THINKING ROUTINES FOR MAKING THINKING VISIBLE

Routines for Introducing and Exploring Ideas
Routines for Synthesising and Organising Ideas
Routines for Digging Deeper into Ideas
Routines for Introducing and Exploring Ideas
**SEE - THINK - WONDER**

Looking at an image or object:

- What do you see?
- What do you think is going on?
- What does it make you wonder?

**Purpose:**

- **SEE** emphasizes the importance of observation as the basis for thinking and provides time to observe before interpreting.
- Having **WONDER** as the last step ensures that students had time to take in new information through their observing and thinking. **WONDER** opens up new areas to be explored.

<table>
<thead>
<tr>
<th>Appropriate Content</th>
<th>Uses and Variations</th>
<th>Assessment and Tips</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Images can include a painting, a photo, an artifact, a video clip, an excerpt of text, a chart, or a found object.</td>
<td>- <strong>SEE-THINK-WONDER</strong> can be done one step at a time or by using the three prompts together at the same time.</td>
<td>- <strong>SEE</strong> shows attention to details.</td>
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<td>- Images should have an element of ambiguity, and many different layers of explanation, as well as a large degree of detail.</td>
<td>- This routine is generally used at the beginning of a unit of study. Questions can be raised that might guide future inquiry.</td>
<td>- <strong>THINK</strong> responses should provide support.</td>
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<td>- <strong>WONDER</strong> statements should be broad and adventurous.</td>
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<td>- Students using a worksheet give shorter responses so this routine is best done orally.</td>
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**The Steps**

1. **Set Up:** Present the image in a way that allows students to see it in as much detail possible. You can project it on the whiteboard or each team can have a copy to look at. Students are given 2 to 3 minutes to observe without any talking or discussion.

2. **See:** Ask students to state what they noticed. They should only share what they could see and give no interpretations.

3. **Think:** Ask students what they think is going on in the image. The goal is to build up layers of tentative interpretations. Respond to students’ answers with requests for evidence such as: *What do you see that makes you say that?*

4. **Wonder:** Ask students what they are now wondering about based on what they have seen and have been thinking. Wondering is about asking broader questions that push us beyond our interpretations to look at issues and ideas raised by the object.

5. **Share the thinking:** Students share their thinking at each step along the way before moving on to the next one. The class can begin to build on the group’s thinking and the discussion can become richer because of it.

**The Technology Connections**
### ZOOM IN

Purpose:
- This thinking routine causes students to deal with limited information and it enables them to see that it is helpful to be open-minded and flexible.
- This routine causes learners to act as detectives and build up meaning, individually and as a group.

Look closely at the small bit of image that is revealed:
- What do you see or notice?
- What is your hypothesis or interpretation of what this might be, based on what you are seeing?

Reveal more of the image:
- What new things do you see?
- How does this change your interpretation? Has the new information answered any of your wonders or changed your previous ideas?

Repeat the reveal and questioning process until the whole image has been revealed:
- What lingering questions remain for you about this image?

### Appropriate Content
- Consider whether the image has separate areas that tell a different story and if the parts are as interesting as the whole.
- The content might be a scene with many people doing different things with the initial reveal showing just one person or activity.
- Content must be engaging and meaningful to the subject area.

### Uses and Variations
- Use an illustration to immerse students in a text and to develop an understanding of the setting or time period.
- In social studies you can use a map. As ZOOM IN progresses, more cartographic information is revealed.

### Assessment and Tips
- There is no set number of reveals to use.
- Walk yourself through the reveals and determine what type of information is revealed and if it will engage students.
The Steps

1. **Set up**: Display a section of the selected image and invite students to look at it. Allow time for careful observation. You can ask for observations before moving to the next step. Interpretations can be done individually, in small groups, or with the total class.

2. **Reveal**: Uncover more of the image. Ask students to identify new details. Ask them how these newly observed details affect their previous interpretations. You can ask about their wonderings as well.

3. **Repeat**: The process is continued. Ask students to discuss their different ideas and reflect on how their thinking changed as a result of the reveals.

4. **Share the thinking**: Discuss the process of **ZOOM IN**. Ask students how their interpretations changed over time. Ask them how seeing more influenced their thinking.

The Technology Connections
**THINK – PUZZLE – EXPLORE**

**THINK – PUZZLE – EXPLORE**  
Consider the subject or topic just presented:

- What do you **think** you know about this topic?
- What questions or **puzzles** do you have about this topic?
- How might you **explore** the puzzles we have around this topic?

**Purpose:**

- **THINK-PUZZLE-EXPLORE** is a routine that encourages students to connect to their prior knowledge, to be curious, and plan for independent or group inquiry.
- Teachers can get an idea of students’ understanding of a topic and can develop the setting for deeper inquiry.
- The routine can also be used at the conclusion of a unit as a reflective tool.

<table>
<thead>
<tr>
<th>Appropriate Content</th>
<th>Uses and Variations</th>
<th>Assessment and Tips</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select complex and rich topics that lead to questions that invite multiple interpretations</td>
<td>The routine can be taught to parents and used in small groups on field trips.</td>
<td><strong>THINK</strong> identifies misconceptions students have about a topic.</td>
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<td>Subject can be a big idea or an article in the paper, or anything that is relevant to students and is worth understanding at a deeper level.</td>
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<td><strong>PUZZLE</strong> lets teachers know about what students are interested in exploring further.</td>
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<td><strong>EXPLORE</strong> is an opportunity to determine students’ ability to plan an inquiry.</td>
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The Steps

1. **Set up:** This routine helps shape the study to follow. Plan on some form of documentation. Students in small groups can document their conversation or use sticky notes that can be posted on butcher paper.

2. **Ask:** *What do you think you know about ...* Ask the question and give students time to think. Have students either state their ideas or jot them down. Stating their ideas allows others to build upon them.

