**Critical Thinking: Cognitive vs. Metacognitive**

After you identify tools to assist students in identifying SMART daily learning targets, leading to SMART goals, which lead to a SMART destination beyond the GED®; you are ready to continue to fill their backpacks with strategies and tools that will assist them in arriving at one of their first destinations on their journey in adult education as they move towards higher education, training, work, or a career.

We are going to provide students with strategies and tools they can transfer to higher education, training, the workplace, and home. Strategies and tools that will assist will them to a) begin to think critically and strategically, b) work towards changing mindsets and overcome learned helplessness, and c) begin to take control and ownership over their learning.

We can teach them not only what to learn, but also, how to learn.

Cognitive and metacognitive, critical thinking strategies and tools are key tools that students may apply to succeed on the GED, in higher education, and in the workforce. Cognitive questions may be the Student Look-Fors discussed previously or they just may be questions that a student must ask and answer to reach the learning target (solve the problem or understand the text). Metacognitive questions are questions that students must ask and answer to self-assess whether or not they are learning and then self-regulate or adjust how they are learning.

What is the difference between the two?

**What to Learn Vs. How to Learn**

<table>
<thead>
<tr>
<th>Cognitive Strategies</th>
<th>Metacognitive Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processes and strategies that help us to learn</td>
<td>Processes and strategies to assess how we learn</td>
</tr>
<tr>
<td>Mental processes and thinking abilities in which people engage on a daily basis such as memory, learning, problem solving, evaluation, reasoning, and decision making.</td>
<td>Thinking about the thinking. Assesses the use of the cognitive strategy and identifies how it was used and if it was used correctly and if not, how can it be used differently or what may be done differently when using it.</td>
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<tr>
<td>Process of thinking</td>
<td>Controls the cognitive process.</td>
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<tr>
<td>Levels of Cognition: Depth of Knowledge</td>
<td>Planning, monitoring, evaluating, self-regulating</td>
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</tbody>
</table>
Below are examples in reading, writing, social studies/science, and math.
<table>
<thead>
<tr>
<th>What to Learn</th>
<th>How to Learn</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reading Comprehension</strong></td>
<td><strong>Planning</strong>: I need to be able to find the author’s key message with evidence.</td>
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<tr>
<td></td>
<td><strong>Monitoring</strong>: Was I able to identify the key message with evidence?</td>
</tr>
<tr>
<td><em>What is the author’s key message?</em></td>
<td>Did annotating work for me? Why or why not?</td>
</tr>
<tr>
<td><em>What is the evidence?</em></td>
<td>Was I focused?</td>
</tr>
<tr>
<td><em>How do I analyze the evidence?</em></td>
<td><strong>Evaluating</strong>:</td>
</tr>
<tr>
<td><em>How do I use annotating?</em></td>
<td>What worked?</td>
</tr>
<tr>
<td><em>What is the key message to underline?</em></td>
<td>What could I do differently?</td>
</tr>
<tr>
<td><em>How do I know what is evidence?</em></td>
<td></td>
</tr>
<tr>
<td><strong>Writing</strong></td>
<td><strong>Planning</strong>: I need to be able to respond to an extended response prompt.</td>
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<tr>
<td></td>
<td><strong>Monitoring</strong>: Did I reach the goal? Did I follow the correct steps in organizing? Using the graphic organizer? If not, what should I do instead?</td>
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<tr>
<td><em>What are the steps to organize my writing?</em></td>
<td><strong>Evaluating</strong>: What worked? What can I do differently?</td>
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<tr>
<td><em>How do I use this graphic organizer?</em></td>
<td></td>
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<tr>
<td><em>How do I work with my peer in completing a graphic organizer?</em></td>
<td></td>
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<tr>
<td><strong>Science/Social Studies</strong></td>
<td><strong>Planning</strong>: I need to know about the Declaration of Independence/Scientific Method. What do I already know about ___?</td>
</tr>
<tr>
<td><em>What is the Declaration of Independence/Scientific Method?</em></td>
<td><strong>Monitoring</strong>: Can I describe the steps? Can I explain how I got my answer? Was I focused? Do I need to slow down and reread?</td>
</tr>
<tr>
<td><em>Why is this important to know?</em></td>
<td><strong>Evaluating</strong>: What did I do right to identify the hypothesis? What could I have done differently?</td>
</tr>
<tr>
<td><em>What are the steps in the SM?</em></td>
<td></td>
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<tr>
<td><em>What do the terms mean?</em></td>
<td></td>
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<tr>
<td><em>How do I identifying vocabulary I do not know?</em></td>
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</table>
Math

What is slope?

What are the steps in calculating slope?

What are questions I should ask myself when calculating slope?

What would a correct answer look like?

Planning: I need to know what slope is and how to calculate it.

Monitoring: Was I able to solve the problem?

Did I follow the correct steps?

Evaluating: What did I do right to solve the problem? What worked in solving the problem? What could I have done differently?

You may engage students in using these tools by modeling questioning and providing them with tools to do the same. As we examine some of these strategies and tools, note how they may help a student to:

- **focus,**
- take control of their learning,
- assess what and how they are learning (formative assessment),
- stay more engaged and persist in reaching learning targets and goals, and
- identify small successes in learning and they reach the target.
You may scaffold students into using the following questions throughout the learning cycle.

The Gradual Release of Responsibility model demonstrates how you may scaffold a student into learning a new strategy in order to develop a skill.