ACTIVE LEARNING STRATEGIES & MODULES

Fitness Specialist Certificate Program

A Sabbatical Project by:
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Spring 2018

BACKGROUND

Fitness Specialist Certificate Program (FSCP)

- Vocational certification within the ESW Dept
- 1-year sequential program of six science-based classes and CSL/internship experience
- Prepares students to pass national health/fitness certification exams

ACE AMERICAN COUNCIL ON EXERCISE CERTIFICATION EXAM

AMERICAN COLLEGE of SPORTS MEDICINE www.acsm.org

ES 255	Care and Prevention of Athletic Injuries
ES 291	Anatomy and Kinesiology for Fitness Specialists
ES 292	Exercise Physiology for Fitness Specialists
ES 293	Strength Training/Fitness Assessments for Fitness Specialists
ES 294	Exercise Program Design and Special Populations
ES 196	Community Service Learning for Fitness Specialists
ES 296	Internship Seminar for Fitness Specialists
HED 158	Nutrition for Fitness and Sport

RATIONALE

➢ No program pre-requisites

- Science-based topics: anatomy, biomechanics, exercise psychology, fitness training principles, fitness business strategies, nutritional science, behavior change principles

➢ Reading materials are challenging

- Flesch Reading Ease 21-22
- Flesch-Kincaid Grade Level 16/17

➢ Coursework

- Lecture setting
- Three classes, two evenings per week (6 hrs total)

➢ Faculty, Student, Industry Feedback

- Critical thinking and professionalism
- Practical application and academic skills
- Communication and interpersonal skills

EAST COUNTY NEEDS

- “There were 1,270 people working in kinesiology related occupations in Eastern San Diego County in 2015”
- “Fitness trainers and aerobics instructors had the most workers, with 473 jobs and a high projected growth rate of 22% over the next 5 years”

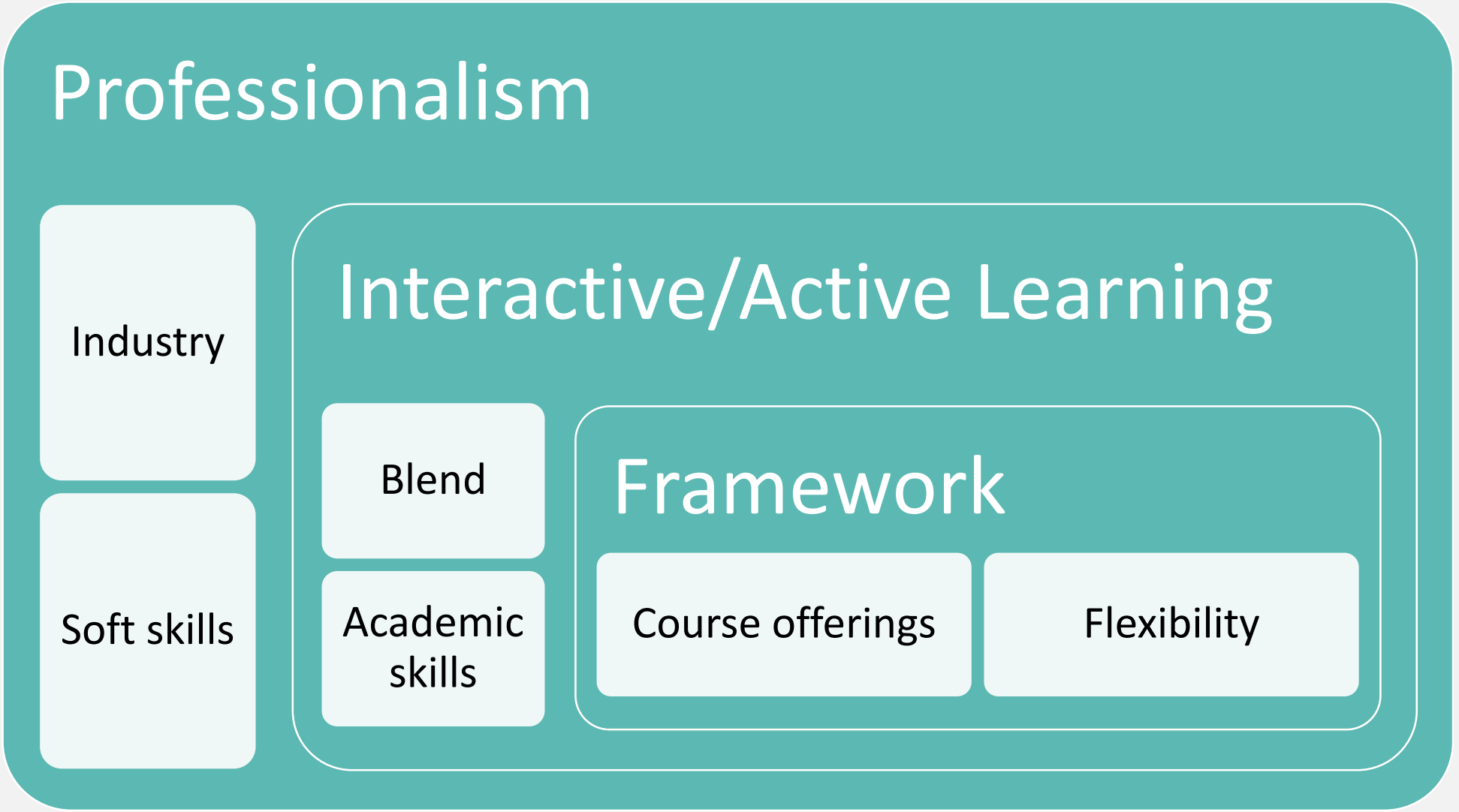
The Center of Excellence for Labor Market Research, May 2016

