

## Five Strands of Mathematical Proficiency: Intertwined strands of proficiency

Strategic Competence  
The ability to formulate, represent, and solve mathematical problems.

Adaptive Reasoning  
Capacity for logical thought, reflection, explanation, and justification



Conceptual Understanding  
Comprehension of mathematical concepts, operations, and relations.

Procedural Fluency  
Skill in carrying out procedures flexibly, accurately, efficiently, and appropriately

Productive Disposition  
Habitual inclination to see mathematics as sensible, useful, and worthwhile coupled with a belief in diligence and one's own efficacy.

“Just as a stool cannot stand on one leg or even two, so mathematical proficiency cannot stand on one or two isolated strands. To become mathematically proficient, students need to develop all five strands throughout their elementary school and middle school years. At any given moment, during a mathematics lesson or unit, one or two strands might be emphasized. But all strands must eventually be addressed so that the links among them are strengthened.”  
*Helping Children Learn Mathematics, National Research Council (2002)*