

Numbers and Operations: Problem Solving & Logic Compacted DesCartes

- 161-170 Analyzes another student's explanation to understand simple problems
Uses a model to solve problems using a variety of strategies (e.g., draws a picture, looks for patterns, makes a table or organized list, makes a problem simpler, uses process of elimination, uses trial and error, works backwards, uses models)
Follows a model of problem solving that incorporates understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness
Uses manipulatives to model and justify solutions
- 171-190 Same as above
Determines the operation and writes a number sentence for a simple problem
Uses appropriate technology to solve problems
Uses words pictures, numbers, and technology to explain the solution
- 191-200 Same as above
Restates the problem in own words
Selects information necessary to solve a simple problem, writes a number sentence, and determines if any further information is needed
Translates from a diagram to an expression or equation
Translates a 1-step problem to a symbolic expression or equation
Uses calculators and technology as problem solving tools
Relates everyday language to mathematical language and symbols, and progresses toward the use of appropriate terminology (e.g. "add more becomes "plus")
Looks for a simple linear pattern in a table to solve a problem
- 201-210 Same as above
Translates a 2-step problem to a symbolic expression or equation
Looks for a linear or repeating pattern to solve a problem
Solves real world problems using reasoning strategies
Makes and justifies inferences and predictions using patterns
Produces a valid conjecture using inductive reasoning by generalizing from a pattern of observation
Uses manipulatives and models to demonstrate thinking process
- 211-220 Analyzes another student's explanation to understand complex problems
Restates the problem from various perspectives
Determines information needed to solve a difficult problem
Determines the additional information required to solve problems
Uses diagrams and systematic lists to represent problems
Translates a 2-step problem to a symbolic expression or equation
Determines the operation needed from a complex problem

- 211-220 Applies a variety of problem solving strategies (e.g., draws a picture, looks for patterns, makes a table or organized list, makes a problem simpler, uses process of elimination, uses trial and error, works backwards, uses models)
 Uses technology to generate and analyze data to solve problems
 Applies a problem solving model that incorporates understanding the problem, making a plan, carrying out the plan, and evaluating the solution as reasonable
 Uses manipulatives and growing patterns to demonstrate thinking processes
 Looks for a growing pattern to solve a problem
 Produces a valid conjecture using inductive reasoning by generalizing from a pattern of observations
 Verifies reasonableness of results of more difficult problems
- 221-230 Analyzes another student's explanation to understand complex problems
 Restates the problem from various perspectives
 Identifies the question from a problem solving situation
 Determines information needed to solve a difficult problem
 Determines the additional information required to solve problems
 Translates a problem to a symbolic expression or equation
 Applies a variety of problem solving strategies (e.g., draws a picture, looks for patterns, makes a table or organized list, makes a problem simpler, uses process of elimination, uses trial and error, works backwards, uses models)
 Uses technology to generate and analyze data to solve problems
 Applies a problem solving model that incorporates understanding the problem, making a plan, carrying out the plan, and evaluating the solution as reasonable
 Organizes information from a paragraph to solve a problem
 Applies what was learned to a new and/or more complex problem
 Uses truth tables to solve simple logic problems
 Looks for a growing pattern to solve a problem
 Produces a valid conjecture using inductive reasoning by generalizing from a pattern of observations
 Verifies reasonableness of results of more difficult problems
- 231-240 Uses pictures to represent problems
 Translates a problem to a symbolic expression or equation
 Organizes information from a paragraph to solve a problem
 Analyzes complex problems to separate into simpler parts