

Bloom's Taxonomy Essentials

Bloom's taxonomy was developed to classify the essential cognitive processes in learning, and later revised to put more emphasis on using action verbs in writing learning objectives. For example, instead of "Application", the revised version describes the attributes of the verb "apply". The following questions which will help you determine at what cognitive process level your learning objectives actually fall into. They are listed as increasingly challenging cognitive processes. Keep these in mind as you write your objectives.

- **Remember:** Is a student able to recall facts and recognize relationships?
- **Understand:** Can a student interpret, classify, or correctly explain a concept?
- **Apply:** Is a student able to apply a concept, demonstrate a procedure, or actually use a tool?
- **Analyze:** Is the student able to figure out how one aspect relates to another? Can they break a concept or theory apart and differentiate between closely related elements?
- **Evaluate:** Is the student able to make appropriate decisions or effective judgements?
- **Create:** Is the student reorganizing or restructuring concepts into something new or unique?

Bloom's taxonomy was revised in the late 90s/early 2000s. The 3D picture on the next page, (courtesy of Iowa State University), describes how and where **the knowledge and cognitive process dimensions intersect in increasingly complex ways**. This image depicts the familiar triangle shape of Bloom's Taxonomy, but you'll sometimes see Bloom's taxonomy represented as a staircase. More than that, however, the important thing to keep in mind the relationship between these two domains.

"As you will see the primary differences [in Bloom's revision] are not in the listings or rewordings from nouns to verbs, or in the renaming of some of the components, or even in the re-positioning of the last two categories. The major differences lie in the more useful and comprehensive additions of how the taxonomy intersects and acts upon different types and levels of knowledge — factual, conceptual, procedural and metacognitive."

-Leslie Owen Wilson

The verbs listed in red, along the **Cognitive Process Dimension**, correspond with different action verbs that describe cognition along the **Knowledge Dimension** continuum that ranges from merely factual through metacognitive in nature. So to **"reflect on one's progress" is a good example of using the Cognitive Process to Evaluate at the level of Metacognitive** in the Knowledge Dimension. Conversely, to **"judge efficiency of sampling techniques"** is an example of using the cognitive process to Evaluate at the Procedural level, not Metacognitive.