3. **Ask:** *What questions or puzzles do you have?* Stress the thinking part by asking students to wonder more about the topic with further questions such as: *What would be interesting to learn more about? What are you wondering about? Are there things about this topic about which you are curious?*

4. **Ask:** *How can we explore these puzzles?* Have students select a puzzle from their list. Share and discuss how one would explore the puzzles further. Ask: *Whom might you ask? Where could you get more information? What would you key search words be? What could you do other than search for information? How could you find ways to answer your own puzzles?*

5. **Share the thinking:** Thinking can be shared as a whole group. If you share in small groups, have them report out. Students can then choose to work in pairs or small groups to plan the exploration of the puzzle they found most interesting.

The Technology Connections
# CHALK TALK

## Purpose
- This routine asks students to think about ideas, questions, or problems by silently responding in writing both to the prompt and to the thoughts of others.
- All students can participate in the open-ended and exploratory nature of the routine.

## CHALK TALK
Looking at the topic or question written on the chart paper:

- What ideas come to mind when you consider this idea, question, or problem?
- What connections can you make to others’ responses?
- What questions arise as you think about the ideas and consider the responses and comments of others?

## Appropriate Content
- Appropriate content includes single words or phrases related to a topic of study.
- Questions generate a richer level of discussion.
- Content should invite multiple perspectives.

## Uses and Variations
- Makes room for all learners to have a voice
- Makes learning visible by focusing on reactions, connections, and questions
- CHALK TALK can be used to encourage reflective thinking.

## Assessment and Tips
- Look for relevance.
- Check to see if contributions relate to big ideas and if students can put forth their own ideas.
- If responses seem limited it may be that the prompt was too narrow.
# The Steps

1. **Set up:** Write the prompts on large sheets of chart paper. Place the charts on tables around the room. Put markers on each table. Determine the groups and assign them to one of the charts.

2. **Present the CHALK TALK prompt:** Ask students to think about their reactions to the prompt. Have them record their ideas and questions. Have learners read and add to each other’s responses with additional comments and questions.

3. **Circulate:** Provide time for students to circulate and read the responses of another group. Have them add to the prompts and responses. Continue the rotation until all groups have been to all charts.

4. **Facilitate:** The teacher acts as a facilitator, prompting the groups about the types of responses they can make as they read. They can connect ideas, elaborate on others ideas, or comment on what others have written, or write a question asking for more detail.

5. **Share the thinking:** Have groups return to their original chart. Have the groups review what was written on their chart. Ask groups the following questions: What themes emerged? Where did they see common issues and reactions? What question or comment surprised them? Debrief. Have groups respond to how their thinking developed through this process.

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# The Technology Connections
### 3-2-1 BRIDGE

**Thinking about the key concept or topic, identify:**

**INITIAL RESPONSE**
- 3 Words
- 2 Questions
- 1 Metaphor/Simile

**NEW RESPONSE**
- 3 Words
- 2 Questions
- 1 Metaphor/Simile

**BRIDGE**

Identify how your new responses connect to or shifted from your initial response.

**Purpose:**
- This thinking routine activates prior knowledge before beginning the planned learning experience.
- Starting with words makes the thinking activity accessible.
- Initial questions and metaphor/simile inform the teacher of the students’ depth of understanding.
- **BRIDGE** helps students recognize the learning that has taken place.

**Appropriate Content Uses and Variations**

- This thinking routine works well when the topic is one where all students have some knowledge.
- Some teachers incorporate this routine as a regular part of their literary circle.
- 3-2-1 BRIDGE can act as a pretest of students’ current understanding.
- The ending metaphors give insight to the depth of understanding at the end of the study.

**Assessment and Tips**

- Acts as a short pre-assessment. Instruction can be built from that point rather repeating what is already known.
- 3-2-1 BRIDGE can be repeated through the study to let the teacher see how readily students are synthesizing and integrating new information.
### The Steps

1. **Set up:** Determine how students will record their responses. They will need to come back to the initial responses after an extended time.

2. **Ask for three words:** Ask students to generate three **words** that come to mind when they think of the topic. Instruct students not to overthink.

3. **Ask for two questions:** Ask students to generate two **questions** that quickly come to mind.

4. **Ask for one metaphor or simile:** Ask students to create their own **metaphor or simile** for the topic. State that metaphors and similes are connections.

5. **Provide an instructional period:** There is no time limit on this instructional period. The requirement is that the chosen time needs to have moved the students' thinking beyond their initial understanding.

6. **Perform the second 3 – 2 – 1:** Repeat the same steps asking students to select the words, questions, and metaphor/simile prompted by the new learning.

7. **BRIDGING – Share the thinking:** Have students share their initial and new responses with a partner. Have them discuss what they notice about how their thinking has changed. As a whole group, identify some of the new thinking and changes that have taken place.

### The Technology Connections
**COMPASS POINTS**

Considering the idea, question, or proposition before you:

- **E = Excitements:** What excites you about this idea? What's the upside?
- **W = Worries:** What do you find worrisome about this idea? What's the downside?
- **N = Needs:** What else do you need to know or find out about this idea?
- **S = Stance, Steps, or Suggestions:** What is your current stance or opinion on the idea? What should your next step be in your evaluation of this idea? What suggestions do you have at this point?

**Purpose**
- Format for students to consider an idea from different angles
- Issues are explored from multiple perspectives and areas are identified where more information is needed helping students avoid rushing to judgment

<table>
<thead>
<tr>
<th>Appropriate Content</th>
<th>Uses and Variations</th>
<th>Assessment and Tips</th>
</tr>
</thead>
<tbody>
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<td>• This routine works well when the idea is one for which there are dilemmas or different points of view</td>
<td>• This routine can be done with the whole class. It can also be done by students individually. Students can share with others after thinking on their own.</td>
<td>• The teacher can observe how flexible and fluent students are in their thinking as they attempt to take on different parts of the question.</td>
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</table>
The Steps

1. **Set up:** Frame the issue and present it to students. Use four sheets of chart paper, one for each compass point, and tape them to the walls. Give students sticky notes to write down their ideas.

2. **Identify excitements:** Ask, What **excites** you about this idea? What is the upside? Allow students time to think, write, and post their ideas on the **E** chart.

