

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>
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).