PROJECT OVERVIEW

1. Research
   a) Pedagogical strategies for three learning domains in kinesiology (affective, cognitive, psychomotor)
   b) Best practices in similar vocational prep programs
2. Consult with colleagues to determine priority topics
3. Design a range of learning strategies and activities
4. Pilot, evaluate, and share

Spring 2018

PRIORITY THEMES



FSCP Team

- Sharon Vilarino
- Stefanie Basso
- Randy Abshier
- Cheryl Kerns-Campbell
- Beth Kelley

PRIORITY TOPICS

Interactive Strategies

Professionalism

- Communication (written/verbal)
- Self-reflection
- Scope of Practice
- Accountability
- Interpersonal: rapport, trust-building, eye contact

Application of Scientific Concepts

- Energy systems
- Neuromuscular system/contraction
- Fitness training principles
  - Monitor overload via heart rate response
- IFT Model

Demonstration

- Active lifestyle
- Correct technique for cardio, muscular strength/endurance, and flexibility activities

Enhance Academic Skills

- Exam prep
- Reading textbook
- Critical-thinking/higher-order thinking skills
- Metacognition

RESEARCH

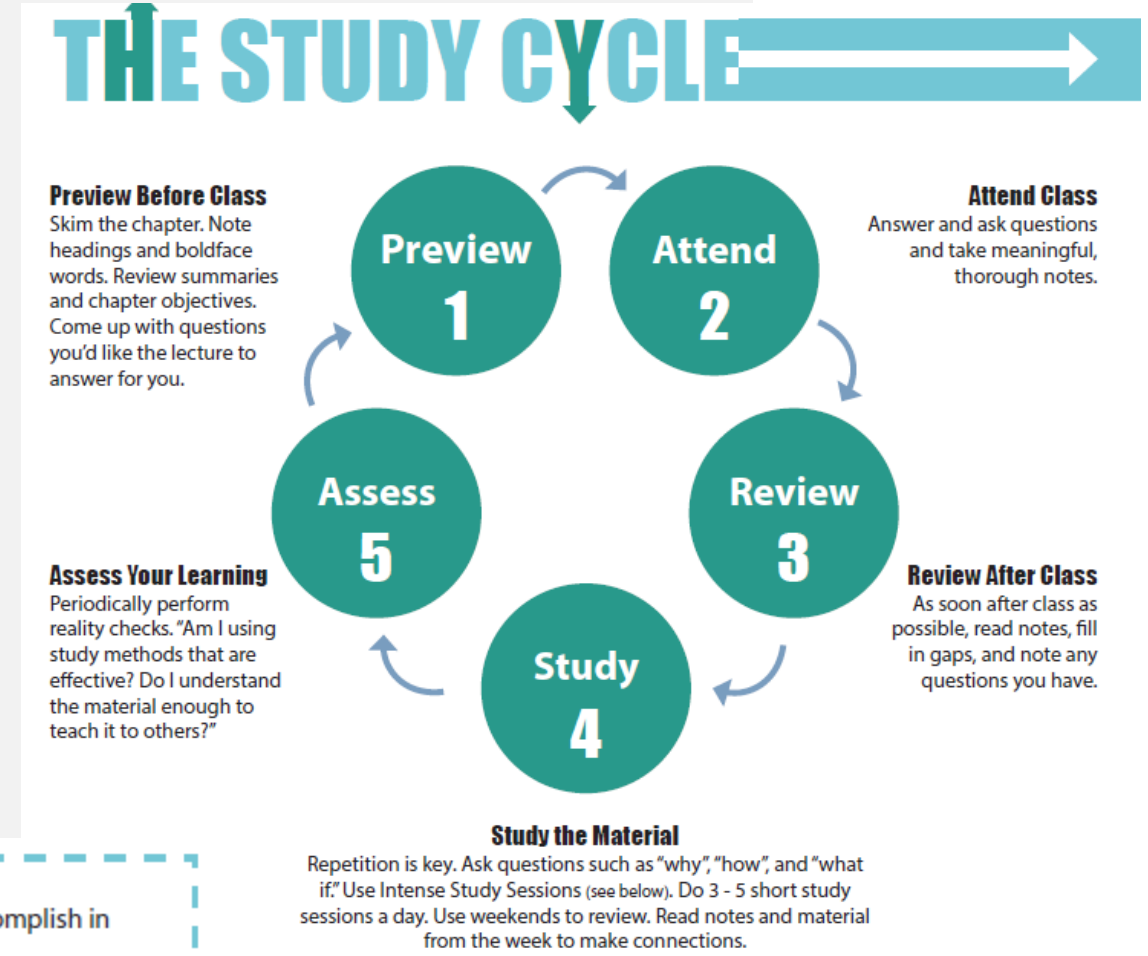
***Pedagogy**: "the interactions between teachers, students and the learning environment and tasks"*

