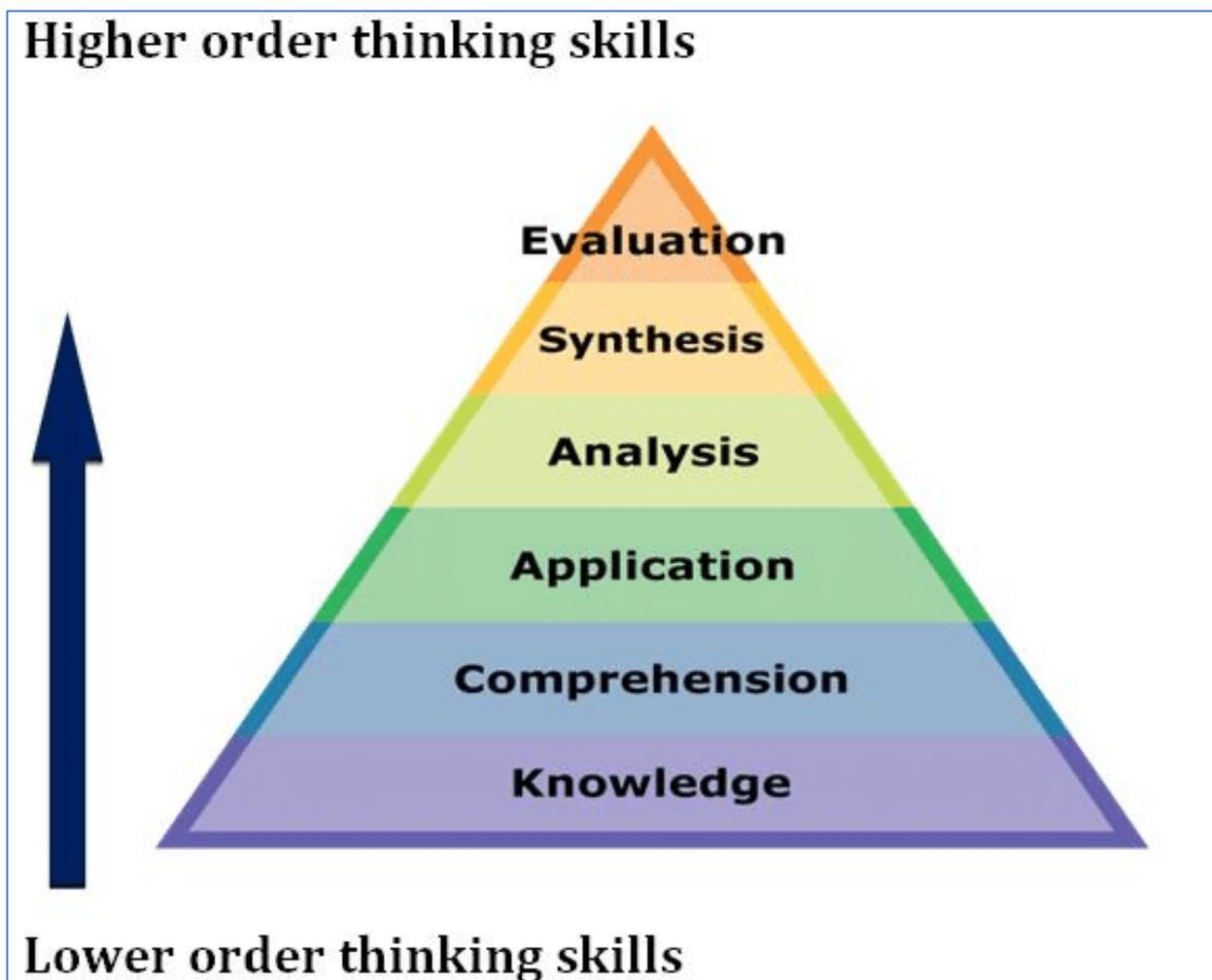


Another Look at Bloom's Taxonomy

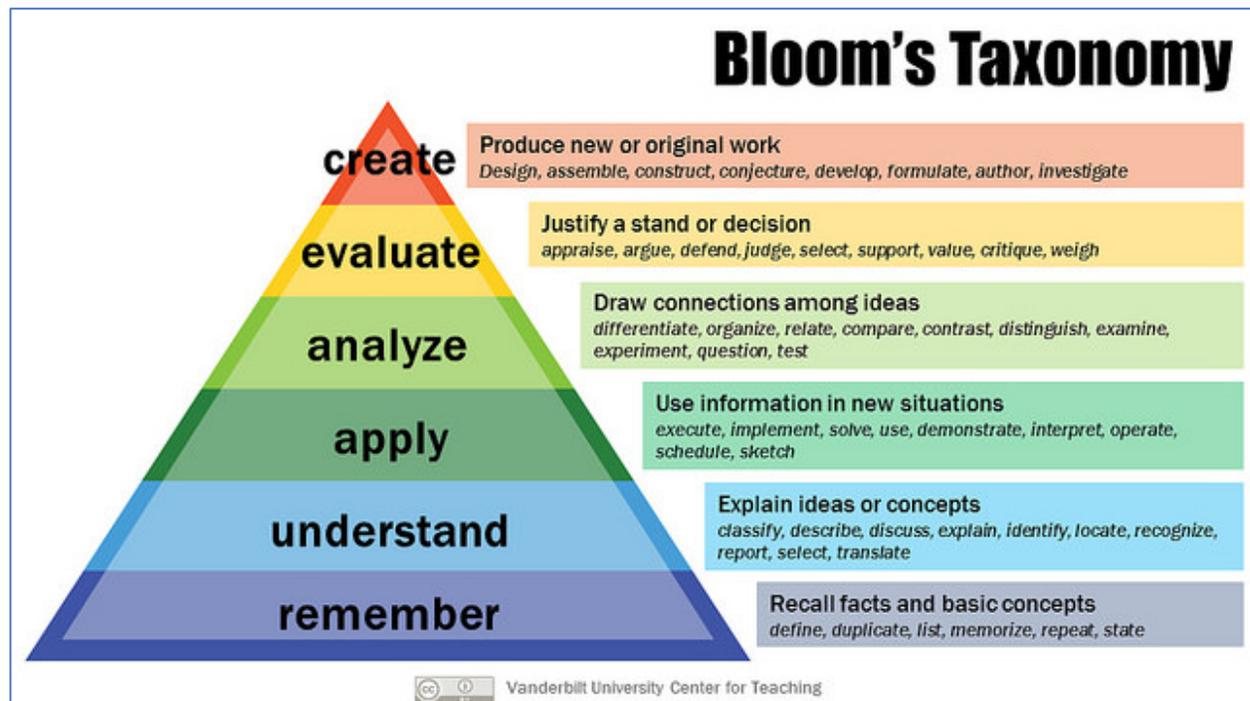
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Probably all of us in education have been taught Bloom's Taxonomy at one time or another. We understand that there are different levels of thinking and testing, and we have been encouraged to shoot for the highest levels in our classroom curriculum. The taxonomy has most commonly been diagrammed as a triangle:



https://www.researchgate.net/figure/Blooms-taxonomy-Bloom-et-al-1956_fig2_309351493

Benjamin Bloom first published the above thinking skills chart in 1956, *Taxonomy of Educational Objectives (Handbook One, pp. 201-207)* (Bloom's Taxonomy, retrieved 11/8/2018). Later, the taxonomy was revised using verbs and gerunds, which made it more easily understood.



<https://cft.vanderbilt.edu/guides-sub-pages/blooms-taxonomy/>

As I ponder Bloom's taxonomy now and compare my bewilderment when first considering it, I have a much better perspective on the journey I have taken. Classically, as a child growing up, our teachers and tests focused on "remembering" and perhaps "understanding." This persisted even into university and medical school. Our teachers and professors wanted us to memorize large quantities of facts, and regurgitate them back on

command using Scantron © sheets. Most of the California state licensure exams were multiple choice, with selections “a” through “e.” If you know your facts, you pass the test. California Subject Examinations for Teachers® (CSET®) usually had essay sections where you were to write out your understanding of the facts, but for the most part, rarely were there ever questions that rose above the midline on Bloom’s diagram. California State Teacher Preparation Assessments (TPA) were the only assessments I am aware of that required us to analyze and evaluate situations, creating unique approaches to teaching scenarios.