3. **Identify worries:** Ask, What **worries** would you have about this? What are your concerns? What is the downside? Give students time to think and have them post their ideas on the **W** chart.

4. **Identify needs:** Ask, What do you **need** to know and gather more information about to help you better understand the issue? Post ideas on the **N** chart.

5. **Ask for stances, steps, or suggestions.** Post ideas on the **S** chart.

6. **Share the thinking:** Ask students to review the comments made by others. Ask students if they see any themes that emerge in each category. Spend some time discussing suggestions for moving forward and in developing a plan that can be put into action.

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The Technology Connections
### THE EXPLANATION GAME

**Taking a close look at the object you are trying to understand:**

- **Name it:** Name a feature of the object that you notice.

- **Explain it:** What could it be? What role might it serve? Why might it be there?

- **Give reasons:** What makes you say that? Why do you think it happened that way?

- **Generate alternatives:** What else could it be? What makes you say that?

### Purpose:

- This routine involves looking closely at the parts of an object rather than the whole. Students try to build explanations and interpretations.

- The object should be one that students recognize, but don’t fully understand how it operates or functions.

- Students are asked to build causal explanations for why something is the way it is. This makes **THE EXPLANATION GAME** powerful for developing understanding.

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### Appropriate Content

- Content should have various parts and functions that would allow for closer examination.

- Appropriate content includes science phenomena, historical events, geographical images, or mathematical models.

### Uses and Variations

- Looking at a work of art
- Thinking like an archaeologist
- The process of giving reasons is significant to making the culture of your classroom one of hypothesizing.

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### Assessment and Tips

- Analyze the quality of student explanations.

- Encourage students to resist the urge to name the object; keep the focus on observations.
The Steps

1. **Set up:** Focus students on the object you want them to understand better. Ask them to look carefully at the object to see all they can possibly see.

2. **Name it:** Ask students to share with their group the various features they noticed. Students should record all the different parts they can observe. Working in a group helps students to see features they might miss if they are working alone.

3. **Explain it:** In groups, students take their list of features and begin to explain them. Their goal is to come up with as many explanations as possible. They should document their work.

4. **Give reasons:** Students generate reasons that describe why the explanations make sense. Students provide evidence to support their explanations.

5. **Generate alternatives:** Students are required to give alternative explanations beyond the ones they already shared. This continues to keep students focused on the features and why they might be the way they are.

The Technology Connections
Routines for Synthesising and Organising Ideas
**HEADLINES**

Think of the big ideas and important themes in what you have been studying:

- Write a headline for this topic or issue that summarizes and captures a key aspect that you feel is significant and important.

**Purpose:**

- Students are asked to reflect and synthesize by identifying the essence of a learning experience
- **HEADLINES** allows for the opportunity for each student to capture his or her thoughts and share. The routine does not call for further discussion.
- Using this thinking routine lets students know that taking notice of big ideas is critical to understanding
- If students do not grasp the big idea they will find it difficult to make meaningful connections to the ideas in the future

<table>
<thead>
<tr>
<th>Appropriate Content</th>
<th>Uses and Variations</th>
<th>Assessment and Tips</th>
</tr>
</thead>
<tbody>
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<td>HEADLINES can be used after a single event such as a field trip, reading a book, or watching a movie.</td>
<td>HEADLINES promotes looking at the core of a topic from different perspectives. Big ideas are highlighted.</td>
<td>Think about the <strong>HEADLINE</strong>, as well as the reasoning, to determine the current understanding of the topic. Next look at the class set to get a sense of what big ideas are emerging.</td>
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<td>HEADLINES can be situated within the ongoing arch of learning to help students get a sense of what lies at the core of a topic.</td>
<td>This routine helps with social conflicts on the playground. Students are directed to think about the core issue at the heart of the conflict. Synthesizing and listening to others helps minimize future incidents.</td>
<td>Don’t settle for catchy phrasing. The routine is about having students search for the central idea.</td>
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## The Steps

1. **Set up:** Once students have had some learning experiences, ask what they think some of the core ideas are in what they have been studying.

2. **Write a headline:** Ask students to write a headline for the topic that you are studying that captures an important aspect that they would want to remember. You can have them write the headline individually or in a group.

3. **Share the thinking:** Have students first share their headline with another group of students. Instruct them to share the headline and the reasoning behind their choice. The goal of this step is to create an environment in which different perspectives and nuances can surface.

4. **Invite further sharing:** Create a collection of the headlines that document the thinking at this point. Add more depth by having the class search for common themes or elements among the headlines.

## The Technology Connections
**CSI: COLOR, SYMBOL, IMAGE**

Think of the big ideas and important themes in what you have just read, seen, or heard:
- Choose a **color** that you think best represents the essence of that idea.
- Create a **symbol** that you think best represents the essence of that idea.
- Sketch an **image** that best captures the essence of the idea.

**Purpose:**
- This thinking routine makes thinking visible in a way that doesn’t depend so much on written or oral language.
- Students are asked to make connections and think metaphorically as they identify and distill the essence of an idea.
- Metaphors are a major vehicle for developing understanding of ideas by connecting something new to something already.
- A student’s comprehension as well as metaphorical thinking is advanced.
- The explanation is key. The connections are personal. Colors may mean different things to different students.

<table>
<thead>
<tr>
<th>Appropriate Content</th>
<th>Uses and Variations</th>
<th>Assessment and Tips</th>
</tr>
</thead>
<tbody>
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<td>Content selected should have a variety of interpretations and meaning. Something ambiguous or complex is desired because there has to be something to interpret. The content shouldn’t be too long. A single chapter or passage works better than the whole book.</td>
<td>Use this routine while reading a novel. After each chapter, the teacher can pass around a sheet of paper. Students a color to represent the core idea. After finishing the novel all the chapter sheets are posted and another discussion can take place.</td>
<td>When assessing, look for the student’s ability to capture the essence of the material being studied.</td>
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### The Steps

1. **Set up:** Once students have read a passage, listened to a speaker, or viewed a video clip, instruct them to think about the core ideas. Have them jot down things that they find interesting or insightful. You can have students work alone, in pairs, or in a group.

