

LOK (Levels of Knowing) and DOK (Depth of Knowledge)*

For planning math units, lessons, and/or activities at all levels.

- How can you effectively move your learners through the levels of knowing?
- Which depth of knowledge level is appropriate for each student and/or class?

| | Levels of Knowing | Depth of Knowledge Level 1 <i>Recall</i> | Depth of Knowledge Level 2 <i>Skill / concept</i> |
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| Challenge yourself to include these levels in your instruction! | INTUITIVE <i>Connect to what the learner knows</i> | -Recall or recognition of a fact, term, information, or definition -Recall and use a simple procedure | -Discuss use of mathematical operations in daily life -Describe an existing understanding of a skill and/or concept |
| | CONCRETE <i>Hands on</i> | -Recognize an object -Measure an object | -Organize or classify objects -Make observations -Collect data -Perform an experiment |
| | PICTORIAL <i>A visual representation</i> | -Identify and/or recognize an image and/or parts of an image -Recognize a pattern of images -Visualize and or draw a representation | -Organize or classify images -Extend a pattern of images -Estimate using a number line -Display data using a table, line graph or bar graph |
| Often, texts and worksheets focus on these levels. | ABSTRACT <i>Numbers and symbols</i> | -Identify and/or recognize a symbol -Recognize a pattern of symbols -Perform basic computations and/or procedures -Identify components of a formula -Use a formula | -Organize or classify symbols -Extend a pattern of symbols -Display data using pie charts |
| | APPLICATION <i>Math within a context</i> | -Retrieve information from a graph -Solve one step word problems | -Make decisions as to how to approach the problem -Apply a skill or concept -Use given information -Estimate to solve a problem -Compare data -Multi-step word problems -Determine probability |
| COMMUNICATION <i>Ask questions of learners and provide time for them to talk about math to you and each other.</i> | | -Describe an object, image, symbol, or situation | -Explain or interpret a concept or situation -Demonstrate conceptual knowledge through models and explanations -Explain relationships, examples, and non-examples |

*Planning tool created by Lindsey Cermak and Amy Vickers, 2013 based on Levels of Knowing Mathematics (Mahesh Sharma) and Depth of Knowledge (Norman Webb).