ACADEMIC SKILLS

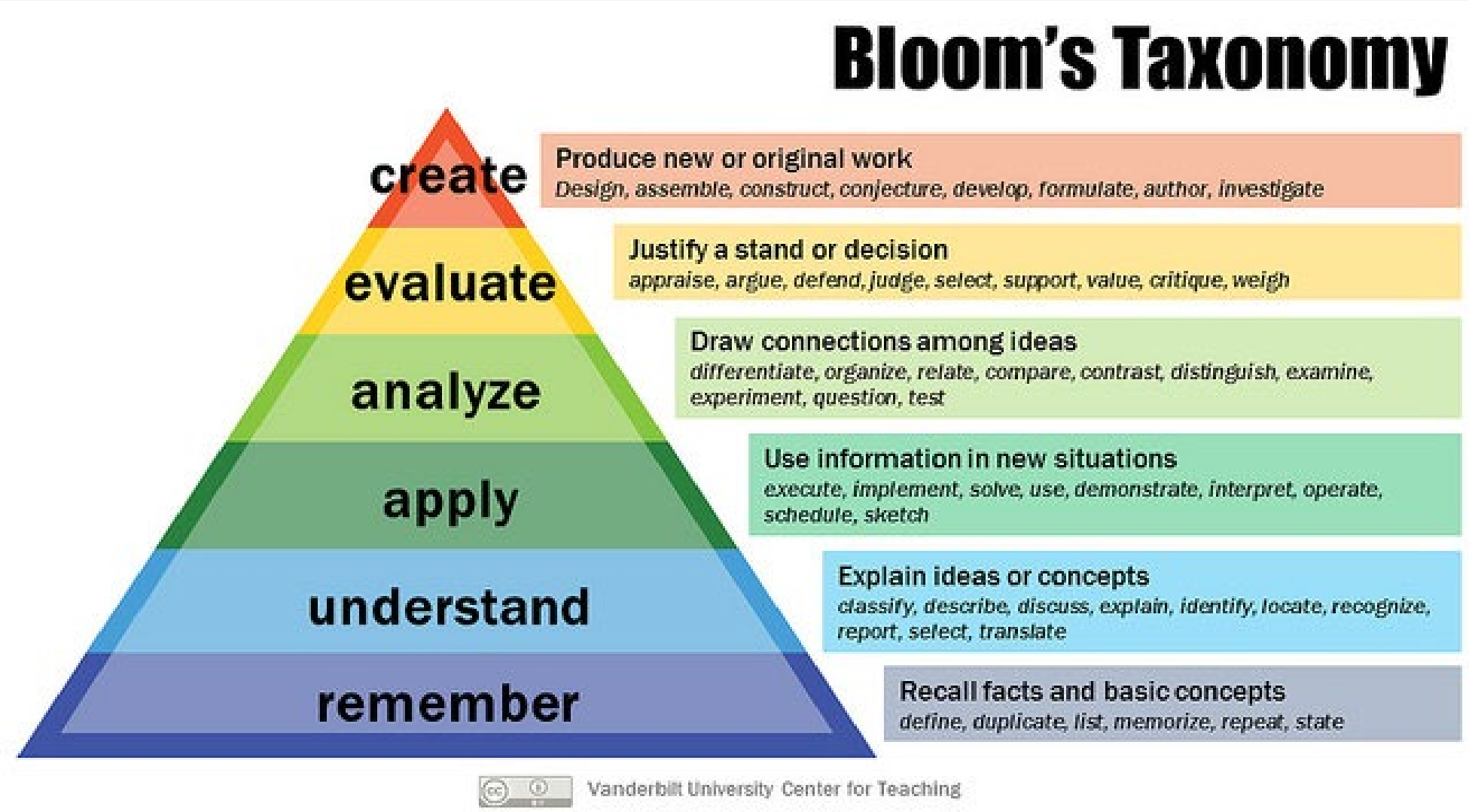
Metacognition

Metacognition s the ability to:

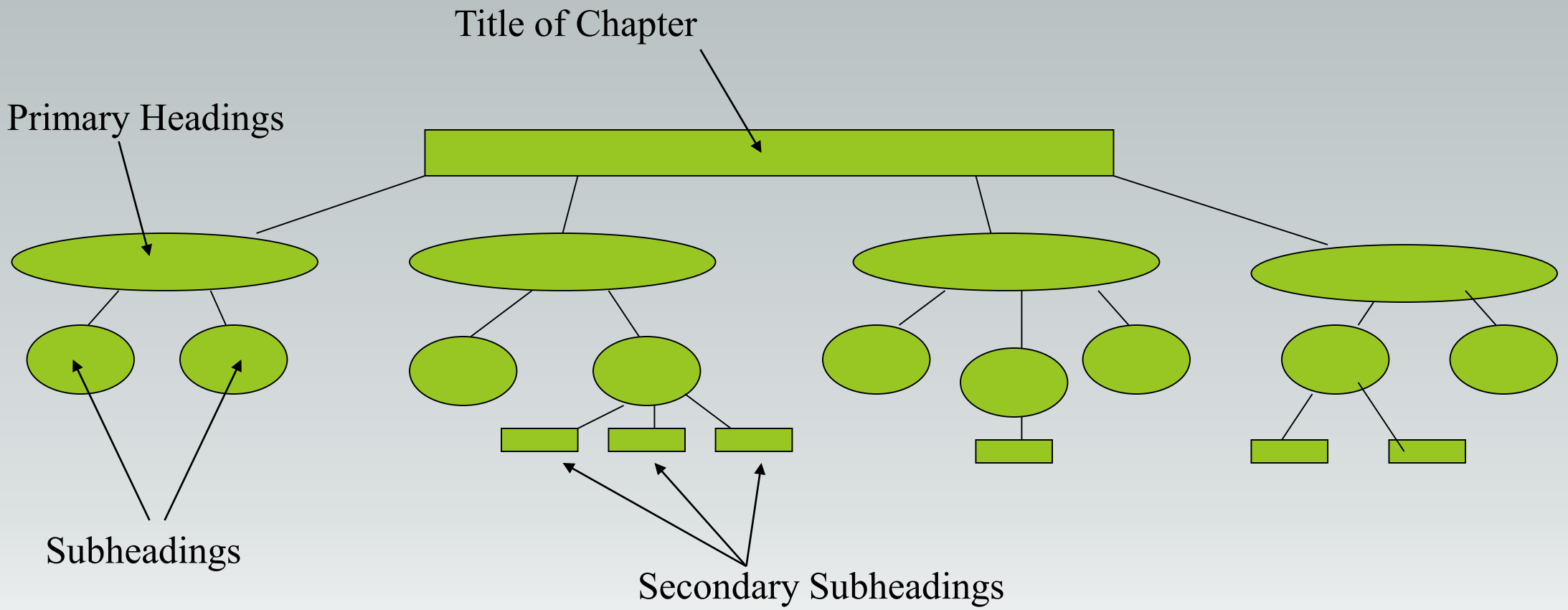
- think about thinking
- be consciously aware of oneself as a problem solver
- monitor and control one's mental processing (e.g. *"Am I understanding this material?"*)
- accurately judge one's level of learning