2. **Choose a color:** Each student selects a color that he or she thinks represents the core idea. A single color should be chosen.

3. **Create a symbol:** Tell students that a symbol is a thing that stands for something else. You can use the example of a dove representing peace. Instruct them to select a symbol that they think represents the core ideas of the content being explored. This selection is then justified in writing.

4. **Sketch an image:** Students select an image that represents the core idea they have identified. The image should be a simple sketch that captures the idea of what is in the image. The image should be explained in writing, too.

5. **Share the thinking:** Working with a partner or in a group, students share their color and reason for selecting it. They move on to sharing the symbol and finish with sharing the image.

### The Technology Connections
### GENERATE-SORT-CONNECT-ELABORATE: CONCEPT MAPS

Select a topic, concept, or issue for which you want to map your understanding:

- **Generate** a list of ideas and initial thoughts that come to mind when you think about this topic or issue.
- **Sort** your ideas according to how central or tangential they are. Place central ideas near the center and more tangential ideas toward the outside of the page.
- **Connect** your ideas by drawing connecting lines between the ideas that have something in common. Explain and write on the line in a short sentence how the ideas are connected.
- **Elaborate** on any of the ideas or thoughts you have written down so far by adding new ideas that expand, extend, or add to your initial ideas.

### Purpose:
- Concept maps activate knowledge of a topic and then connect the ideas in a meaningful way.
- Creating concept maps organizes thinking and illuminates how ideas relate to one another. This thinking routine solidifies thinking and understanding.

### Appropriate Content
- Select topics that are large in scope (democracy, habitats, immigration, power, freedom, or electricity).
- Content with many components allows for numerous and varied responses.

### Uses and Variations
- This routine can be used at the beginning of a unit to find out what is already known, in the middle to see how students are making sense of the topic, or in the end to review for a concluding test.

### Assessment and Tips
- Look at the ideas generated to see if they are important.
- Look at the connections to see if they are obvious or deep.
- Use as a pre/post measure to see how thinking has developed.
<table>
<thead>
<tr>
<th>The Steps</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Set up:</strong> If students are already familiar with concept maps, introduce the thinking routine by explaining that they will be creating concept maps in a structured way.</td>
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<td><strong>2. Generate:</strong> Have students generate a list of words or ideas associated with the topic being studied. This will be an initial list. Five or six items are needed to begin the routine.</td>
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<td><strong>3. Sort:</strong> Have students sort their ideas by how central or tangential they are by placing central ideas near the center and the remaining ideas toward the outside. This can be done in pairs or groups to encourage rich discussion regarding placement.</td>
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<td><strong>4. Connect:</strong> Instruct learners to connect the ideas by drawing lines between ideas that share a connection. Have students describe the connection on the line.</td>
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<td><strong>5. Elaborate:</strong> Have students pick a few central ideas and elaborate. Have them create subcategories that break the ideas into smaller parts.</td>
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<td><strong>6. Share the thinking:</strong> Have students pair up and share their concept maps. Instruct them to focus the discussion on the choices made in constructing the map and where there are questions about connections.</td>
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**The Technology Connections**
### CONNECT-EXTEND-CHALLENGE

**Consider what you have just read, seen, or heard, then ask yourself:**

- How are the ideas presented **connected to what you already knew**?
- What new ideas did you get that **extended** or broadened your thinking in new directions?
- What **challenges** or puzzles have come up in your mind from the ideas and information presented?

**Purpose:**
- This routine helps students become active processors of information.
- Often pieces of information are delivered to students bit by bit and the ideas can remain isolated from one another. This thinking routine helps students connect them.
- This routine offers a structure in which new thinking about a topic can become visible.
- As students connect and extend their thinking the powerful message is that ideas and thoughts are dynamic.

<table>
<thead>
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<td>- This thinking routine is used after information rich lessons, after a reading, or after a whole unit is completed. The teacher should first consider whether there are connections to be made in the content and what has been studied previously.</td>
<td>- During a unit on cultures of indigenous people across various geographic regions, one teacher had students view works of art created by members of an indigenous group that depicted the group’s culture.</td>
<td>- This thinking routine takes time to develop. Students need modeling to see what makes meaningful connections, rich extensions, and worthwhile challenges. The teacher can initially probe student reasoning as ideas are shared.</td>
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<td>- Once students are familiar with the routine they can record their ideas on a sheet with three columns: <strong>Connections, Extensions, and Challenges.</strong></td>
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### The Steps

1. **Set up:** Start with having students involved with an information rich activity (listen to a story, read a passage, visit an exhibit, or view a video). Instruct them to be mindful of how this new learning experience connects to what they already know. Ask them to think about how it pushes their thinking into new directions and to be aware of new challenges that surface as they participate with new material.

2. **Connect:** At the end of the information rich activity ask students to write down how the ideas and information they have just heard connects to ideas they already know. Ask: How do the ideas and information you've just heard connect to ideas you already think about or know? Have students write their connections done individually before the group has a discussion.

3. **Extend:** Have students identify how their ideas have broadened, deepened, or expanded as a result of the new learning experience. Ask: How has your thinking been extended in some way, taking it in new or further or deeper directions?

4. **Challenge:** Instruct students to consider ideas that seem challenging. Ask: What challenges or puzzles have come to mind about this topic now that you've been presented with new ideas and information?

5. **Share the thinking:** After responding to the prompts have students work with partners or in groups to discuss the three parts of the routine. Collect the connections, extensions, and challenges from small groups to display. This will make the thinking visible.

### The Technology Connections
### THE 4 C’S

**Purpose:**
This thinking routine makes use of nonfiction material although it can be used with fiction with just a few changes.
- The routine provides students with a structure for a text-based discussion built around making connections, asking questions, identifying key ideas, and considering application.
- Reading and returning to the text in a purposeful way assists students in delving beneath the surface and going beyond initial impressions.

Each step of the routine requires a different thinking that corresponds to the active and thoughtful reading that teachers want all students to do.

