Bloom’s Taxonomy, Revised for 21st-Century Learners

Benjamin Bloom led a team of researchers in the 1950s to establish behaviors associated with learning; the outcome of this study was Bloom’s Taxonomy of Learning (1956). Forty years later, one of his students, Lorin Anderson, revised the taxonomy to accommodate progressions in pedagogy. The revised taxonomy has altered categories and now includes verbs associated with each of the six aspects of cognition.

The graph demonstrates the six aspects of learning, **Remembering**, **Understanding**, **Applying**, **Analyzing**, **Evaluating**, and **Creating**, in combination with a brief explanation of the process, and verbs teachers can use to get students to think on these levels. Here, Bloom’s Taxonomy is situated in the four types of knowledge, **Factual Knowledge** of terminology and details, **Conceptual Knowledge** of relationships among pieces of concepts or theories, **Procedural Knowledge** of processes and methods of theories and problems, and **Metacognitive Knowledge** of learning strategies and processes. This chart starts with factual knowledge and remembering and builds in complexity as it moves clockwise. A comprehensive lesson will require students to apply multiple types of knowledge and cognitive skills.
## BLOOM’S REVISED TAXONOMY

<table>
<thead>
<tr>
<th>Level</th>
<th>Verbs &amp; Sample Objectives</th>
<th>Discussion Questions</th>
</tr>
</thead>
</table>
| **Remember** | Arrange, Define, Describe, Detail, Draw, Duplicate, Identify, Indicate, Inventory, Label, List, Locate, Match, Name, Outline, Pick, Point, Pronounce, Quote, Recall, Recite, Recognize, Record, Relate, Repeat, Reproduce, Restate, State, Underline | • Who was...?  
• What is...?  
• When was...? |
| **Understand** | Classify, Confirm, Contrast, Convert, Decipher, Defend, Designate, Differentiate, Equate, Estimate, Examine, Express, Extend, Extrapolate, Generalize, Give Examples, Group, Infer, Interpret, Order, Paraphrase, Predict, Rephrase, Rewrite, Sort, Specify, Substitute, Tell, Translate | • Can you name...?  
• What is an example of...?  
• Where does...differ from...? |
| **Apply** | Add, Allocate, Alter, Apply, Calculate, Change, Choose, Complete, Compute, Conduct, Coordinate, Demonstrate, Determine, Direct, Discover, Divide, Dramatize, Draw, Employ, Formulate, Gather, Graph, Make, Manipulate, Model, Multiply, Operate, Perform, Present, Provide, Recount, Report, Schedule, Show, Sketch, Subtract, Use, Utilize | • How does...explain...?  
• Examine the graph and tell me...?  
• Which events led to...? |
| **Analyze** | Analyze, Appraise, Associate, Break Down, Criticize, Discern, Diagram, Discriminate, Dissect, Distinguish, Elect, Establish, Explain, Expound, Illustrate, Inspect, Profile, Question, Refute, Separate, Simplify, Subdivide, Summarize, Test | • What is the relationship between...and...?  
• What caused...?  
• How does...apply to...?  
• Why does...work?  
• How does...relate to...?  
• What distinctions can be made about...and...? |
| **Evaluate** | Argue, Assess, Attack, Compare and Contrast, Conclude, Critique, Debate, Decide, Deduce, Diagnose, Evaluate, Forecast, Improve, Judge, Justify, Measure, Prioritize, Prove, Rank, Rate, Recommend, Resolve, Revise, Select, Solve, Support, Value, Verify, Weigh | • How does...meet criteria for...?  
• What judgments can you make about...?  
• Can you compare and contrast...criteria for...?  
• Is there a better solution to...? |
| **Create** | Assemble, Assimilate, Categorize, Collect, Compile, Compile, Compose, Condense, Construct, Create, Design, Derive, Develop, Devise, Elaborate, Expand, Generate, Guide, Hypothesize, Integrate, Invent, Manage, Modify, Organize, Plan, Prepare, Prescribe, Produce, Propose, Rearrange, Reconstruct, Reorganize, Reword, Set Up, Synthesize, Theorize, Transform, Write | • What would happen if...?  
• Can you compile the data to...?  
• How can we solve...?  
• How many ways can you...?  
• What hypotheses can you make?  
• Why? |

### Discussion Questions
- Why?  
- What is...?  
- Who was...?  
- When was...?  
- How does...explain...?  
- Can you name...?  
- What is an example of...?  
- Where does...differ from...?  
- Examine the graph and tell me...?  
- Which events led to...?  
- What is the relationship between...and...?  
- What caused...?  
- How does...apply to...?  
- Why does...work?  
- How does...relate to...?  
- What distinctions can be made about...and...?  
- How does...meet criteria for...?  
- What judgments can you make about...?  
- Can you compare and contrast...criteria for...?  
- Is there a better solution to...?  
- What would happen if...?  
- Can you compile the data to...?  
- How can we solve...?  
- How many ways can you...?  
- What hypotheses can you make?  
- Why?

### Reference
- Theorize, Transform, Write
- Rearrange, Reconstruct, Reorganize, Rework, Set Up, Synthesize
- Modify, Organize, Plan, Prepare, Prescribe, Produce, Propose
- Expand, Generate, Guide, Hypothesize, Integrate, Invent, Manage, Modify, Organize, Plan, Prepare, Prescribe, Produce, Propose
- Rearrange, Reconstruct, Reorganize, Reword, Set Up, Synthesize, Theorize, Transform, Write
- Label the parts of the heart.
- Outline the steps in the writing process.
- Recite the Gettysburg Address.
- Be able to recall information such as dates, events, places, ideas, definitions, formulas, and theories.
- Be able to grasp the meaning of the information, express it in own words, and/or cite examples.
- Be able to apply knowledge or skills to new situations. Use information and knowledge to solve a problem, answer a question, or perform another task.
- Be able to break down knowledge into parts and show and explain the relationships among the parts.
- Be able to judge or assess the value of material and methods for a given purpose.
- Be able to pull together parts of knowledge to form a new whole and build relationships for new situations.


Faculty Center, MILB 1705 • J. Willard Marriott Library • (801) 581-7597 • ctle.utah.edu