

Learning how to learn

Adapted from Prof. Janet Rankin and Prof. Sandra McGuire's seminars on active learning

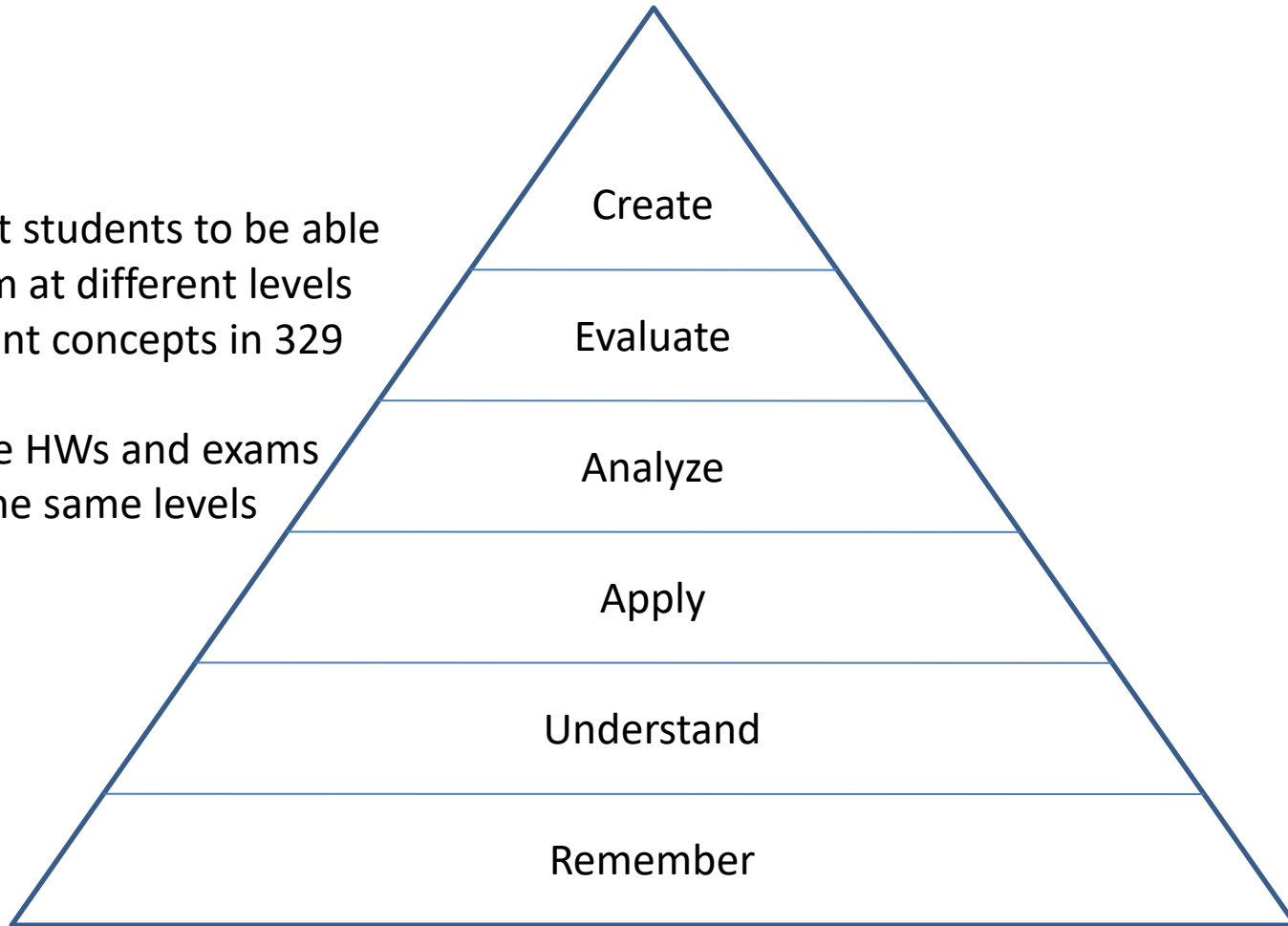
www.cas.lsu.edu

<http://web.mit.edu/tll/about-tll/rankin.html>

Bloom's Taxonomy

We expect students to be able to perform at different levels for different concepts in 329

Design the HWs and exams to be at the same levels



Bloom's Taxonomy

Create: Design an original homework problem that evaluates understanding of superposition.

Evaluate: Using cylindrical coordinates would be more appropriate than Cartesian coordinates for finding the force on a wire.

Analyze: Net work increases kinetic energy not potential energy because $\vec{F} \cdot d\mathbf{x} = m \frac{d\vec{v}}{dt} \cdot d\mathbf{x} = \frac{d}{dt} \left(\frac{1}{2} m v^2 \right) dt = \Delta KE$

Apply: I calculate a 4x weaker electrical force when the distance is doubled.

Understand: The sky is blue because of scattering.

Remember: The speed of light is 3×10^8 m/s.

Time Management

- Successful full-time students spend 50-55 hrs/wk on academics. For every hour of class, you should aim for 3hrs/wk of study/HW (e.g., 9hrs for 329)
- Often students cram the night before an exam or even a few days before – just in time studying
 - More effective if you spread out the effort
 - Instead, try to spend 4 hrs/wk doing HWs, 2 hrs/wk reading, and 3 hrs/wk doing “intense studying”
- Treat HWs like practice exams
 - Work independently, time yourself, do the problems using your note cards
 - Re-do the HWs from scratch along with old exams one week before the exam

The Study Cycle

Phase I: preview material before class – come to class knowing what to expect, big picture and have 1-2 questions ready

Phase II: Go to class – listen, take notes, actively participate

Phase III: Review and process class notes ASAP after class – how many people have seen Star Wars Episode 4 more than once? Were there details you noticed that weren't noticed the first time

Phase IV: Implement intense study sessions

Repeat the cycle

Intense Study Sessions

- Set aside 1hr or so blocks to study without distraction:
 - 2-3 mins of setting goals for the session
 - 20-50 mins of studying with focus and action (e.g. writing flash cards for the exams every week, doing practice problems, teaching others the key concepts of a chapter – as opposed to passive studying = reading)
 - 5-10 min break
 - 5-10 min to review what you've studied
- Then repeat this (~3hrs/wk total)
- Sometimes you may have to do this for just 15-30 minutes between class – know when you are most ready to remember – for me this is 9A-3P since I'm most alert whereas for doing problem sets, I'm better for 9P-3A (night owl)

Prepare as if you're going to teach

- How does your study preparation differ if I told you to study chapters 4-6 because:

(a) there's a test on it Monday

versus

(b) you're going to teach the class on Monday

See if you can borrow/use a dry erase board and practice teaching parts of 329 to your study group