

FCAT SSS Mathematics

Low Complexity

This category relies heavily on the recall and recognition of previously learned concepts and principles. Items typically specify what the student is to do, which is often to carry out some procedure that can be performed mechanically. It is not left to the student to come up with a low complexity original method or solution. Skills required to respond to low complexity items include

- solving a one-step problem;
- computing a sum, difference, product, or quotient;
- evaluating a variable expression, given specific values for the variables;
- recognizing or constructing an equivalent representation;
- recalling or recognizing a fact, term, or property;
- retrieving information from a graph, table, or figure;
- identifying appropriate units or tools for common measurements; or
- performing a single-unit conversion.

Moderate Complexity

Items in the moderate complexity category involve more flexible thinking and choice among alternatives than low complexity items. They require a response that goes beyond the habitual, is not specified, and ordinarily has more than a single step. The student is expected to decide what to do—using informal methods of reasoning and problem-solving strategies—and to bring together skill and knowledge from various domains. Skills required to respond to moderate complexity items include

- solving a problem requiring multiple operations;
- solving a problem involving spatial visualization and/or reasoning;
- selecting and/or using different representations, depending on situation and purpose;
- retrieving information from a graph, table, or figure and using it to solve a problem;
- determining a reasonable estimate;
- extending an algebraic or geometric pattern;
- providing a justification for steps in a solution process;
- comparing figures or statements;
- representing a situation mathematically in more than one way; or
- formulating a routine problem, given data and conditions.

High Complexity

High complexity items make heavy demands on student thinking. Students must engage in more abstract reasoning, planning, analysis, judgment, and creative thought. The high-complexity item requires that the student think in an abstract and sophisticated way. Skills required to respond correctly to high complexity items include

- performing a procedure having multiple steps and multiple decision points;
- solving a non-routine problem (as determined by grade-level appropriateness);
- solving a problem in more than one way;
- describing how different representations can be used for different purposes;
- generalizing an algebraic or geometric pattern;
- explaining and justifying a solution to a problem;
- describing, comparing, and contrasting solution methods;
- providing a mathematical justification;
- analyzing similarities and differences between procedures and concepts;
- formulating an original problem, given a situation;
- formulating a mathematical model for a complex situation; or
- analyzing or producing a deductive argument.

FCAT SSS Science

Low Complexity

This category relies heavily on the recall and recognition of previously learned concepts and principles. Items typically specify what the student is to do, which is often to carry out some procedure that can be performed mechanically. It is not left to the student to come up with an original method or solution. Skills required to respond to low complexity items may include but are not limited to

- identifying a common example or recognizing a concept;
- retrieving information from a chart, table, diagram, or graph;
- recognizing a standard scientific representation of a simple phenomenon; or
- calculating or completing a familiar single-step procedure or equation using a reference sheet.

Moderate Complexity

Items in the moderate complexity category involve more flexible thinking and choice among alternatives than low complexity items. They require a response that goes beyond the habitual, is not specified, and ordinarily has more than a single step or thought process. The student is expected to decide what to do—using informal methods of reasoning and problem-solving strategies—and to bring together skill and knowledge from various domains.

Skills required to respond to moderate complexity items may include but are not limited to

- applying or inferring relationships among facts, terms, properties, or variables;
- describing examples and nonexamples of scientific processes or concepts;
- predicting or determining the logical next step or outcome;
- comparing or contrasting structures or functions of different organisms or systems;
- choosing the appropriate formula or equation to solve a problem and then solving it; or
- applying and using concepts from a standard scientific model or theory.

High Complexity

High complexity items make heavy demands on student thinking. Students must engage in more abstract reasoning, planning, analysis, judgment, and creative thought. The items require that the student think in an abstract and sophisticated way often involving multiple steps. Skills required to respond to high complexity items may include but are not limited to

- constructing models for research;
- generalizing or drawing conclusions;
- designing an experiment, given data and conditions;
- explaining or solving a problem in more than one way;
- providing a justification for steps in a solution or process;
- analyzing an experiment to identify a flaw and propose a method for correcting it;
- interpreting, explaining, or solving a problem involving spatial relationships; or
- predicting a long-term effect, outcome, or result of a change within a system.