

Writing Effective Learning Objectives Using Bloom's Taxonomy

WHY DO WE REQUIRE LEARNING OBJECTIVES?

Learning objectives...

- Communicate the purpose of a learning activity
- Define observable learning outcomes to achieve in the activity
- Help focus the teaching, learning, and evaluation
- Provide a basis for educational activities to offer CME credits

HOW IS A LEARNING OBJECTIVE CONSTRUCTED?

- Objectives contain a single verb and its object. The verb describes an observable action.
- Objectives can be written at Bloom's six levels of learning, with rote memorization being the lowest level and creative thinking being the highest level
- Aim to write learning objectives at the highest level that can be realistically achieved through the learning activity

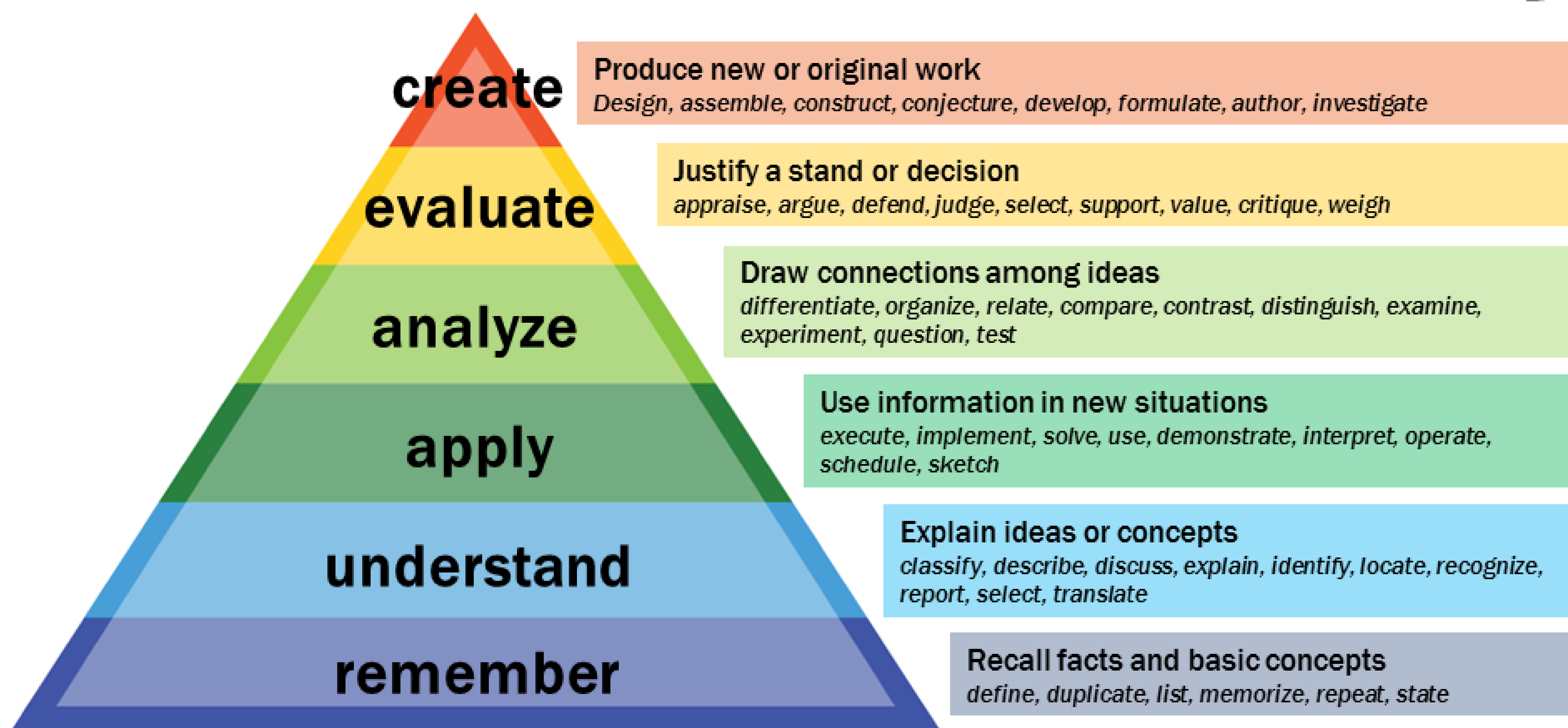
USING BLOOM'S TAXONOMY IN LEARNING OBJECTIVES

- Bloom's Taxonomy is hierarchical, meaning that learning at the higher levels is dependent on having attained prerequisite knowledge and skills at lower levels (see diagram below).
- Educators can use "verb tables" to identify which action verbs align with each level in Bloom's Taxonomy. Sample verbs are provided in the table on the right as suggestions for objectives at each of Bloom's 6 levels of learning. An example is given of a complete objective at each level.