### Appropriate Content
- Texts with complex ideas and different perspectives, such as, excerpts from the opinion section of the newspaper, newspaper articles, personal essays, and magazine articles work well.
- If a piece of fiction is selected the questions can be modified to focus on the character and the character’s actions.

### Uses and Variations
- Primary students can use a sheet of paper divided into four boxes. Groups of 5 students can read a book together and use drawings to respond to the 4 C’S. Or, the teacher could read the content and record the ideas.
- Some schools use this process with professional reading groups.

### Assessment and Tips
- The choices and explanations students make gives the teacher information about their understanding of the text.
- The first time you work through the routine it should be done sequentially. Later students can take notes responding to the prompts in a less linear way.
The Steps

1. **Set up:** Have students read the selected material. List the **4C'S** in a place visible to all students.

2. **Make connections:** Ask students to locate passages from the text that they can identify with. Begin the group discussions by asking students to read the passage from the text to which they are connecting. Have them explain the connection.

3. **Raise challenges:** Have students find ideas or positions in the text that raised red flags. Red flag items can be something that they didn’t agree with or felt that they needed more information about. Have students read the section and explain the questions that came to mind.

4. **Note concepts:** Encourage students to briefly review the text and note key concepts or themes. Tell them that these would be the things they would share with someone who hasn’t read the text in discussing its main points. Student responses should be followed up with: **What makes you say that?** That question will allow you to see the foundation of their ideas.

5. **Identify changes:** Have students reflect on the whole text and its implications. Ask them to identify changes of thinking that may have happened as a result of the reading. If it is a fiction selection students should look for the changes that occurred in the character and what caused the change.

6. **Share the thinking:** Sharing can be done at each step of the thinking routine. At the end of the thinking routine the end discussion can focus on how the structure helped the students to develop a deeper understanding of the text.

The Technology Connections
**THE MICRO LAB PROTOCOL**

Reflect individually on the issue or topic being examined, then working in triads:

- **Share**: The first person in the group shares for a set time (1 – 2 minutes). The other members listen attentively without comment or interruption.
- **Pause** for 20-30 seconds of silence to take in what was said. The teacher keeps track of the time.
- **Repeat** for persons two and three, pausing for a moment of silence after each round.
- **Discuss** as group (5-10 minutes), referencing the comments that have been made and making connections between the responses of the group.

**Purpose:**
- This routine ensures that all voices are heard, and that everyone contributes, before the topic is discussed. It is a helpful structure for directing group discussions.
- Once all voices are heard the group then makes connections between ideas, asks clarifying questions, and highlights themes.
- This strategy has found to help students become better listeners and to learn how to build on and connect to other’s ideas.

<table>
<thead>
<tr>
<th>Appropriate Content</th>
<th>Uses and Variations</th>
<th>Assessment and Tips</th>
</tr>
</thead>
<tbody>
<tr>
<td>With this routine/strategy content really matters. For the routine to be meaningful the content must be meaningful. Material with different perspectives adds to the richness of the discussion. Exploring perspectives on current events, political issues, or reflecting on themselves as learners are appropriate content.</td>
<td>Secondary teachers, even those in math classes, have found that this routine assists their students in becoming more independent.</td>
<td>MICRO LAB allows for individual sharing and conversation, making thinking visible to the small groups. The teacher might try to listen in on one group to get a sense of the developing conversation and where and how ideas are being built. Things to connections that are being made; the degree of the probing nature of the questions; and whether students can see difference or similarities</td>
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The Steps

1. **Set up:** Tell students what you want them to discuss and what you are hoping they will get out of the discussion. Tell them they will have time (5 – 10 minutes) first to reflect in writing about the topic. Explain the routine. Form groups of three. Tell the groups you will be the timekeeper.

2. **Share:** Announce that all number 1s are to begin sharing for the assigned time. No one speaks except the speaker. The members of the group can take notes if they think it will help. Call time. Call for the groups to be silent.

3. **Call for silence:** Call for 20-30 seconds of silence. Students should contemplate what they heard.

4. **Do rounds 2 and 3:** Repeat the steps so each member of the group has their turn to share their thinking. If a speaker finishes before the call for silence the whole group spends the extra time reflecting in silence.

5. **Commence discussion:** Announce that groups will now have open discussion for the set amount of time (5-10 minutes). Instruct the groups to make connections between what others have said. They can ask questions for clarification. Call time.

6. **Share the thinking:** As a whole group, ask students to reflect on the routine and how they feel it helped their thinking about the topic.

The Technology Connections
I USED TO THINK . . ., NOW I THINK . . .

Reflect on your current understanding of this topic, and respond to each of these sentence stems:

- I used to think . . .
- Now I think . . .

**Purpose:**
- This routine helps students reflect on their thinking about a topic and explore *how* and *why* their thinking has changed.
- The new learning can be consolidated as students identify new understandings, opinions, and beliefs.
- Reasoning abilities are developed as students reflect on cause and effect relationships.
- Metacognitive skills are strengthened as students identify and talk about their thought processes.

**Appropriate Content Uses and Variations**

<table>
<thead>
<tr>
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</tr>
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<td>- This thinking routine works across a wide variety of subject areas.</td>
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<td>- Greater depth and insights are likely to come to students when the reflection is on content that is conceptual or process oriented.</td>
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<td>- A unit of study, reading new informational text, watching a film, or listening to a speaker are samples of appropriate content.</td>
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<td>- Teachers of young students can do the recording of responses to both prompts on the whiteboard.</td>
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<td>- Teachers of older students can have students go through the steps. Students can then be asked to put together a portfolio that provides evidence of what moved their thinking from what it was to where it is now.</td>
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<td>- Responses are likely to be unique for each student.</td>
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<td>- Teachers can look for patterns of responses. This will help identify key areas of the class’s learning.</td>
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<td>- Teachers should demonstrate a true curiosity about how their students’ thinking has grown, deepened, shifted, or changed. This will make students more likely to be genuine in their reflections.</td>
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<td>- Only use this routine at the end of the unit. New learning has to have taken place.</td>
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The Steps

1. **Set up:** Inform students that the purpose of this routine is to help them reflect on their thinking about the topic that has been studied and to identify how their ideas have developed over time. It helps to have class documentation posted and student journals out.

