The following routines are designed to assist teachers or leaders in implementing an environment of learning in which learners and teachers make their thinking ‘visible’ or explicit. These are taken and adapted from the work of Ron Ritchhart and colleagues at the Harvard Graduate School of Education. (Detailed descriptions of each follows.)

### Routines for Introducing Ideas

<table>
<thead>
<tr>
<th>Routine</th>
<th>Type of thinking involved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compass Points</td>
<td>Decision making and planning around a problem to be solved or a plan to be implemented.</td>
</tr>
<tr>
<td>See-Think-Wonder</td>
<td>Wondering about and describing something ambiguous, complex or new.</td>
</tr>
<tr>
<td>Think- Puzzle- Explore</td>
<td>Helping students identify what they already know or think about a topic and what they are wondering.</td>
</tr>
<tr>
<td>Chalk Talk</td>
<td>Brainstorming ideas, questions or plans regarding a topic or problem.</td>
</tr>
</tbody>
</table>

### Routines for Synthesizing and Organizing Ideas

<table>
<thead>
<tr>
<th>Routine</th>
<th>Thinking involved</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSI: Color, Symbol, Image</td>
<td>Capturing the ‘heart’ of an idea or concept through metaphors and visual connections.</td>
</tr>
<tr>
<td>Generate-Sort-Connect-Elaborate: Concept Maps</td>
<td>Uncovering and organizing prior knowledge to identify connections; creating concept maps</td>
</tr>
<tr>
<td>Connect-Extend-Challenge</td>
<td>Connection making; identifying new ideas; raising questions. Good routine when presenting a new, perhaps unfamiliar, topic.</td>
</tr>
<tr>
<td>Micro-Lab Protocol</td>
<td>Individual and group exercise to focus attention, reflect on and analyze a topic</td>
</tr>
<tr>
<td>I Used to Think...; Now I Think...</td>
<td>Reflect on how one’s thinking has changed</td>
</tr>
</tbody>
</table>

### Routines for Digging Deeper into Ideas

<table>
<thead>
<tr>
<th>Routine</th>
<th>Thinking involved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tug of War</td>
<td>Perspective taking, reasoning, identifying complexities.</td>
</tr>
<tr>
<td>Claim-Support-Question</td>
<td>Identifying generalizations and theories, reasoning with evidence, making counter-arguments</td>
</tr>
<tr>
<td>Step Inside</td>
<td>Practicing taking the perspective of another point of view.</td>
</tr>
</tbody>
</table>
Thinking Routines: Details of Implementation

ROUTINES FOR INTRODUCING AND EXPLORING IDEAS

Compass Points

The purpose of this Thinking Routine is to help students methodically process, explore, and evaluate an idea or proposition. Begin by presenting students with a proposition or idea and drawing a 4-section ‘compass’ on the board, labeling each point as follows:

1. **E** = Excited
   - What excites you about this idea or topic? What’s the upside?

2. **W** = Worrisome
   - What do you find worrisome about this idea or topic? What’s the downside?

3. **N** = Need to Know
   - What else do you need to know or find out about this idea or topic? What additional information would help you to evaluate it?

4. **S** = Suggestions for Moving Forward
   - What ideas do you have for moving forward with this idea or topic?

This order is generally the easiest for students to follow, beginning with the more explicit points and then moving deeper. Another option would be to ask students to evaluate the topic prior to going through the compass points, and then ask them how their thinking changed after completing the compass point discussions.

See/Think/Wonder

This Thinking Routine encourages students to explore curious objects, works of art and other interesting images, artifacts, or topics. The routine encourages students to make careful observations and thoughtful interpretations. It helps stimulate curiosity and sets the stage for inquiry. Launch the routine by having students respond to the following three prompts:

1. What do you see?
2. What do you think about that?
3. What does this make you wonder?

The routine works well in group discussion but in some cases you may want to ask students to try the routine individually on paper or in their heads before sharing out as a class. Student responses to the routine can be written down and posted on a class chart so that observations, interpretations and wonderings are listed for all to see.

**Think-Puzzle-Explore**

This Thinking Routine takes the former KWL (what I know; want to know; learned) routine and makes it more inquiry based than fact based. This routine asks students to think about their prior knowledge, express curiosity and plan what they want to do to answer their questions. Students are asked to think about a topic, concept or idea being studied and answer following questions, individually and/or in groups:

1. **Think:** What do you think you know about this topic?
2. **Puzzle:** What questions do you have or are curious or puzzled about this topic?
3. **Explore:** How can we explore these questions or puzzles?

Students share their answers and then can work in groups or individually to find answers. The answers to the questions can also be used by the teacher to direct his/her instructional planning.

**Chalk Talk**

This Thinking Routine begins as an individual process of thinking and then brings the group together as a “conversation” conducted on paper to answer the questions:

1. What ideas come to mind when you think about this idea, question or topic?
2. What connections can you make to others’ thoughts?

The routine begins with large sheets of paper put on the walls or tables. Students are asked to respond to a prompt, written on the paper, like: “What are your ideas, thoughts, questions, or wonderings about future life on Mars?” Then students circulate and add to or comment on the responses of others.
CSI: Color, Symbol, Image Routine

This Thinking Routine challenges students to engage in a different type of thinking by having them communicate the essence of an idea non-verbally. After students read, watch, or listen to something, ask them to choose three things that stood out most for them and then do the following:

1. For one item, choose a **color** that best represents or captures the essence of the main idea.
2. For another item, choose a **symbol** that best represents or captures the essence of the main idea.
3. For the last item, choose an **image or picture** that best represents or captures the essence of the main idea.

