

GET ICE

A routine for gaining clarity in problem solving situations

- *Get in IMAGE: Visualize the problem situation in your head.*
- *Get CLEAR: What is the problem asking? What words are important? What is unclear?*
- *Get an ESTIMATE: What form will the answer take? What is the range of answers you might expect to get?*

Purpose: What kind of thinking & learning does this routine encourage?

This routine encourages metacognition by helping students to slow down their thinking as they seek to gain clarity and understanding of what a problem is about and what it is asking. It slows the problem solving process down to help students avoid jumping right into solving a problem too quickly.

Application: When and where can it be used?

This routine can be used in any problem-solving situation. This might include mathematical problem solving, scientific investigations, or problem-based learning scenarios. It can also be used to think about assignments and tasks, to ensure that they are understood before proceeding.

Launch: What are some tips for starting and using this routine?

Introduce this routine to a whole group initially. Once it becomes familiar, students can activate it individually that can be activated as needed. Explain to students that research has shown that skilled problem solvers spend most of their time thinking and trying to understand a problem before they jump into trying to solve it. Conversely, novices often jump in too quickly, assuming they understand the problem, and then get stuck. Tell students you are going to introduce a very simple routine they can use to slow them down and help them to become more expert problem solvers. Name the routine for the students: Get ICE. Explain that ICE is an acronym that stands for Get an Image, Get Clear, and Get Estimation. Tell students you are going to practice the routine together with a complex problem. The problem should be complex enough that there is a need for each step of the routine, if not then students won't see the benefit of slowing down. Similarly a problem that involves a trick or play on words would not be likely to highlight the benefit of the routine.

Begin by reading a story problem or problem scenario aloud the class. Ask them to close their eyes as you read it a second time. With their eyes closed, ask students to "Get an Image" or create a mental movie of what is happening the problem. Who are the actors? What are the key actions occurring in the problem? Have students open their eyes. Tell them we now need to "Get Clear." Are there words in the problem that are unclear? What words are important? What is the problem asking? What seems confusing or unclear about the problem? Now move to "Get an Estimate." An estimate need not be limited to a specific quantity, but might include the form the answer will take (for instance, the answer will be in days, dollars, or a fraction) or a range for the response (for instance, it will be less than 100 but more than 70). After the Get ICE routine has been introduced have students working in individually, in pairs, or small groups work to solve the problem. Debrief by asking how the Get ICE routine helped them in their problem solving.