a learning strategy they have been learning.

Listed below are a variety of potential Learning Log questions you may wish to pose:

Sample Learning Log questions about...

Learning the Content

What are you thirsting to learn? Why?

What connections did you make between today’s lesson and your own personal experiences?

What was an idea/ experience that came up today that you think should be “trashed”? Why?

What was the most important thing you learned today? Why was it important? How was it the same as or different from what you already knew?

What was the CORE IDEA of the whole lesson? What makes it “core”? How did it relate to what you already know?

How does the core idea of the lesson relate to our class theme of?

What were some general things you learned today? specific things? How were they the same as or different from what you already know?

What were some reactions you had to the information we addressed today
(e.g., surprises, conflicts, regrets? joys? etc.)?

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Sample Learning Log questions about...

<table>
<thead>
<tr>
<th>Strategy Learning Log</th>
</tr>
</thead>
<tbody>
<tr>
<td>I've been learning how to 1st TRIP - scope out a chapter to learn what’s in it without reading it the regular way.</td>
</tr>
<tr>
<td>Places or situations I can use this include * History, science textbooks * Maybe with magazines</td>
</tr>
</tbody>
</table>

The most important part is

"R" step - Relationships - where you have to web the chapter - it helps you understand what the whole chapter is about by just looking at the web.

This strategy is similar to

SQ3R - but I didn't like SQ3R because some of it didn’t make sense, and I don’t like the S (Scan) step because it doesn’t help that much.

The part I can do the best is

Telling where we’ve been, where we are now, and where we’re headed next. This is good to do because it creates a map in your mind about what’s going on.

The hardest part is

Doing the "Relationships" step; it’s hard because you don’t know anything about the chapter & it takes a lot of time.

Sometimes I forget......

The "I" step - interpret the questions. This doesn’t seem that important to me.

I’d like to be able to

Do 1st TRIP really fast and not have it take so much time to do.

Habits of the Mind
adapted from Marizano...

What did you notice about your thinking when working on....? When did you notice others thinking about their thinking? How did you go about planning? When did you realize that you could use other resources to help solve? When did you realize that you needed other resources? How did you go about evaluating?

What did you focus on when evaluating?

What evidence can you offer that shows your commitment to being accurate? seeking accuracy?

What evidence can you offer that shows your commitment to being clear? seeking clarity?

What evidence can you offer that shows stick-to-it-ness (persistence) even when
the task was hard or unclear?

When did you want to give up? What did you do to prevent it?

How did others’ ideas differ from yours? How were differences discussed/addressed?

What did you say to yourself today about yourself that was positive? negative?

Sample Learning Log questions about Collaborating

What did you notice about how well your group collaborated?

When one of the members of your group seemed to dominate or take over, what happened? What could have happened instead?

Did you offer assistance (or receive an offer of assistance) to another student? How did this make you feel? What would have been a good time to offer assistance to someone?

Did you offer encouragement to or compliment (or receive encouragement or compliment) another student? Which of the members of your group need more encouragement?

How well are the member of your group listening with interrupting? When someone interrupts, what would be the best way to handle it?

When everyone is not doing his or her share in your group, what happens to the process? What could you do to help everyone do his or her share?

For each member of your group, identify at least one talent this person has that would be valuable to the group. How is each valuable?

What evidence can you offer that shows you respect differing opinions?

What evidence can you offer that shows you recognize and celebrate others’ successes? Why is this important to do?

What evidence can you offer that your group built a consensus when making a key decision?

Was there a time when someone in your group provided someone else in the group negative feedback? How well was it provided? How could the person providing the feedback do it better? How might the person receiving the feedback receive it better?
What evidence can you offer that shows that you are committed to peacefully resolving conflicts?

Teaching Tips

Step 1: Teach the core ideas and supporting points of the lesson.

Step 2: Provide students with a set of Learning Log questions.
It is often best to provide a limited selection of questions from which students are to select and also provide some questions that all students are required to respond to.

Step 3: Provide sufficient time for students to reflect and note responses.
In lieu of traditional homework focused at learning additional content, you may wish to assign writing in Learning Logs as homework.

Common Questions about Learning Logs

How do less capable writers use Learning Logs?
Students who are poor or extremely reluctant to write are often mistakenly characterized as poor thinkers. You may find that some reluctant writers are willing to note ideas in a Learning Log because they are sharing personal perceptions.

Regardless of how motivated some students are to write in Learning Logs, some simply lack the writing skills. These students can attain many of the same advantages by having them communicate their reflections concerning each of the Learning Log questions into a tape recorder.

Should students’ Learning Logs be shared with other students?
Occasionally, students will note powerful insights that you may want to share with other students to help make a point. ALWAYS ASK PERMISSION of the author before sharing the student’s response.

If conducting a group activity after students have written in their logs, you can ask open ended questions and allow students to volunteer to share their responses. Calling on specific students in not a good idea.

