



COLLEGE & CAREER
AGRICULTURE, FOOD, AND NATURAL RESOURCES
AFNR Teacher Guide

Bloom's Taxonomy

The following information has been adapted for Illinois teachers of Agriculture, Food, and Natural Resources. Original guides are publicly accessible from the from a Vanderbilt University Center for Teaching (CFT) on [the CFT Teacher Guides web page](#).

What is Bloom's Taxonomy?

Benjamin Bloom collaborated in 1956 with Max Englehart, Edward Furst, Walter Hill, and David Krathwohl to publish a framework for categorizing and organizing education goals called *Taxonomy of Educational Objectives*. This framework is commonly known today as "Bloom's Taxonomy" and has been applied to a variety of classrooms in grades kindergarten through grade 12. Teachers of all disciplines have used and implemented Bloom's Taxonomy to effectively structure and plan learning objectives.

The Original Taxonomy

The original taxonomy as written by Bloom et. al. was called *Taxonomy of Education Objectives: The Classification of Education Goals* and identified six primary categories. Those categories with a brief description are found in *Handbook One*, pp. 201-207. They are:

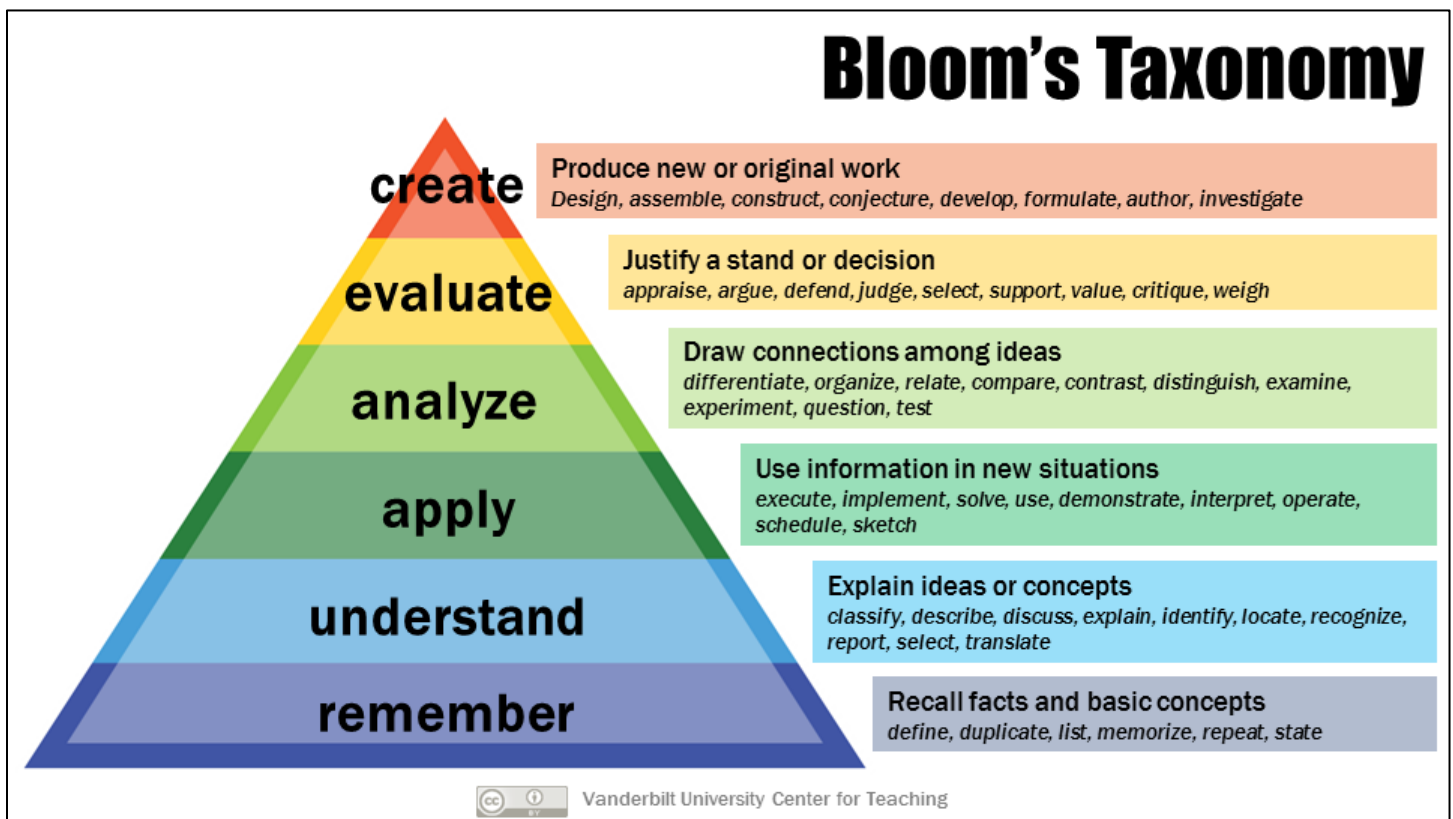
- **Knowledge** "involves the recall of specifics and universals, the recall of methods and processes, or the recall of a pattern, structure, or setting."
- **Comprehension** "refers to a type of understanding or apprehension such that the individual knows what is being communicated and can make use of the material or idea being communicated without necessarily relating it to other material or seeing its fullest implications."
- **Application** refers to the "use of abstractions in particular and concrete situations."
- **Analysis** represents the "breakdown of a communication into its constituent elements or parts such that the relative hierarchy of ideas is made clear and/or the relations between ideas expressed are made explicit."
- **Synthesis** involves the "putting together of elements and parts so as to form a whole."
- **Evaluation** engenders "judgments about the value of material and methods for given purposes."