2. **Encourage individual reflection:** Remind students that at the beginning of the study, they all had initial ideas about the topic. Tell them to take a minute to think back and recall the ideas they had. Tell them to write what it was that they used to think about the topic. Have them start their reflections with: **I used to think.** Then tell students that you want them to think about how their ideas have changed as a result of what they have been studying, doing, and discussing. Have them write a few lines to capture what they now think. Have them start their reflections with: **Now, I think.**

3. **Share the thinking:** Have students share their reflections. Ask them to explain the change in their thinking. It is suggested that the sharing be done with the whole class the first few times this thinking routine is used so the teacher can probe the thinking and push students to explain. Once this modeling has taken place, the sharing can be done in small groups or pairs before whole class sharing takes place.

The Technology Connections
Routines for Digging Deeper into Ideas
**WHAT MAKES YOU SAY THAT? (WMYST?)**

In follow-up to a statement, assertion, or opinion expressed by someone, ask:
- *What makes you say that?*

**Purpose:**
- This routine helps students describe what they see or know and asks them to build explanations.
- It promotes evidential reasoning.
- It invites students to share interpretations.
- It encourages students to understand alternatives and multiple perspectives.

<table>
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<td>Useful when looking at works of art or historical artifacts, in exploring poetry, making scientific observations and hypotheses, making predictions in reading or investigating broader conceptual ideas such as racism or fairness. Can be adapted for use with almost any subject, especially for surfacing students' initial ideas when launching new topics.</td>
<td>Include other questions such as “What do you think you were basing that on?” or “What evidence were you able to find to support that idea?” Works well in combination with any number of routines when students are sharing their thinking.</td>
<td><em>Overall goal is to support students in their ability and disposition to create explanations, generate theories, and offer reasons that can be substantiated with proof.</em> When the question is asked with a genuine tone of respect, it has the potential to convey our interest in the other.*</td>
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The Steps

1. **Set up:** Unlike other routines, WMYST? doesn’t need to be set up, as much as placed at the appropriate time. It naturally finds a place in response to students’ explanatory or interpretive comments. Look for moments when students make assertions, give explanations, provide interpretations, or offer opinions.

2. **Push for elaboration with evidence:** As students share their ideas and explanations, it is important to follow up by asking the key question of this routine. The goal here is to both elicit and support students’ attempts at justification.

3. **Share the thinking:** WMYST? exists mainly in the interchanges that teachers have with their students, so while documentation of students’ thinking is an option, simply creating an opportunity for more learners to share what their thinking is when prompted is often enough to enrich a conversation.

The Technology Connections
CIRCLE of VIEWPOINTS

Identify the different perspectives that could be present in or affected by what you have just read, seen or heard. Record these in a circle with the issue or event at the center. Choose one of these perspectives to explore further, using the following prompts as a starting place:

- I am thinking of [name the vent/issue] from the point of view of...
- I thinking... [describe the topic from your viewpoint. Be an actor – take on the character of your viewpoint.] Because...[explain your reasoning]
- A question/concern I have from this viewpoint is...

Purpose:
- This routine focuses on perspective taking and identifying the different perspectives taken.
- This process creates a greater awareness of how others may be thinking and feeling.
- It reinforces that people can and do think differently about the same things.
- It provides a structure to assist in the exploration of a viewpoint.
- The ultimate goal is to gain a broader and more complete understanding of the topic, event, or issue.

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<td>Have source material that invites exploration from many different viewpoints such as an image, story, issue, or topic that is rich with characters and/or possibilities.</td>
<td>Can be used at the beginning of a unit to help students brainstorm new perspectives about a topic.</td>
<td>After the routine has been learned, consider asking students to do this individually before group sharing. This can inform you about students’ ability to identify perspectives.</td>
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<td>Useful when students are having trouble seeing other perspectives or when things seem black and white.</td>
<td>Notice whether students are merely stating their own positions or they are expressing thoughts and ideas different from what they themselves hold.</td>
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The Steps

1. **Set up:** Introduce the source material and provide plenty of time for its examination. Identify and name the topic or topics that the class will be trying to better understand. Write the topic or issue on the board.

2. **Identify viewpoints:** Generate a list of viewpoints. The viewpoints can be people, inanimate objects, actors and groups not immediately present, etc. This can involve thinking forward to the future as well as in the present. Record these in a circle around the listed topic or issue.

3. **Select a viewpoint to explore:** Ask students to select a viewpoint that they want to explore.

4. **Respond to the “I think...” prompt:** Ask student to take on the character of their viewpoint and describe the topic from this new perspective. This think time may involve taking notes or more formal recording of ideas or it may just be done mentally.

5. **Respond to the “A question I have from this viewpoint...” prompt:** Ask student to imagine what this person or thing might be puzzled or curious about and create a question from this viewpoint, as if the person or thing was asking this question aloud. Again, provide time to generate and/or record ideas.

6. **Share the thinking:** Decide whether sharing will happen in small group or as a whole class. Ask each person to introduce her or his viewpoint, state her or his thinking form that viewpoint and her or his questions. Document the threads that permeate the discussion, particularly noticing the differences in viewpoints.

The Technology Connections
### STEP INSIDE

**Think about a person or an object that is a part or connected to the event or situation you are examining. Place yourself within the event or situation to see things from this point of view. Some questions to consider:**

- What can this person or thing see, observe or notice?
- What might the person or thing know, understand, hold true, or believe?
- What might the person or thing care deeply about?
- What might the person or thing wonder about or question?

**Purpose:**
- Provides a structure for perspective taking.
- Develops an empathetic response to another viewpoint.
- Helps to understand that one’s perspective often shapes how events are understood.