Should the teacher read students’ Learning Logs?
Ultimately, this is an individual decision that each teacher must make. A key advantage of reading students Logs is that they provide valuable insight into what students are thinking about their learning. If you decide to read students’
Logs, INFORM them PRIOR to their writing in the journals that you plan to read their responses.

Home – Lesson Structure

So what? ...What is important to know about this?

The question “So what? What is important to know about this?” is designed to facilitate recognition of a basic Core Idea of the lesson. Core Ideas can come in various forms, including basic summaries of what the whole lesson was about, topical core ideas which are important concepts more uniquely related to the topic of study, and generative core ideas or concepts that can be generalized across time, situations, and settings (see Figure below). You may find it helpful to refer to generative core ideas as “Basic Life Truths.”

### Big Ideas come in many forms, including...

<table>
<thead>
<tr>
<th>Simple (easiest to generate)</th>
<th>Complex (most challenging to recognize &amp; generate)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Summary</td>
<td>Consolidation of what the whole lesson was about</td>
</tr>
<tr>
<td></td>
<td><em>for example...</em> It’s important to understand that before the invention of the printing press, books had to be hand-copied, thus few were available for the common man.</td>
</tr>
<tr>
<td>Topical</td>
<td>Applications, implications, and/or interrelationships of ideas specific to the topic of study.</td>
</tr>
<tr>
<td></td>
<td><em>for example...</em> It’s important to understand that the Pope lost his influence because education and the invention of the printing press allowed people to begin reading and studying the Bible for themselves.</td>
</tr>
<tr>
<td>Generative</td>
<td>Applications, implications, and/or interrelationships of generative concepts (Basic Life Truths)</td>
</tr>
<tr>
<td></td>
<td><em>for example...</em> Introduction and spread of new technologies (e.g., printing press, television, computers, etc.) always result in shifts in power</td>
</tr>
</tbody>
</table>
Generating lesson summaries is cognitively less demanding than recognizing more generative core ideas. Thus, as you begin to encourage your students to engage in the identification of core ideas, you may want to begin with practice at simply generating summaries, and then gradually shift toward facilitating students' ability to recognize more generative ideas.

Likewise, it may be necessary for you to provide a lot of guided practice as students engage in these Think-back routines, thus you may also want to apply many of the I do it, We do it, Y'all do it and You do it teaching routines. Below are a number of brief descriptions of teaching routines you can use to facilitate identification of Core Ideas.

**‘I do it’ routines for So what? What’s important to know about this?**
Here, one of the best approaches is to use “think-alouds” to model thinking processes that are involved in constructing core ideas of the lesson. It is very important to plan ahead and identify what the core idea(s) is that you will be noting on graphic.

**‘We do it’ routines for So what? What’s important to know about this?**
One of the best ways to facilitate the co-constructing of core ideas is to have students work with you to identify a few options of what the core idea of the lesson might be. These options are listed on the board. Once two or three have been noted, then you can facilitate a discussion with the class to identify which might be the best one to actually list on the graphic. Again, it is very important that you have in mind ahead of time what at least some of these options might be so that, in the case that students are unable to generate any, you have some ready to use.

**‘Y’all do it’ routines for So what? What’s important to know**
about this?
There are a variety of cooperative learning configurations that can be used to facilitate reflection about the core idea of the lesson. These include:

**Think-pair-share.** Students are asked to independently generate a core idea for the lesson; after sufficient think-time, they pair with another student and share their responses. After this, you facilitate a discussion, clarify with the intent of making responses less erroneous and more generative.

**Pair-square.** Like the above activity, but immediately after pairs of students have shared their initial responses, each pair joins another pair and the responses are further refined before you get involved with the final clarification.

**Numbered Heads Together.** Groups of four students each are formed. Each group generates a core idea response. Each student in the group is assigned a number (1, 2, 3, or 4). Groups are then rearranged so that all of the students who were assigned the number “1” are now together in one group, all those assigned the number “2” and in another group, and so forth. New groups then share, merge, and refine responses generated by original groups. Afterward, you facilitate a discussion and provide any needed clarification of the core idea.

**Team-share.** Groups of four students each are formed. Each team formulates a core idea response. Each team is then paired with another team. Responses are shared, merged, and refined. Afterward, you facilitate a discussion and clarification as needed.

‘You do it’ routines for *So what? What’s important to know about this?*
You do it activities should be limited to short-term assignments such as homework. For example, after exploring the content depicted on a graphic, students can be asked to independently generate a core idea response to the “So what?” question at the bottom of the graphic. The next day, their independent responses can be followed with any of the cooperative learning routines listed above. For example, students use the core idea responses they generated as homework assignment to contribute to the first phase of the discussion during a Numbered-Heads-Together activity.

Home – Lesson Structure
What if...?