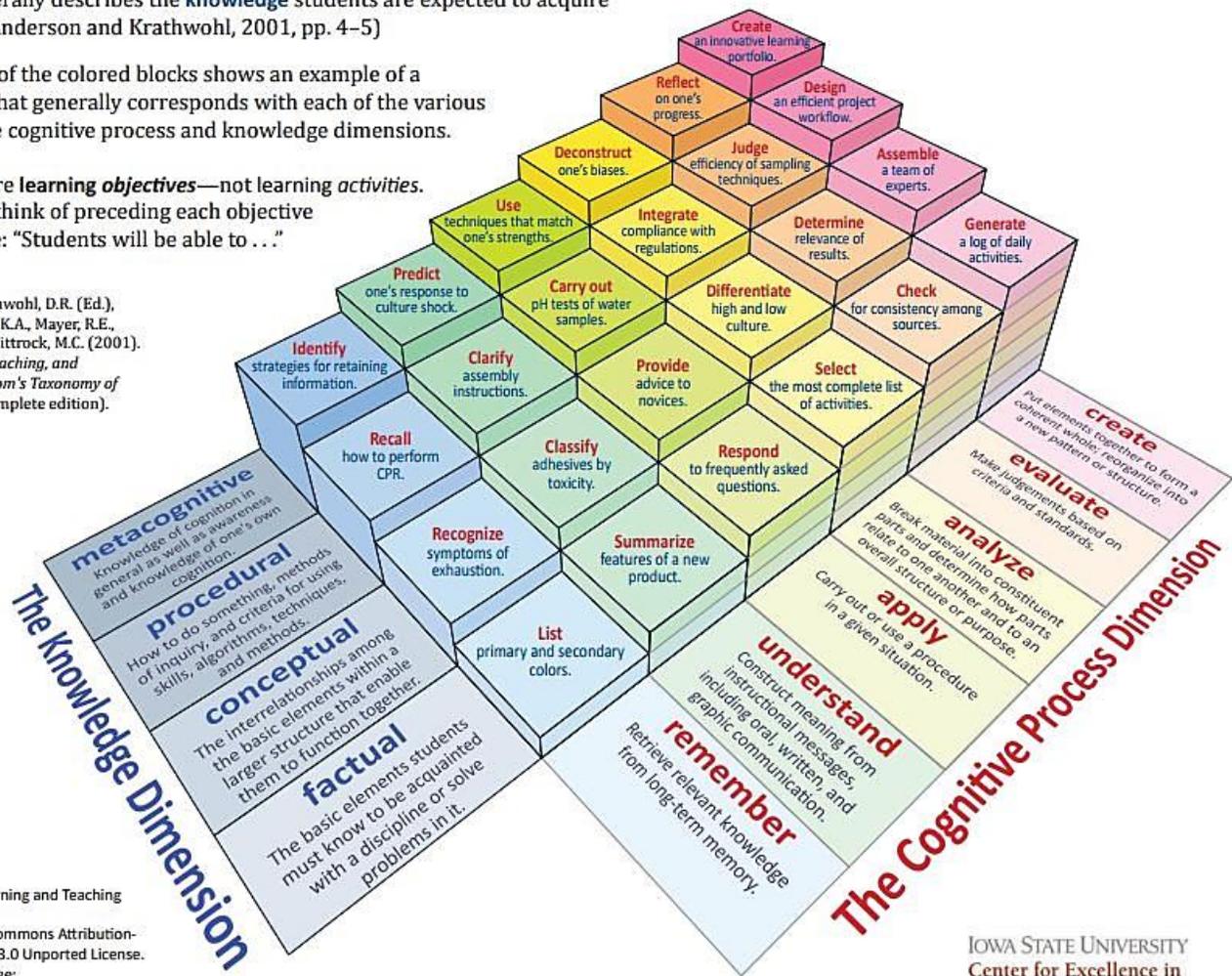
A statement of a **learning objective** contains a **verb** (an action) and an **object** (usually a noun).

- The **verb** generally refers to [actions associated with] the intended **cognitive process**.
- The **object** generally describes the **knowledge** students are expected to acquire or construct. (Anderson and Krathwohl, 2001, pp. 4–5)

In this model, each of the colored blocks shows an example of a learning objective that generally corresponds with each of the various combinations of the cognitive process and knowledge dimensions.

Remember: these are **learning objectives**—not learning *activities*. It may be useful to think of preceding each objective with something like: “Students will be able to . . .”

*Anderson, L.W. (Ed.), Krathwohl, D.R. (Ed.), Airasian, P.W., Cruikshank, K.A., Mayer, R.E., 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* (Complete edition). New York: Longman.



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For additional resources, see:
www.celt.iastate.edu/teaching/RevisedBlooms1.html

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References & Additional Reading

Iowa State University. (ND) Revised Bloom's Taxonomy. Center for Excellence in Learning and Teaching. Retrieved 7/10/17 from <http://www.celt.iastate.edu/teaching/effective-teaching-practices/revised-blooms-taxonomy>

Krathwohl, D. R. (2002) A Revision of Bloom's Taxonomy: An Overview. Retrieved 7/10/17 from <http://www.depauw.edu/files/resources/krathwohl.pdf>

Owen Wilson, L. (2016). Anderson and Krathwohl – Bloom's Taxonomy Revised. Retrieved 7/10/17 from <http://thesecondprinciple.com/teaching-essentials/beyond-bloom-cognitive-taxonomy-revised/>

For a good example of application, see - <http://thesecondprinciple.com/wp-content/uploads/2014/01/Example-of-using-revised-taxonomy.pdf>