### Appropriate Content
- Material that evokes an emotional response and/or embodies some sort of dilemma or question having multiple perspectives.
- A potential provocation might be an event depicted in a work of art, a social issue that has been in the news, a story or novel that the class has read, a photograph from the newspaper, or a proposed policy.

### Uses and Variations
- Play a game where students read their responses and others guess the viewpoint they have chosen.
- Have students Step Inside minor characters of a book, instead of just the primary characters.
- Use as a precursor to more elaborate writing.

### Assessment and Tips
- Take note to see if students are merely stating the obvious and the most clearly defined and widely known aspects of the topics or if they are able to infer and hypothesize what might be happening.
- Look to see if students are able to use as a starting place for writing rather than an end in itself.
- Encourage students to take the perspective of the unexpected.
The Steps

1. **Set up:** After the content has been introduced, provide time for learners to think about the players and observers (both animate and inanimate) in the scenario and ask them to select a person or things to Step inside.

2. **Ask, “What can this person or thing see, observe, or notice?”** Ask students to imagine themselves as the person or thing they have selected and describe what they could now see, observe, or notice.

3. **Ask, “What might the person or thing know about, understand, or believe?”** Ask students to respond to this prompt from the chosen perspective. Make a list of these ideas. If done as a whole class, you might follow up with “What makes you say that?” to focus on the evidentiary basis for these statements.

4. **Ask, “What might the person or thing care about?”** Ask student to respond to this prompt from the chosen perspective. Record these ideas. Encourage students to include why this person or thing might care about these matters.

5. **Ask, “What might this person or thing wonder about or question?”** Ask students to respond to this prompt from the chosen perspective. Make a list of these ideas. Again, you may as for the reasons and justification.

6. **Share the thinking:** Looking at the documentation, ask the class to articulate what image of the character is emerging.
RED LIGHT, YELLOW LIGHT

As you read, view or listen to the material before you, consider the following questions:

- What are the red lights here? That is, what things stop you in your tracks as a reader/listener/observer because you doubt their truth or accuracy?
- What are the yellow lights here? That is, what things slow you down a bit, give you pause, and make you wonder if they are true and accurate or not?

Purpose:
- Focuses on specific moments that hold signs of possible puzzles of truth.
- If students are to develop deep understanding of a topic, they have to learn to see the potential falsehoods and to handle them.

<table>
<thead>
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</tr>
</thead>
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<td>Source material that presents particular stances, claims, conclusions or generalizations.</td>
<td>Use as part of professional learning communities when discussing classroom efforts, student work, or reflections around professional readings.</td>
<td>Notice how readily students are identifying places of potential puzzles and their reasons for making their choices.</td>
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<td>Opinion articles, mysteries, mathematical proofs are all possible good fits.</td>
<td>Use when bringing forth proposals or action plans to larger groups of stakeholders.</td>
<td>Take note of the quality of assertions students offer in discussions.</td>
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<td>Make sure the issue, problem, conflict, or controversy is large enough so that a variety of red lights and yellow lights can be identified.</td>
<td>Have students use independently to monitor their own reading comprehension.</td>
<td>Keep the focus on teasing apart various nuances and complexities presented rather than moving quickly into an “all or nothing” judgment.</td>
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<td>Acknowledging implicit green lights where the claim is solid can be just as powerful.</td>
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The Steps

1. **Set up:** Briefly introduce the source material. Don’t say anything that will prejudice the reading. Tell students you want them to dig below the surface of the ideas, issues or findings that may be present in the material.

2. **Look for red lights and yellow lights:** Ask students working individually, in pairs, or small groups to search the source for specific moments and signs of possible puzzles of truth. Using the stoplight metaphor, red lights could be framed as glaring, halting places. Yellow lights are places to proceed with a little care and caution. Everything else is an implicit green light.

3. **Collect students’ observations and reasons:** Make a list of specific points marked R for red or Y for yellow as students offer them to the group. Also note specific “zones” that students identify as mostly red or yellow. Ask students to provide their reasons as to why they’ve categorized a particular point or zone as red or yellow. Document these reasons as well.

4. **Share the thinking:** Once a collected list of red and yellow lights has been created, have the class stand back and look at the documentation. Ask, “What have we learned about particular signs that indicate there could be a problem or puzzle of truth? What have we learned about zones to watch out for?” Allow students to share their thoughts and reasons.

The Technology Connections
# CLAIM-SUPPORT-QUESTION

**Claim-Support-Question**

Drawing on your investigation, experience, prior knowledge or reading:

- Make a **claim** about the topic, issue or idea being explored. A claim is an explanation or interpretation of some aspect of what is being examined.
- Identify **support** for your claim. What things do you see, feel or know that lend evidence to your claim?
- Raise a **question** related to your claim. What may make you doubt the claim? What seems left hanging? What isn’t fully explained? What further ideas or issues does your claim raise?

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<td>• This thinking routine is designed both to identify and to probe declarations of facts or beliefs.</td>
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<td>• Identification of claims calls on students to look for patterns, spot generalizations, and identify assertions.</td>
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<td>• Helps students take notice of the claims presented and hold them up to thoughtful scrutiny.</td>
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## Appropriate Content

- **The public forum provides many sources for potential claims.** These can be found in newspapers, magazines, television debates, even political cartoons.
- **Other claims** can be those more frequently occurring in the classroom such as the theories, ideas, generalizations, and interpretations students are encouraged to make as they perform and analyze experiments, read texts, solve problems, etc.

## Uses and Variations

- **Can be used with mathematics problems** that can be explored from a variety of perspectives with no obvious, single solution.

## Assessment and Tips

- **As an ongoing pattern of thinking in the classroom,** it is useful to notice how often and in what contexts students are spotting and making claims.
- **If students** suspect that at the end of the lesson you will tell them what is right and what is wrong, they will find the routine pointless.
The Steps

1. **Set up:** The idea of a claim needs to be introduced to the class. A very loose definition could be, A claim is a statement about “what’s going on here.”

2. **Identify claims:** Prior to launching a topic, a teacher might ask her students, “What claims, explanations, or interpretations might you have already about this topic?” Claims should be documented for the entire class to see, leaving room to add more thinking at a later time or in subsequent lessons.

