TEACHING MATHEMATICS PRACTICES

Use this overview to see the big picture!

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FOR ALL GRADES K - 12

(1) SOLVE PROBLEMS **Mathematicians make sense of problems and are persistent**		
Analyze givens, constraints, relationships, and goals	Develop a plan	Check the answer and see if it makes sense
(2) REASON ABSTRACTLY AND QUANTITATIVELY **Mathematicians use number sense when representing a problem**		
Make sense of quantities and relationships symbolically with equations and expressions	Besides computing, manipulate equations	Understand and use different properties and operations
(3) CREATE VIABLE ARGUMENTS AND CRITIQUE THE REASONING OF OTHERS **Mathematicians make conjectures and prove or disprove them**		
Understand and use definitions when justifying results	Use examples and counterexamples	Use objects, drawings, diagrams, actions, verbal and written communication
(4) MODEL WITH MATHEMATICS **Mathematicians use math to describe a real situation or problem**		
Assume and approximate to simplify complicated tasks	Use tools such as diagrams, tables, graphs, flowcharts and formulas	Analyze results to decide if a conclusion makes sense
(5) USE APPROPRIATE TOOLS STRATEGICALLY **Mathematicians use a variety of tools and technology**		
Decide which tools will be most helpful (e.g., ruler, calculator, protractor)	Use estimation and math to detect errors	Use models and technology to see results and to understand concepts
(6) ATTEND TO PRECISION **Mathematicians are precise with words, numbers, and symbols**		
Use clear definitions when communicating with others	Define the meaning of symbols consistently and appropriately	Calculate accurately; be precise in labeling and in measurement
(7) LOOK FOR AND MAKE USE OF STRUCTURE **Mathematicians look for and use patterns and connections**		
Look closely to detect a pattern or structure	Step back for an overview; shift perspective	See complicated things as collections of smaller parts
(8) LOOK FOR AND EXPRESS REGULARITY IN REPEATED REASONING **Mathematicians look for and create efficient strategies**		
Identify calculations, methods, and shortcuts that repeat	Keep the main problem in mind while attending to details	Continually evaluate the reasonableness of results