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AMATYC, November 18, 2016
Session S111

Make It Stick

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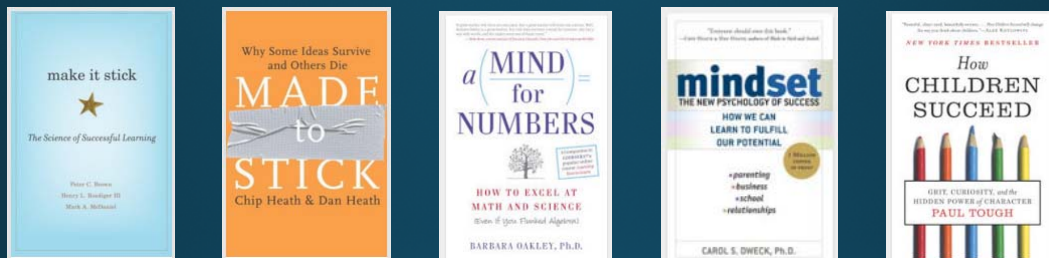
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Introduction



Learning How to Learn: Powerful mental tools to help you master tough subjects

University of California, San Diego

coursera

How to Learn

Characteristics of Unsuccessful Students

- Wait until the last minute; procrastinate
- Use crutches when studying
- Do not prepare for class
 - Do not complete homework
 - Do not read textbook
 - Do not take notes in class
 - Do not review notes
- Do not persist; give up too easy
- Lack confidence
- Do not have a vision
- Uninterested in the class



Goals

- Present strategies to implement in course design and delivery to improve student retention of material



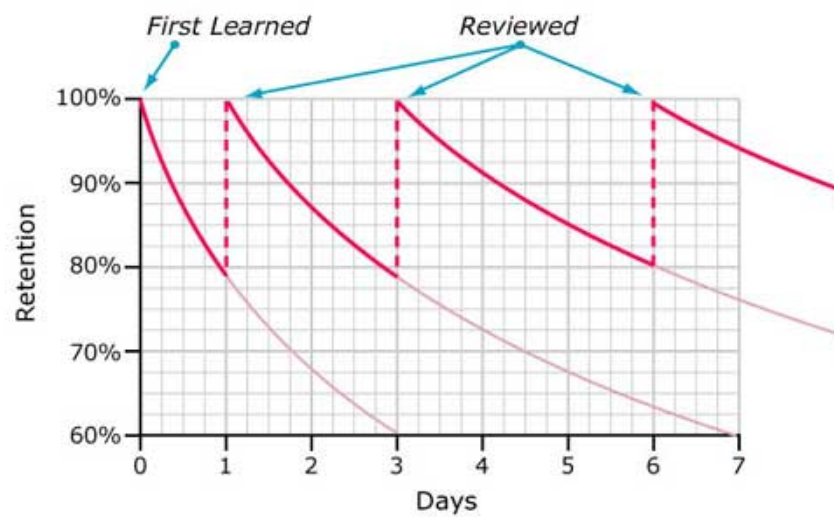
Strategies – Course Design

Desirable Difficulties



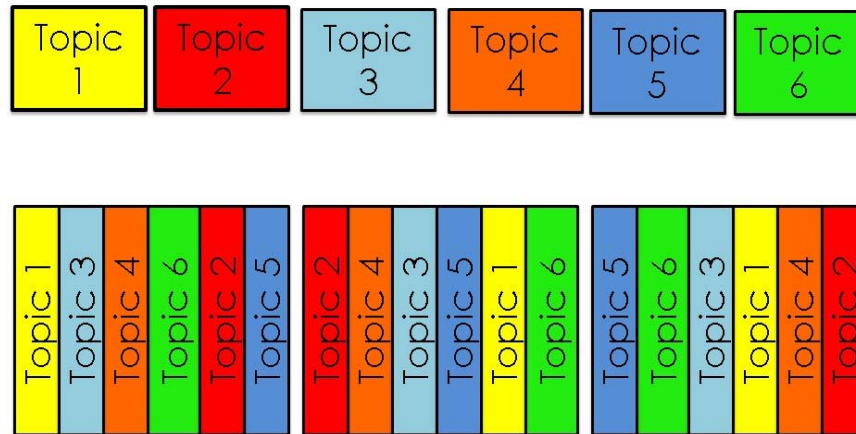
Spaced Repetition

Typical Forgetting Curve for Newly Learned Information



Interleaving

Blocking vs interleaving



Retrieval Practice (Testing Effect)

- Counteracts Illusion of Competence/Mastery

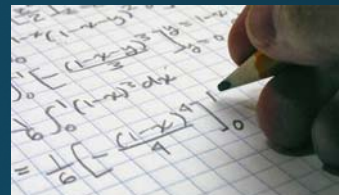


Desirable Difficulties



Other Effective Strategies

- Handwriting
- Previewing text prior to learning new topic
- Expressing new material in your own words and connecting it with prior knowledge



