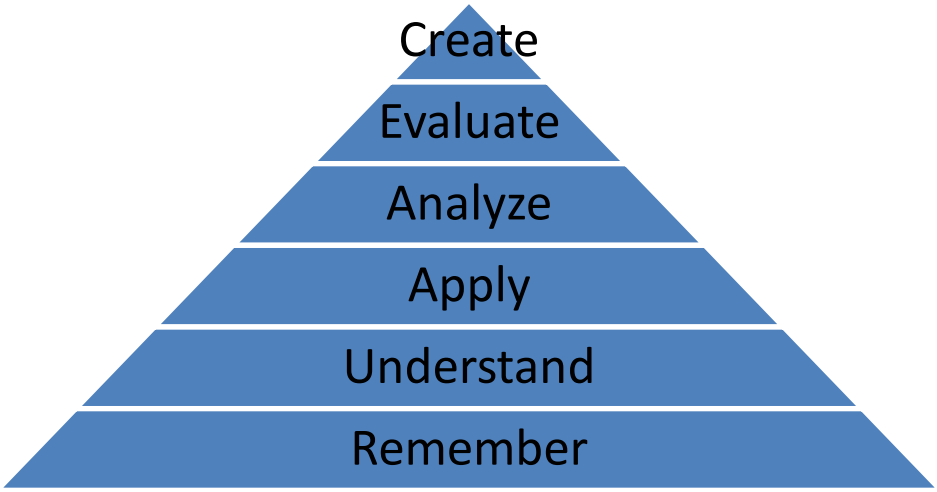
Anderson and Krathwohl's (Bloom's) Taxonomy 2000



COGNITIVE PROCESSES

1. **Remembering**: Retrieving, recalling, or recognizing knowledge from memory. Remembering is when memory is used to produce ***definitions, facts, or lists, or recite or retrieve material***.

2. **Understanding**: Constructing meaning from different types of functions be they written or graphic messages activities like ***interpreting, exemplifying, classifying, summarizing, inferring, comparing, and explaining***.

3. **Applying**: Carrying out or using a procedure through ***executing, or implementing***. Applying related and refers to situations where learned material is used through products like models, presentations, interviews or simulations.

4. **Analyzing**: Breaking material or concepts into parts, determining how the parts relate or interrelate to one another or to an overall structure or purpose. Mental actions included in this function are ***differentiating, organizing, and attributing***, as well as ***being able to distinguish between*** the components or parts. When one is analyzing he/she can illustrate this mental function by creating spreadsheets, surveys, charts, or diagrams, or graphic representations.

5. **Evaluating**: Making judgments based on criteria and standards through ***checking and critiquing***. Critiques, recommendations, and reports are some of the products that can be created to demonstrate the processes of evaluation. In the newer taxonomy evaluation comes before creating as it is often a necessary part of the precursory behavior before creating something.

6. **Creating**: Putting elements together to form a coherent or functional whole; ***reorganizing*** elements into a new pattern or structure through ***generating, planning, or producing***. Creating requires users to put parts together in a new way or synthesize parts into something new and different a new form or product. This process is the most difficult mental function in the new taxonomy.

Taken from the web: http://thesecondprinciple.com/teaching-essentials/beyond-bloom-cognitive-taxonomy-revised/

Anderson and Krathwohl's (Bloom's) Taxonomy 2000

KNOWLEDGE DIMENSIONS

- **Factual Knowledge** is knowledge that is basic to specific disciplines. This dimension refers to essential facts, terminology, details or elements students must know or be familiar with in order to understand a discipline or solve a problem in it.
- **Conceptual Knowledge** is knowledge of classifications, principles, generalizations, theories, models, or structures pertinent to a particular disciplinary area.
- **Procedural Knowledge** refers to information or knowledge that helps students to do something specific to a discipline, subject, area of study. It also refers to methods of inquiry, very specific or finite skills, algorithms, techniques, and particular methodologies.
- **Metacognitive Knowledge** is the awareness of one's own cognition and particular cognitive processes. It is strategic or reflective knowledge about how to go about solving problems, cognitive tasks, to include contextual and conditional knowledge and knowledge of self.

INTER-RELATIONSHIP BETWEEN COGNITIVE PROCESS AND KNOWLEDGE

With definitions and examples

Table 1. *Bloom's Taxonomy*

The Knowledge Dimension	The Cognitive Process Dimension					
	Remember	Understand	Apply	Analyze	Evaluate	Create
Factual Knowledge	*List*	*Summarize*	*Classify*	*Order*	*Rank*	*Combine*
Conceptual Knowledge	*Describe*	*Interpret*	*Experiment*	*Explain*	*Assess*	*Plan*
Procedural Knowledge	*Tabulate*	*Predict*	*Calculate*	*Differentiate*	*Conclude*	*Compose*
Meta-Cognitive Knowledge	*Appropriate Use*	*Execute*	*Construct*	*Achieve*	*Action*	*Actualize*

ACTION VERBS for Bloom's Cognitive Processes

Cognitive Process	Definition	Verbs				
Remember	***Remember previously learned information.***	Arrange Label Order Repeat	Define List Outline Reproduce	Describe Match Recognize Select	Duplicate Memorize Relate State	Identify Name Recall
Understand	***Demonstrate an understanding of the facts.***	Classify Distinguish Generalized Locate Review	Convert Estimate Give examples Paraphrase Select	Defend Explain Identify Predict Summarize	Describe Express Indicate Recognize Translate	Discuss Extend Infer Rewrite
Apply	***Apply knowledge to actual situations.***	Apply Discover Manipulate Prepare Sketch	Change Dramatize Modify Produce Solve	Choose Employ Operate Relate Use	Compute Illustrate Practice Schedule Write	Demonstrate Interpret Predict Show
Analyze	***Break down objects or ideas into simpler parts and find evidence to support generalizations.***	Analyze Compare Discriminate Illustrate Question Test	Appraise Contrast Distinguish Infer Relate	Breakdown Criticize Examine Model Select	Calculate Diagram Experiment Outline Separate	Categorize Differentiate Identify Point out Subdivide
Evaluate	***Make and defend judgments based on internal evidence or external criteria.***	Appraise Compare Discriminate Justify Select	Argue Conclude Estimate Interpret Summarize	Assess Contrast Evaluate Relate Support	Attach Defend Explain Predict Value	Choose Describe Judge Rate
Create	***Compile component ideas into a new whole or propose alternative solutions.***	Arrange Comply Develop Plan Reorganize Synthesize	Assemble Compose Devise Prepare Revise Tell	Categorize Construct Explain Rearrange Rewrite Write	Collect Create Formulate Reconstruct Set up	Combine Design Generate Relate Summarize

Taken from the web: http://www.au.af.mil/au/awc/awcgate/edref/bloom.htm