3. **Identify support:** Ask students, “Now that we have these claims to consider, what can we see, notice, know, or find that might give support to them?” Have students articulate the supporting evidence for each claim. This should be written near the original claims for all to see and collectively consider.

4. **Raise Questions:** Ask the students to be healthy skeptics of the claims being examined. Invite students to think beyond the support already offered for the claims and consider what might make one hesitant about the truth or accuracy.

5. **Share the thinking:** Documenting the routine as it evolves makes students’ thinking visible throughout the process and allows students to build on as well as challenge others’ thinking.

The Technology Connections
**TUG-OF-WAR**

**Purpose:**
- This thinking routine is designed to help students understand the complex forces that “tug” at opposing sides in various dilemmas, issues, and problems.
- It encourages students initially to suspend taking a side and think carefully about the multiple pulls in support of both sides.

**Appropriate Content Uses and Variations Assessment and Tips**

<table>
<thead>
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</tr>
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<td>Best suited to situations involving dilemmas, issues, or problems in which two obvious, contrasting stances or ways of resolving an issue can be clearly identified.</td>
<td>It can be easily referenced to without always doing the full routine by asking, “What are the tugs in favor of ...?” Multiple ropes can be used to explore issues with more than two sides.</td>
<td>Students’ responses to these tasks provide insight in to how they are navigating the complexity of issues. If students are not connected to or engaged with the dilemma, it will be difficult for them to do good thinking. Use “I Used to Think...Now I Think..” following “Tug-of-War.”</td>
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Place a line across the middle of your desk or table to represent a tug-of-war rope. Working with a dilemma that can be considered from multiple perspectives or stances:

- Identify and frame the two opposing sides of the dilemma you are exploring. Use these to label each end of your tug-of-war rope.
- Generate as many “tugs,” or reasons that “pull you toward,” that is, support each side of the dilemma as you can. Write these on individual sticky notes.
- Determine the strength of each tug and place it on your tug-of-war rope, placing the strongest tugs at the farthest ends of the rope and the weaker tugs more toward the center.
- Capture any “What if ...?” questions that arise in the process. Write these on sticky notes and place them above the tug-of-war rope.
The Steps

1. **Set up:** Identify and frame a particular dilemma for the class to examine. Draw a line on the whiteboard or chart paper representing the tug-of-war rope. Ask students to name and label the two ends of the rope as the two opposing viewpoints or stances.

2. **Consider the “tugs”:** Ask the students, “On this side of the dilemma, what are the ‘tugs’ or reasons that support this position?” Have students generate as many tugs as possible. Have the students record their reasons/tugs on sticky notes so that they can be moved around later. Repeat for the other side of the dilemma.

3. **Place the “tugs”:** Have students discuss the placement of the tugs on the line. The focus should be on the reasons and justification for each placement and how the tugs compare with one another in strength.

4. **Ask What if? What about? questions:** As students are discussing placement, questions might arise. For instance, sometimes students say, “Well that depends on...” These “it depends” issues can be framed as questions, written on a different color sticky note, and placed above the line. Once placement is complete, stand back and generate additional “What if...?” questions. These questions capture issues, factors, or concerns that might need further exploration.

5. **Share the thinking:** If this routine has been done in small groups, take time to look at each group’s finished tug-of-war line. Ask students what new ideas emerged for them about the dilemma that they didn’t have at the outset. Do they still feel the same way about the dilemma? If not, what changed their mind or added to their thinking? How might they summarize the complexity of this issue for someone else?
## SENTENCE-PHRASE-WORD

**Purpose:**
- This thinking helps learners engage with and make meaning from text.
- It fosters enhanced discussion while drawing attention to the power of language.
- Sets the stage for considering themes, implications, predictions, and lessons to be drawn.

In your discussion group, review the text that you have read and each select your own:
- Sentence that was meaningful to you, that you felt captures a core idea of the text
- Phrase that moved, engaged, or provoked you
- Word that captured your attention or struck you as powerful

As a group, discuss and record your choices. Begin by each sharing your words, then phrases, then sentences. Explain why you made the selections you did. Looking at your group’s collective choices of words, phrases, and sentences, reflect on the conversation by identifying:
- What themes emerge?
- What implications or predictions can be drawn?
- Were there aspects of the text not captured in your choice?

### Appropriate Content
- Choose a text that is rich in content, with ideas and concepts that invite interpretation and discussion.
- Be sure it is not so long that the students will be more likely to skim.

### Uses and Variations
- Give pairs of students a chapter each of a book and then have them recap to the rest of the class using this routine.
- Instead of pulling out themes, identify morals, messages or make predictions depending on the text.

### Assessment and Tips
- While the individual sentences, phrases, and words will not tell you much, the explanations the learners provide will.
- Look for how students are making connections to others’ responses.
- To aid discussion, it is important to document the evolving conversation.
The Steps

1. **Set up:** Give learners time to read the selected text in advance of the discussion. Encourage active reading and highlighting of the text.

2. **Select a sentence-phrase-word:** Ask learners to identify a sentence that is meaningful to them and helped them gain a deeper understanding of the text; a phrase that moved, engaged, provoked, or was in some way meaningful to them; and a word that has either captured their attention or struck them as powerful.

3. **Share selections:** In groups of four to six people, ask learners to each share and record their choices, explaining why they selected them. Sharing and discussion should occur in rounds. The first participant shares her sentence and explains why she chose it, inviting others to comment and discuss. The sentence is recorded and then the next person shares, records, and discusses until everyone has shared. Then the group moves to phrases and finally words.

4. **Invite reflection on the conversation:** Each group looks at its documented responses. They identify the common themes that emerge from these responses and then the implications and/or predictions they suggested. Finally, the group identifies aspects of the text that were not represented in their choice of sentences, phrases and words.

5. **Share the thinking:** Post the document from all groups. Provide time for reflection. Invite each group member to share their understanding of the text and how using the routine contributed to his or her understanding of it.

The Technology Connections