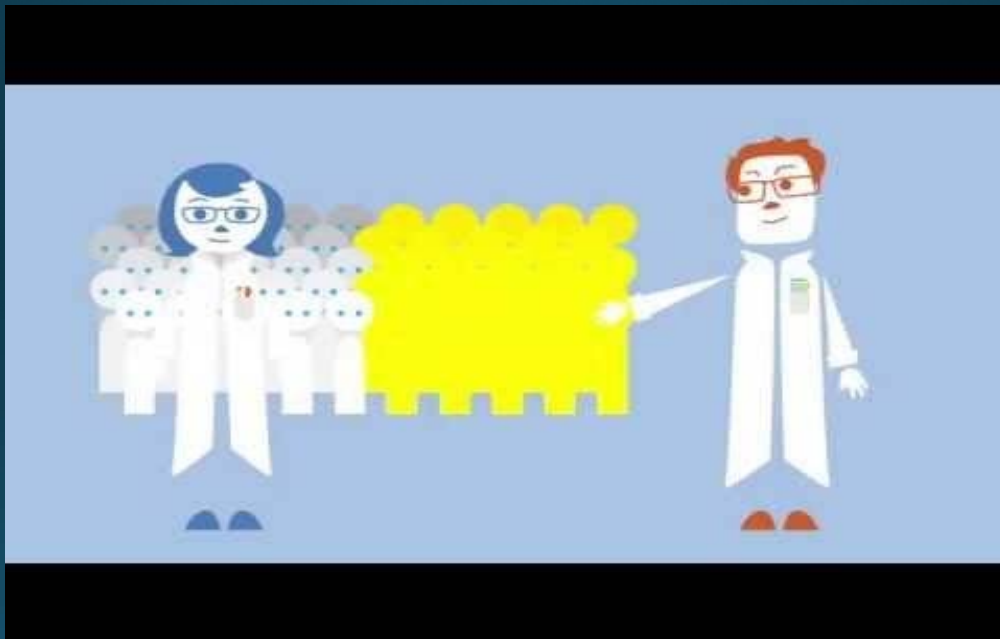
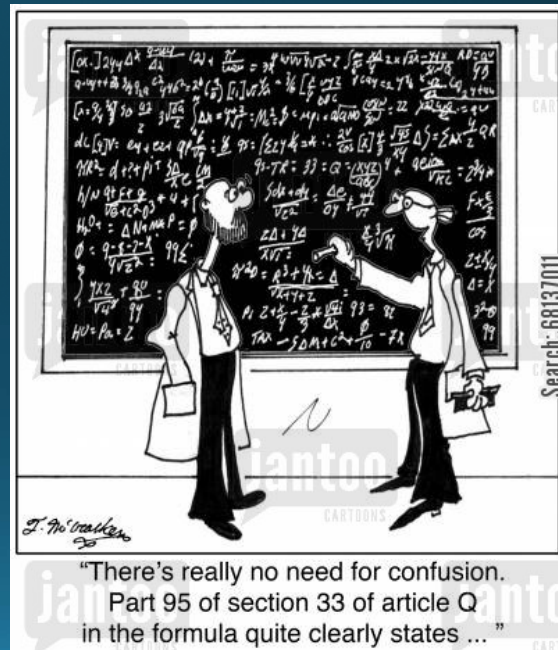
Strategies - Delivery

Characteristics of Teachers

- High expectations of our students
- Concerned about delivering content
- No time to teach proper study skills
- Experts

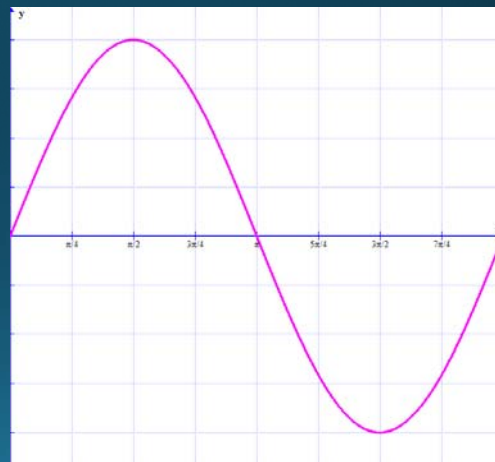
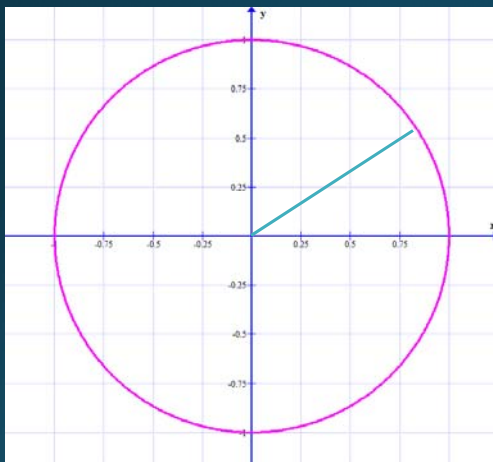
We are Cursed

