

Teaching

A series of practical and innovative teaching tips for college faculty No. 20

The Top 10...

Laddering Thinking Tasks

Why do our students struggle so much to analyze? Why do students simply *define* or *describe* concepts that we've asked them to *compare* or *apply*? Why do some students tell us that they have "no idea" what an assignment is asking them to do? Understanding a hierarchy of thinking tasks and creating a ladder of assignments to progressively help students develop thinking skills will both help them and lessen your frustration.

- ✓ **Remember.** Key verbs: *define, list, name, recall, tell*. Students *must* remember content, information, or ideas before they can do anything else with them cognitively. *Don't assume that your students remember as much as you think they do.* Try to create quick activities aimed at assessing and jogging students' memory of previous content or reading assignments. Don't skip this.
- ✓ **Understand.** Key verbs: *explain, outline, summarize, compare, illustrate, rephrase, show*. Ask students what they think they understand and what they think they don't understand about a topic, reading, etc., and then ask them to brainstorm in groups what they remember about it. Ask the groups to report out on what they remember so that entire class can use this collective remembering to move towards understanding. In lower level courses with many new students, this may be a significant amount of what you do in class.
- ✓ Don't confuse *remembering* with *understanding* and *don't take it for granted that students understand content or reading that you've assigned.*
- ✓ **Apply.** Key verbs: *apply, develop, solve, utilize, model, experiment with, construct, build, plan*. Give students examples of how to apply material to real world scenarios. As the course progresses, ask them to generate applications more and more on their own.

- ✓ Many a seasoned instructor makes the mistake of jumping right into *application*; that is, we ask students to *apply* an idea, concept, or term before they *understand* it. We all use what we *remember* (life experience included) to *understand*, just as we use our *understanding* when we *apply* our knowledge in new ways. Granted, we come to *understand* something more broadly and deeply by *applying* it, but we must have a basic understanding in place before we apply.

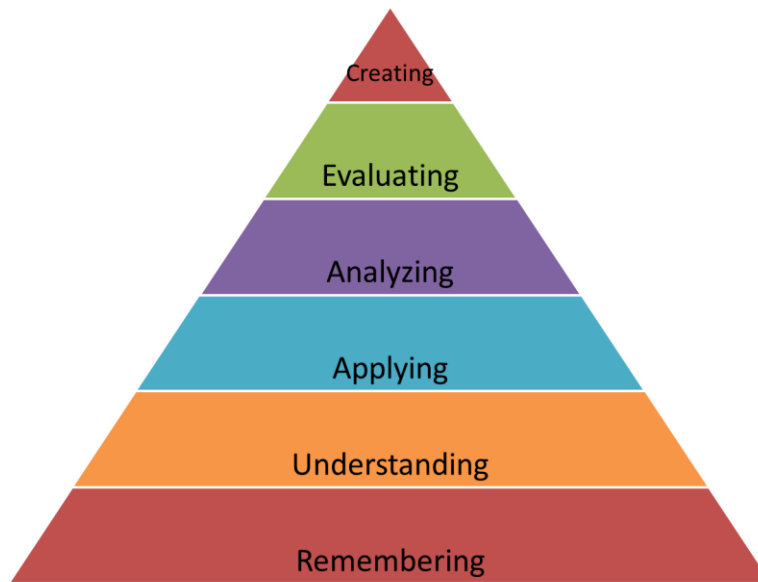
- ✓ **Analyze.** Key verbs: *analyze, examine, distinguish, classify, infer, simplify, discover, compare, categorize*. The quintessential college thinking skill. What are we asking students to do when we use this word? Do they understand it the way we do? Try this: write a one-sentence assignment that contains the word “analyze” on the board and then ask students to write down and then share what they think the assignment is asking them to do.

- ✓ Discuss the word “analyze” itself and identify and address confusion (especially if you notice students confusing *analysis* with *understanding, applying, or evaluating*). Ask students to list three specific things they should do when they are asked to analyze. *Do not take it for granted that your students understand the word “analyze” the same way that you do.*

- ✓ **Evaluate.** Key verbs: *evaluate, criticize, judge, interpret, conclude, determine, decide, prioritize, rate, recommend, justify, disprove, assess*. Are we asking students to evaluate something they have not fully come to understand through *application* and *analysis*? This is a very high-level thinking skill for a first or second-year course, so pick one or two specific evaluation tasks, prepare students well for it, and allow them the time that this advanced thinking skill requires.

- ✓ **Create.** Key verbs: *create, build, compose, design, develop, invent, imagine, propose, formulate*. This is a very high-level thinking skill. Most students have never been asked to do this and will experience uncertainty and confusion when they asked to create. Developing these assignments may be easier in some disciplines—say, the creative arts—than others like the sciences.

- ✓ This hierarchy of thinking skills is based on Anderson and Krathwohl's update of the Cognitive Domain of **Bloom's Taxonomy** of Educational Objectives developed in the 1950s:



- ✓ Don't just use this hierarchy and thinking skills ladder to inform your planning and teaching; *show it to your students and help them to see the thinking skills that they are practicing in relation to each other.* Help them to understand what different thinking tasks involve and require.

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