MATHEMATICAL ABILITIES
Mathematical Abilities

- Conceptual Understanding
  - Recognize, label, and generate examples and nonexamples of concepts
  - Use and interrelate models, diagrams, manipulatives, and varied representations of concepts
  - Interpret the assumptions and relations involving concepts in mathematical settings
  - Identify and apply principles
  - Know and apply facts and definitions
  - Compare, contrast, and integrate related concepts and principles
  - Recognize, interpret, and apply the signs, symbols, and terms used to represent concepts
  - Ability to reason
  - Ability to manipulate ideas about the understanding of a concept in a variety of ways

- Mathematical Abilities

- Ability to reason
- Ability to manipulate ideas about the understanding of a concept in a variety of ways
Mathematical Abilities

Procedural Knowledge

- Verify or justify the correctness of a procedure using concrete models or symbolic methods
- Extend or modify procedures to deal with factors in problem solving
- Select and apply appropriate procedures correctly
- Ability to reason through a situation
- Ability to connect, employ, and communicate an algorithmic process within a problem situation
- Ability to perform noncomputational skills such as rounding and ordering
- Numerical algorithms
- Ability to read
- Ability to produce graphs and tables
- Ability to execute geometric constructions
**BLOOM’S TAXONOMY of the COGNITIVE DOMAIN**

**Mathematics**

<table>
<thead>
<tr>
<th>Knowledge</th>
<th>Comprehension</th>
<th>Application</th>
<th>Analysis</th>
<th>Synthesis</th>
<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ability to recall previously learned facts, concepts, or principles.</td>
<td>Ability to translate previously learned information, or to grasp meaning, intent, or relationships.</td>
<td>Ability to apply previously acquired knowledge or information to a new situation.</td>
<td>Ability to break material down into its components so that organizational structure may be understood.</td>
<td>Ability to analyze the parts and put them together for form a whole.</td>
<td>Ability to make judgments based on evidence and determine the value of material based on definite criteria.</td>
</tr>
</tbody>
</table>

- **Knowledge**
  - know
  - record
  - relate
  - cite
  - define
  - list
  - collect
  - enumerate
  - memorize
  - recall
  - label
  - tell
  - repeat
  - name
  - specify
  - recount
  - ask
  - count
  - indicate
  - inquire
  - inquire
  - know
  - locate
  - recite
  - observe
  - choose
  - match

- **Comprehension**
  - know
  - record
  - relate
  - cite
  - define
  - list
  - collect
  - enumerate
  - memorize
  - recall
  - label
  - tell
  - repeat
  - name
  - specify
  - recount
  - ask
  - count
  - indicate
  - inquire

- **Application**
  - exhibit
  - apply
  - dramatize
  - calculate
  - solve
  - employ
  - practice
  - interview
  - use
  - illustrate
  - experiment
  - stimulate
  - demonstrate
  - operate
  - schedule
  - dramatize
  - summarize
  - order
  - generalize
  - draw
  - reconstruct
  - compute
  - manipulate
  - relate
  - propose
  - translate

- **Analysis**
  - interpret
  - contrast
  - investigate
  - inspect
  - combine
  - inventory
  - analyze
  - scrutinize
  - deduce
  - classify
  - examine
  - question
  - differentiate
  - categorize
  - inquire
  - arrange
  - summarize
  - determine
  - decide
  - compare
  - select
  - estimate
  - predict
  - appraise
  - value
  - criticize
  - infer
  - judge
  - choose
  - evaluate
  - revise
  - assess
  - deduce
  - recommend
  - interpret
  - collect
  - validate
  - justify
  - prioritize
  - rank

**FCAT uses only two classifications of cognitive skills. Level I includes the knowledge, comprehension, and application (in familiar situations) categories, and Level II includes the application (in unique situations), analysis, synthesis, and evaluation categories.**