Difficult for us to think like a novice learner

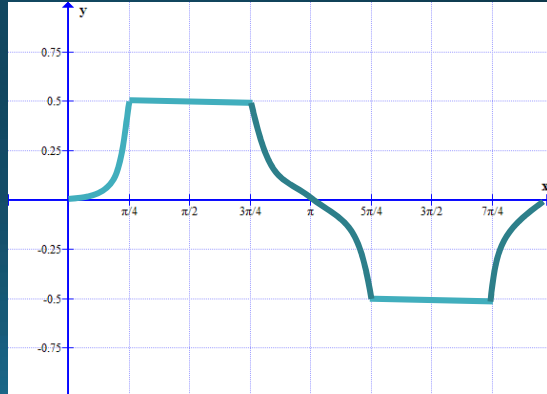
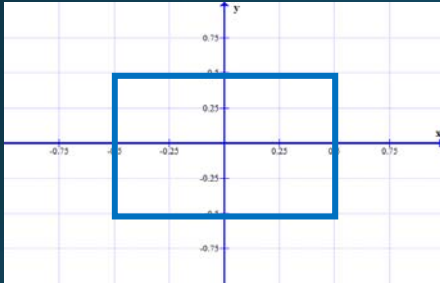


Become a Novice Math Learner

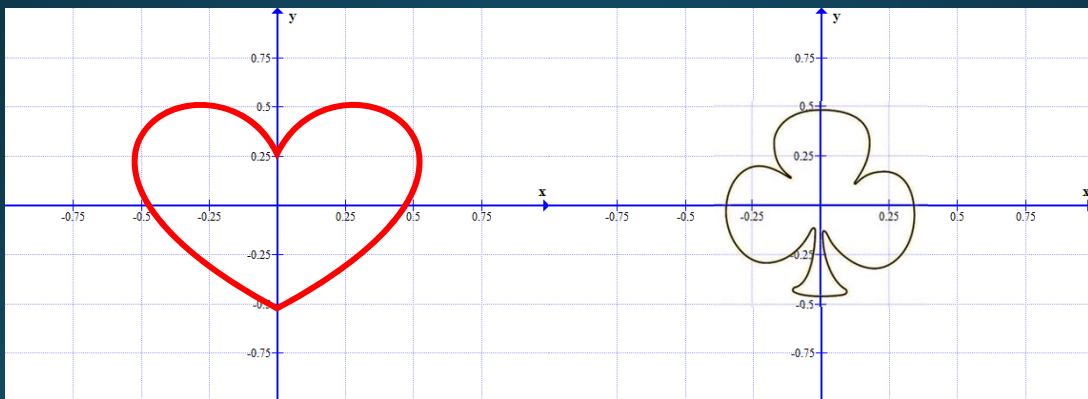
The Graph of Sine



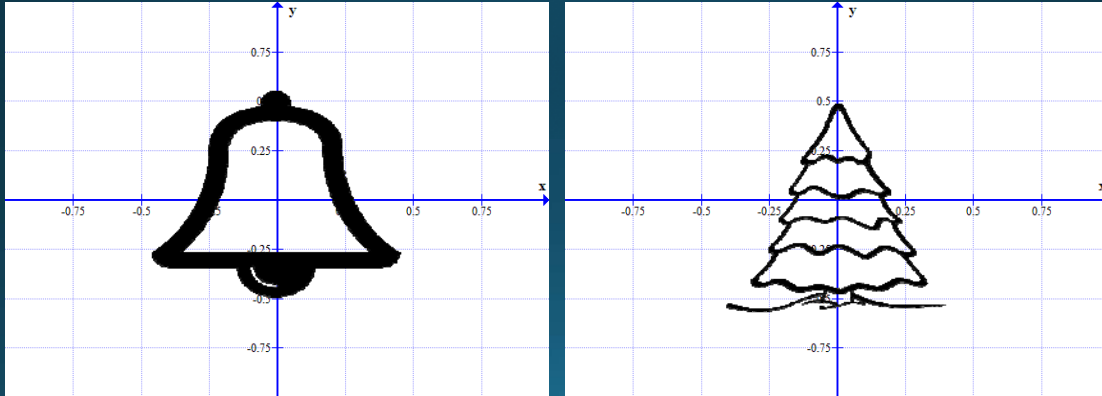
Unit Square Problem



Other Shapes?



Other Shapes for the Season?



Make Your Lectures Stick

- S**imple – cause them to see the main point
- U**nexpected – cause students to pay attention
- C**oncrete – cause them to understand and remember
- C**redible – cause them to agree/believe
- E**motional – cause them to care
- S**tories – cause them to act

Sample Activities

- Choose black and get chocolate
- Find your county/state population model
- Nielsen Data
- Growth of Google /Internet

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