“What if...?” is fun, yet powerful activity for facilitating focus on the critical features of recently explored content, and then forming extrapolations and inferences about it. Following the exploration of new content, a What if...? question is posed by you or by students. Reposes are then formulated and discussed. Figure ____ illustrates this application. Two approaches to implementing this procedure are described further below.

Teacher-generated “What if...” questions. When initially implementing What if...?, it is best if you generate the questions for students. You can pose the questions before exploring the content, or you can pose then afterward. For example, if you were beginning a lesson on the Civil Rights movement of the 1960s, a “What if...?” question you could pose might look something like the dialogue that appears in the box to the right.

When you are ready for students to respond to the question, you can use any of the They do it cooperative learning procedures identified earlier (e.g., Think-Pair-Share, Pair-Square, etc.)

Student-generated “What if...?” questions. In most cases, you should not attempt to implement this procedure until after they have acquired experience responding to “What if...?” questions you generated.

Any of the cooperative learning techniques can be applied, but a particularly effective one is Team-Share. Groups of four students generate their own What if...? question, and discusses possible answers. The groups are then paired. The first group poses their What if...? question to the other group who in turn responds. The first group then adds any information that was omitted in the second groups response. Next, roles are reversed, and the second group poses their What if...? question to the first group.

“So far, we’ve been examining some of the foreign policy challenges that JFK faced in the early 1960s. Remember, that was the period in history when most of your parents were the same age as you are now! Today, we’re going to take a look at some of the domestic policy challenges JFK faced, and in particular, the Civil Rights movement. You’ve all heard of Martin Luther King Jr. There was a lot of history being made between Kennedy and King. As we explore this and the specific things that King did, keep in mind the following question (writes on board):

‘What would the US be like today if Martin Luther King Jr. had never been born?’

At the end of the lesson, we’ll explore this notion. Keep in mind the specific things he was responsible for, and what would have happened if he didn’t do those things“
You can use the *What if...?* graphic organizer to structure the activity. The figure below provides an example of one that was constructed in a social studies class.

**Teaching Tips - Teacher Generated “What if...?” questions**

**Step 1:** Identify the Core Idea and Supporting points prior to the lesson.

**Step 2:** Identify a *What if...?* question to pose to the class when introducing the topic at the beginning of the lesson.

**Step 3:** Using any of the Think During instructional routines, explore core idea and supporting points and complete the top half of the graphic with your students.

**Note:** The first few times you use this routine with your students, you should co-construct a response with your students to model the thinking process. Once students are familiar with the task, then they can be asked to work in groups to formulate a response without your assistance.

**Step 4:** Have the students form groups of four and then formulate a response to the *What if...?* question and complete the bottom half of the graphic.

**Step 5:** Have each group share their response to the *What if...?* question with the class.
Teaching Tips - Student Generated “What if...? questions

Step 1: Identify the core idea and supporting points prior to the lesson.

Step 2: Using any of the Think During instructional routines, explore the core idea and supporting points and complete the top half of the graphic with your students.

Step 4: Have the students form groups of four and then formulate a What if...? question, and then they form a response to the question and note it on the lower portion of the graphic organizer.

Step 5: Have each group share their response to the What if...? question with the class.

Note: An alternative would be to have each group generate a What if...? question, and then pass their question to another group who then form a response to it.

Home – Lesson Structure
Learning Forecast
Adapted from Renzulli....

Forecasting future learning is a powerful way to both facilitate anticipation for what is coming next, and for facilitating reflection about what has been learned. Essentially, the procedure involves having students identify the core ideas of what they have been studying and then create a hypothesis of what they will study next.

**Step 1:** Content is explored; teacher ensures students thoroughly understand the big ideas and supporting points.

**Step 2:** Students form groups and forecast future learning.

Post-war industrialization
How the US changed from an agricultural to industrialized country following the Civil War

Abundant Nat’l Resources
- timber, coal, oil, iron ore, rivers

Large labor force
- post-war high birthrate
- Irish & German immigration

Increased supply of capital
- foreign investors
- corporations investing

Get-rich-quick problems
living in an industrialized society

Child labor

Unsafe working conditions

Low pay for workers
The example below shows how the *What if...?* graphic can be modified to facilitate this activity.

**Teaching Tips**

**Step 1:** Using any of the Think-During instructional routines, teach the core ideas and supporting points of your lesson. For example, the top half of the above graphic might be used to web essential information about the post-Civil War industrialization period of the United States.

**Step 2:** Have students form groups of four and then forecast future learning.

a. Based on what they have just learned, have students first discuss what they think they *might* be learning next and note these ideas on the graphic.

b. In the event that students are unable to anticipate future learning, have students preview material (e.g., look ahead in the chapter, etc.) and then form a hypothesis about what they think they will be learning.

**Step 3:** Have each group share their forecasts either with the whole class or with other groups. You could use the Numbered-Heads-Together routine so the representatives from each group share their responses.

Home – Lesson Structure