After completing this portion of the activity, have students pair up and share their colors, symbols, and images, explaining their reasoning for each choice, and facilitating discussion of the topic at hand. This activity can be used as an accompaniment to reading, watching, or listening as a way to foster comprehension or as an avenue for reflecting on previous lessons or events.

Generate, Sort, Connect, Elaborate: Concept Maps

This Thinking Routine helps students engage in a different type of thinking by bringing to the surface prior knowledge to help generate new ideas about a topic and make connections between those ideas. Concept maps are unique in that they allow students to organize their thinking in a non-linear manner. It is helpful to follow these four steps in helping students create concept maps:

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

This activity can be used as a pre-assessment at the beginning of a unit depending on the students’ background knowledge of the topic, or as an ongoing assessment during a unit to see how well students are grasping the information and synthesizing ideas. Concept maps can also be used progressively with students adding to it throughout a unit. It is also beneficial to
students to discuss their maps in small groups or with a partner to help solidify and consolidate their ideas and also to gain other perspectives.

**Connect/Extend/Challenge**

The aim of this Thinking Routine is to help students make thoughtful connections between old knowledge and new knowledge and to evaluate their individual levels of comprehension. Have students respond to the following questions in each category:

1. Connect: How is the new information connected to what you already knew?
2. Extend: What new ideas did you get that extended or pushed your thinking in new directions?
3. Challenge: What is still challenging or confusing for you to understand? What questions, wonderings, or puzzles do you now have?

This activity can be used with the whole class, in small groups, or individually. If working in a group, have students share their ideas with one another or the whole class. In any case, it may be beneficial to keep a record of students’ ideas in the classroom, continually adding to the list to show progress and make their thinking active.

**Micro-Lab Protocol**

This routine is designed to insure that all persons in small groups have an opportunity to share and participate. This can be a good routine for discussing ideas on which there may be differences of opinion or a search for creative ideas for a project. The steps are:

1. Identify a topic or question for discussion.
2. Divide the students into groups of 3 or 4. Each group counts off.
3. All of the # 1’s in each group share ideas for 1 – 2 minutes.
4. Call for silence for 20-30 seconds for everyone to think about what was said.
5. Repeat for each person in the groups.
6. Allow 5 – 10 minutes for whole group discussion.
7. Each group shares with the entire class.

**I Used to Think… Now I Think.**

This is a good routine for students to get a sense of how perceptions, opinions or knowledge of students has grown or changed over the course of instruction. It can focus on a genre of work like “creative writing”, a book that they’ve read, a mathematical process like measuring angles, a world event in the news or in history. Students are simply asked to reflect on paper (can be in words, pictures, diagrams, etc.) in response those prompts:

- I used to think .........
- Now I think......
ROUTINES FOR DIGGING DEEPER INTO IDEAS

Tug of War

This Thinking Routine helps students better understand and explore different sides of fairness dilemmas. It is interactive in nature and engages students in new kinds of thinking. The following four steps are a good way to implement this activity.

1. First, present students with a fairness dilemma. Draw a rope, or present an actual one, to illustrate the controversy being discussed.
2. Second, identify the controversy, which factors are “pulling” at either side of the dilemma.
3. Third, engage students by asking them to think about why each factor is “tugging” at one side or the other of the dilemma, identifying the strongest arguments. Perhaps ask students to decide which side they would most likely choose themselves.
4. Lastly, push students further by asking “what if” questions, encouraging them to explore the topic more completely.

This activity is best suited for the whole class, and is helpful for students in that it makes their thinking visible by providing visuals and fostering interaction.

Claim/Support/Question

This Thinking Routine helps students learn how to reason logically and develop thoughtful interpretations of topics. Reasoning with evidence is especially emphasized, developing logical arguments to support claims. To begin, present students with a particular topic. Then, have students follow these steps to explore the topic thoroughly:

1. Make a claim about the topic – an explanation or interpretation of some aspect of the topic.
2. Identify support for your claim – things you see, feel, and know that support your claim.
3. Ask a question related to your claim – What’s left hanging? What isn’t explained? What new reasons does your claim raise?

This activity works well for individual students, small groups, and for whole group discussions. In large group discussions, each student should have the opportunity to share his or her insights to each question. Through this type of dialogue, students learn how to identify truth claims and explore strategies for uncovering truth.

What Makes You Say That?

This Thinking Routine teaches students to provide evidential reasoning for their observations. It helps students describe what they observe or know and then encourages them
to formulate explanations. Through this exercise, students are also encouraged to recognize and understand alternative explanations and multiple perspectives. After presenting students with a particular concept or object, ask them the following questions:

1. What’s going on?
2. What do you see that makes you say that?

Because the questions in this routine are open and flexible, they can be implemented in virtually any subject area, and can also be useful when introducing a new topic or concept to gather student understanding. The hope is that students would internalize this routine of evidential explanation and begin to engage in this type of thinking and analyzing without being prompted.

**Step Inside**

Teachers have forever worked to help students to “get inside” another person, place or thing in history, in a novel or story, or in current events. This routine moves this process to a level of hypothesizing what this person (or object or animal) may be thinking or how they perceive the world around them. This could also be used in anticipating what might happen next in a plot, historical event or science experiment.

Students are asked to think about a person or object connected to an event or situation or story and consider questions like:

1. What can this person, animal or thing see, observe, or notice?
2. What might they know about, understand, or believe?
3. What might they care about or wish would happen?

Encourage students to think about these questions and answer them in a format that works best: words, pictures, diagram, bullet lists, etc.

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