USING BLOOM'S TAXONOMY IN LEARNING OBJECTIVES

Bloom's Level	Key Verbs	Learning Objective Examples
Create	generate, plan, design, formulate, build, invent, compose, produce, derive, modify, develop.	<i>By the end of this session, learners will be able to formulate an original surgical treatment plan for obese patients.</i>
Evaluate	check, test, detect, monitor, critique, support, judge, grade, argue, justify, support, convince.	<i>By the end of this session, learners will be able to determine whether using gastric bypass, sleeve gastrectomy, adjustable gastric band, or biliopancreatic diversion with a duodenal switch is the best form of bariatric surgery.</i>
Analyze	differentiate, select, organize, classify, outline, break down, categorize, diagram, simplify, associate.	<i>By the end of this session, learners will be able to differentiate between the following bariatric surgeries: gastric bypass, sleeve gastrectomy, adjustable gastric band, or biliopancreatic diversion with a duodenal switch.</i>
Apply	execute, implement, calculate, predict, solve, use, demonstrate, determine, model, perform, present.	<i>By the end of this session, learners will be able to execute gastric bypass surgery.</i>
Understand	describe, explain, exemplify, illustrate, paraphrase, restate, clarify, represent, translate, give original examples of, summarize, compare, interpret, infer, discuss.	<i>By the end of this session, learners will be able to describe 4 common types of bariatric weight loss surgery.</i>
Remember	list, recite, outline, define, name, match, quote, recall, identify, label, recognize, retrieve.	<i>By the end of this session, learners will be able to identify the 4 common types of bariatric weight loss surgery.</i>

Bloom's Taxonomy



Writing Effective Learning Objectives Using Bloom's Taxonomy

BEFORE & AFTER: HOW TO IMPROVE LEARNING OBJECTIVES

Original objective: *Learn strategies to develop, maintain, and grow a private general surgery practice.*

What to improve: Learn is not a measurable verb.

Revised objective: *Describe strategies for developing, maintaining, and growing a private general surgery practice.*

Original objectives: *Strengthen individual awareness of personal vulnerabilities, increase understanding of others' vulnerabilities, optimize ability to recognize potential harm in the environment*

What to improve: These learning objectives are not observable, they do not describe the action that the learner should demonstrate, and their context is unclear. Additionally, each of these is a separate learning objective and should be delineated as such.

Revised objectives: By the end of this session, learners will be able to:

- *Identify personal vulnerabilities in surgical leadership development.*
- *Describe examples of others' vulnerabilities in surgical leadership development.*
- *Recognize potential environmental harm on the path toward surgical leadership development.*

Original objective: *Become familiar with the key principles of hemorrhoid surgery.*

What to improve: This objective does not include a measurable verb and does not specify the principles with which learners should demonstrate familiarity.

Revised objective: *Identify principles of hemorrhoid surgery including indications, contraindications, technical considerations, and outcomes.*

Original objective: *List updates on current status of nodal basin management on sentinel node positive patients.*

What to improve: The verb "list" reflects the lowest level of learning on Bloom's taxonomy and is arguably too low for advanced learners such as surgeons attending ACS Clinical Congress.

Revised objective: *Determine the benefits of updates in nodal basin management on sentinel node positive patients.*

LEARNING OBJECTIVE CHECK LIST

- The learning objective is measurable & includes an observable action.
- There is only one observable action verb in each learning objective.
- The learning objective includes an action verb that targets the desired level of performance.
- The learning objective is supported by the session content and the learning activity.
- The learning objective is learner-centered.
- The learning objective includes a complex or higher-level action verb only when appropriate.

REFERENCES & RESOURCES

Anderson, L. W., & Krathwohl, D. (Eds.). (2001). *A taxonomy for learning, teaching, and assessing: A revision of Bloom's taxonomy of educational objectives*. New York: Longman.

Armstrong, P. (n.d.). *Bloom's Taxonomy*. Center for Teaching, Vanderbilt University. Retrieved from <https://cft.vanderbilt.edu/guides-sub-pages/blooms-taxonomy/>

Bloom, B., Englehart, M. Furst, E., Hill, W., & Krathwohl, D. (1956). *Taxonomy of educational objectives: The classification of educational goals. Handbook I: Cognitive domain*. New York, Toronto: Longmans, Green.

Center for Excellence in Learning and Teaching, Iowa State University. *Revised Bloom's Taxonomy*. Retrieved from <https://www.celt.iastate.edu/teaching/effective-teaching-practices/revised-blooms-taxonomy/>

Ferlazzo, L. (2009, May 25) *The best resources for helping teachers use Bloom's Taxonomy in the classroom*. Retrieved from <https://larryferlazzo.edublogs.org/2009/05/25/the-best-resources-for-helping-teachers-use-blooms-taxonomy-in-the-classroom/>