

Higher Order Thinking Skills

Bloom's Taxonomy

Benjamin Bloom (1956) developed a classification system for levels of intellectual learning. This taxonomy contained three overlapping domains: cognitive, psychomotor, and affective. Within the cognitive domain, six distinct levels were identified: knowledge, comprehension, application, analysis, synthesis, and evaluation.

Revised Bloom's Taxonomy

Lorin Anderson (2001) revised Bloom's taxonomy, hoping to add relevance for 21st century students. The revision includes minor yet significant changes. Bloom's six levels were changed from noun to verb forms. The lowest level, knowledge, was renamed remembering.

Comprehension and synthesis became, respectively, understanding and creating. The new levels are now identified as remembering, understanding, applying, analyzing, evaluating, and creating.

Critical Thinking Skills

Critical thinking involves logical thinking and reasoning, including such skills as comparison, classification, sequencing, patterning, identifying cause and effect, making analogies, deductive and inductive reasoning, critiquing, and creating. Higher order thinking skills refer to the top three levels of Bloom's taxonomy (or revised Bloom's, referred to as RBT): analysis (analyzing), evaluation (evaluating), and synthesis (creating).

Analyzing is defined as "breaking material into constituent parts, determining how parts relate to one another and to an overall structure through differentiation, organizing, and attributing." Evaluation is defined as "making judgments based on criteria and standards through checking and critiquing." Creating, now considered the highest level of thinking, is defined as "putting elements together to form a coherent or functional whole, recognizing elements in a new pattern through generating, planning, or producing." (Anderson & Krathwohl, 2001). Asking students to think at higher levels beyond simple recall is an excellent way to stimulate students' thinking processes.

For more information on Bloom's taxonomy and higher order thinking skills, access the following links:

Blooming Butterfly poster @ <http://learningtoday.web6.hubspot.com/blog/bid/22740/Bloom-s-Taxonomy-Poster-for-Elementary-Teachers>

Bloom's Taxonomy "Blooming Orange" Helpful Verbs @ <http://learningtoday.web6.hubspot.com/blog/bid/23376/Blooming-Orange-Bloom-s-Taxonomy-Helpful-Verbs-Poster>

A+ RISE Program

A+RISE is a program of aligned and appropriate research-based instructional strategies, available at each building by subscription through the website www.arises2s.com. Ask your ESL teacher for the username and password to access the program. These strategies are designed to provide the necessary accommodations to English language learners as they acquire English while mastering academic content. Below is a sample of the information that can be accessed at this site, specifically, a list of assessments and question stems for the highest levels of Bloom's taxonomy, analyzing, evaluating, and creating.

Assessment ideas

To assess at the analysis level (analyzing), use the following assessments: explain the facts and opinions found in the text, arrange the characters in order of importance, order the sequence of events from beginning to end, classify the persons, places or things from the story, or debate why the concepts in the story are important to our learning.

To assess at the evaluation level (evaluating), use the following assessments: assess the value of the story, rank favorite events and explain why you ranked them in that order, select an event that left an impression on you, or conclude how this story could have an effect on your real-life decisions.

To assess at the synthesis level (creating), use the following assessments: create a new character, design a poster to advertise the story, or modify the front cover of the book and give it a new title.

Question stems

For analysis (analyzing), ask: What inferences can you make? How is this similar to...?, What conclusion can you draw?

For evaluation (evaluating), ask: How would you assess the value of ...?, How effective was ...?, How would you test...?

For synthesis (creating), ask: How would you design...?, Can you propose an alternative?, How would you test...?