With that in mind, what are we asking of our students through our teaching, testing and assessment process. Many teachers still use bubble sheets because they are easy to correct. Create a master, run it through the machine followed by all the student sheets, and within minutes, you have everything graded. Mark the grades in the book and start the next unit. The truly regrettable part of this process is that the students prepare for the exam by memorizing the unit’s facts, figures and dates, spit them out on the grading sheet, and walk out the door consciously knowing they can forget everything they just studied. I have done so as a student, and no doubt, you have done it as well.

In my younger years, I was a professional woodworker. At one point, I decided to apply for a contractor’s license in cabinet and millwork, which would allow me to work on houses and business properties. There was a huge amount of material, legalese and contract law to memorize. Most of the study material was about how badly you could get in trouble with the California State Contractor’s License Board, along with penalties and imprisonment for mishandling transactions with customers. There were state forms to be used for every stage of construction, each with a time window in which they needed to be filed. Failure to file a form in a timely manner could cost you payment from the customer, or an investigation and penalty from

the board. Regularly, the board sends out notifications showing all the contractors in the state who had their licenses suspended or revoked due to rule violations or crooked dealings with clients.

On the day of the license test, I drove from San Diego County to Pasadena in Los Angeles County. Arriving at the building for the test, I was amazed to see the huge open room, with hundreds of tables and chairs for examinees. Candidates were last-minute cramming for the test in the hallways. My test-taking strategy is to stop studying one day before a test, let my mind rest, and get some good sleep. Taking my seat in the testing hall, I laid my head down to rest while the rest of the chairs were being filled. The test took hours to complete, but every question had up to five possible responses. “Clearly fill in the bubble with a Number 2 pencil, making sure to erase any stray marks.” You know the routine. We have all gone through it. And then, as any average student, I left the testing site and promptly forgot most everything I studied. Most of the material would never apply to me or my business practices. I would never have a need to use most of the material memorized in real practice. I only remember the weeks of reading and preparation it took to get through the test. Once done, I went about my business as usual, received my contractor’s license, and knew if there was ever a question raised, I could confidently say I was a licensed contractor and have earned the right to work on fixed structures in the State of California.

How does this relate to the curriculum we teach and the tests we give to our students? Will it benefit them to have memorized all the dates and major battles of the Civil War? What about memorizing the protagonists and antagonists in Charles Dickens’ *Tale of Two Cities*?

I currently teach conceptual chemistry and physics to eighth graders. How much good would it do to have them memorize the periodic table of elements? And yet, that is exactly what I have heard other teachers are doing. What a waste of time and brain power! As scientists, we have multiple reference books and charts that will tell us exactly the position of Tellurium on the periodic table, along with its atomic number, weight, melting and boiling points, tensile strength and the various isotopes in which it can be found. Why should any student have to memorize that information? But if I wanted to challenge my students, I could create a scenario in which they needed to evaluate and analyze the efficiency of using Tellurium as contrasted to three other metals in building high capacity electronic components. They could write a scientific proposal, hypothesizing methods and results of tests to be performed using the metals. Then they could build (create) component prototypes to test their hypotheses, and finally write a paper which synthesizes all these factors together with a proposal for industry adoption. Now, we are at the upper half of Bloom's taxonomy, and now it is highly unlikely that the students will ever forget the work they put into this project. They will walk out the door, and years later look back fondly on the class as being one that truly stretched their brains.

If Bloom's taxonomy is still being held up as a standard of good teaching, why is it that our students are not leaving school as better thinkers than when they first arrived? Are we too busy teaching them to the standardized tests to fuss with helping them be think better? Colleges, employers and the military keep looking for incoming personnel who are thinking people. Let's face it, who cares what happened in 1492? That may be a great general knowledge question, but it won't send an astronaut to Mars. We need to do some real soul searching about what and how we are teaching our youth. It sounds like a time for change.

References

Bloom's Taxonomy. (2010, June 10). Retrieved November 8, 2018, from

<https://wp0.vanderbilt.edu/cft/guides-sub-pages/blooms-taxonomy/>

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