Handbook One is available [free online](#) from the University of Kentucky. A revised edition of *Handbook One* was published in 1984 and is widely available.

The Revised Taxonomy

In 2001, a group of cognitive psychologists, curriculum theorists, instructional researchers, and testing/assessment specialists published a revision of Bloom's Taxonomy called *A Taxonomy for Teaching, Learning, and Assessment*. This revision describes a more dynamic and fluid concept of classifying education objectives as authors used verbs to outline a framework of categories and sub-categories. These action-oriented classifications describe the cognitive processes students use to encounter and work with new knowledge and skills. Those revised categories and sub-categories are shown in **Figure 1**.

Figure 1. Bloom's Taxonomy Revised Visual Organizer from Vanderbilt University Center for Teaching



The above graphic is released under a Creative Commons Attribution license. You're free to share, reproduce, or otherwise use it, as long as you attribute it to the Vanderbilt University Center for Teaching. For a higher resolution version, visit [the CFT Flickr account](#) and look for the "download this photo" icon.

Types of Knowledge

The authors of *A Taxonomy for Teaching, Learning, and Assessment* also developed a supplementary framework to the cognitive processes' framework shown in Figure 1. This additional framework organizes the types of knowledge used in cognition. Those types are:

- **Factual knowledge** to include knowledge of terminology, specific details, and elements
- **Conceptual knowledge** to include classifications, categories, principles, generalizations, theories, models, and structures
- **Procedural knowledge** to include subject-specific skills, algorithms, techniques, methods, and criteria for determining when to use appropriate procedures
- **Metacognitive knowledge** to include strategic, contextual, and knowledge, knowledge relating to cognitive tasks and self-knowledge

The Value of Bloom's Taxonomy in the AFNR Classroom

Bloom's Taxonomy provides teachers a foundation for writing educational objectives. The value of Bloom's can be found in three tasks common to AFNR teachers. Those tasks are:

- Communicate learning goals or objectives to students throughout the lesson.
- Exchange, align, and understand learning objectives both within and outside of AFNR.
- Plan, encourage, and develop higher order thinking for students in AFNR courses.

Communicating Learning Objectives with Students

Objectives and goals are important to establish with students before, during, and after the lesson. They are the guiding principles used to ensure all learning activities and assessments are designed for the intended outcome. Bloom's Taxonomy establishes common definitions for these goals, so that students and teachers have a common understanding of the purpose and value of the coursework.

Using Common Definitions to Exchange and Align Objectives

Common definitions provide clarity for AFNR teachers. As lessons, assessments, and other curricular resources are regularly shared by others, it is crucial to have established terms when discussing the underlying goal of each learning activity or plan. Evaluating the objective of a curricular resource can also guide teachers in determining the appropriate grade level, relevant course or topic, and best strategies for assessment.

Many AFNR courses offer opportunities for interdisciplinary learning in areas like science, math, social science, and social/emotional development. Bloom's Taxonomy is used by a variety of disciplines, which allows teachers to work together across subject areas to align programs of study and support each other in curricular design.

Developing a Higher Order of Thinking in my AFNR Classroom

AFNR classrooms often unite students of varying grade levels and interests, leaving the relevant rigor of a class different for each learner. In an effort to challenge students, many teachers implement an increased workload. This can develop positive qualities like cognitive endurance and a strong work ethic; teachers also should strive to challenge the complexity of students' cognitive interactions. This is the underlying meaning of the commonly used "higher-order thinking." Bloom's helps organize that "order" in a thoughtful sequence of increasing cognitive rigor and provides helpful descriptions to use when designing instruction. See **Figure 1** for a visual representation of this order.

What are some additional resources relating to this topic?

Explore the resources below for more information on Bloom's Taxonomy.

- Bloom, B.S., Pintrich, P.R., Raths, J., & Wittrock, M. C. (2001). *A taxonomy for learning, teaching, and assessing a revision of Bloom's Taxonomy of educational objectives* (Abridged Edition ed.) (1308730697 962406304 L.W. Anderson, 1308730698 962406304 D.R. Krathwohl, 1308730699 962406304 P.W. Airasian, 1308730700 962406304 K.A. Cruikshank, & 1308730701 962406304 R.E. Mayer, Eds.) [PDF]. New York City, New York: Longman. Retrieved April 13, 2021

Section III of [A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives](#), titled *The Taxonomy in Use*, provides more than 150 pages of examples of applications of the taxonomy. Although these examples are from the K-12 setting, they are easily adaptable to the university setting.

- Engelhart, M.D., Furst, E.J., Hill, W. H., & Krathwohl, D.R. (1956). [Taxonomy of Educational Objectives: The Classification of Educational Goals](#) (Cognitive Domain ed., Vol. Handbook 1) [PDF]. London, England: Longmans.