ACADEMIC SKILLS: LEARNING LEVELS



Chapter Map: provides a quick way to outline a chapter; shows relationships among concepts. (it doesn't matter how you design a map; your brain is making more connections every time you review or add new information)



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MASTER LIST OF INTERACTIVE STRATEGIES

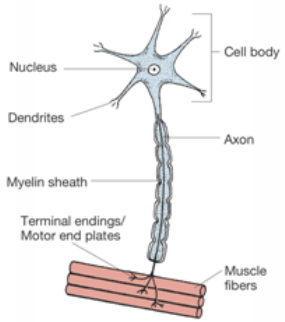
Name	Domain Emphasis	FSC Application	Related Outcome &/or Topic
Spectrum Teaching Style: Reproductive			
Command	P	Demo full; breakdown exercise w/cues & follow	Intro movement sequence
Practice *	P	Individual movement practice; Partner demo cues, meaningful	Learn critical cues and movement
Reciprocal	A, C, (P)	Partners use crite movement and gi testing, health scr	
Self-Ch			
Inclusi			

Other Styles, Templates & R			
Jigsaw Learning	C, A	Group (active, *3 energ* phosph	
Movement Stations *	C, P, A	Station	
ACE Worksheets	C, P, (A)	Planes Prime r Jt actio Muscle fiber chart Energy system Energy system & muscle fiber type Energy system performance RMR calculation Hydration article review Chapter reading worksheets	Compare muscle fiber types ID system for each activity Match system with fiber Perform and identify Calculate for 3 other people Read, review and reflect Facilitated note-taking

Metacognitive Strategies			
Class, HW, Exam, Active Learning Task	C, A	• Include Q prompts as part of activity • Overview lesson on metacognition after quiz 1	Process of planning, monitoring, and evaluating their learning
Concept Mapping	C	• Id key chapter points • Id key lecture and/or activity points	Multiple learning styles
Successful Readers Worksheet		• Skill-build reading comprehension	Assessment of reading completion and skill
Blooms Taxonomy		• Add learning goal(s) to all assignments, slides, activities	Tool for assessing KSA's

Neuromuscular Physiology

- **WHAT:** A **motor unit** is made up of one motor neuron and all of the muscle cells it innervates
- **WHERE:** Motor neurons connect with the muscle at a neuromuscular junction
- **WHEN:** The number of muscle cells a motor neuron innervates depends on the force and accuracy required of that muscle



→ Motor units are 'recruited' based on needs placed on muscles

Equipment: 5-lb muscle model
Learning goal: Connect motor unit recruitment concept to fitness training activities
Preparation: Define concepts: innervation; gross movements; size matters

Discover Prompt: How might a fitness specialist use this information in their work?

Q1: What are a few examples of 'needs placed on muscles'? *Expected answer: resistance training*

Q2: Describe an example of when a muscle would need to generate more force. *Expected answer: lifting more weight or doing an exercise for the first time*

Q3: What is the connection between needing more force and the number of muscle cells innervated or the size of a motor unit? *Expected answer: if more force is needed, more motor units are needed and/or larger motor units are needed*

Discover Prompt: Given the physiology of how the nervous system interacts with the muscular system . . .

Q4: What might be happening physiologically with respect to the what, where, when for a beginning exerciser? *Expected answer: a beginner would recruit more motor units overall from strength training; and specific units based on what exercises are chosen*

Guided Self-Discovery Module

MOVEMENT STATION CARDS

HAMSTRINGS

1. Where on the body is this muscle located?
2. Name the joint actions involved
3. Name one exercise to **strengthen** this muscle group
   a. Demonstrate the exercise
   b. List the teaching cues (key performance factors)
   c. Identify at least two common performance errors

1. Name the muscle group pictured
2. Name the joint actions involved
3. Name one exercise to **stretch** this muscle group
   a. Demonstrate the stretch
   b. List the teaching cues (key performance factors)
   c. Identify a common performance error

Lab 1 – Monitor Exercise Intensity During a Workout

Print Name: _____

Class Number, Days & Time: _____ Date: _____

SECTION I: DETERMINE RESTING HEART RATE

Practice Taking Your Pulse

Press your middle and index fingers gently on one side of your throat to feel and count your carotid pulse. You can also take a radial pulse by placing your middle and index fingers at the thumbside of your wrist. Measure your resting heart rate (RHR) by counting your pulse for 60 seconds, or for 30 seconds. Record your counts and complete the calculations below.

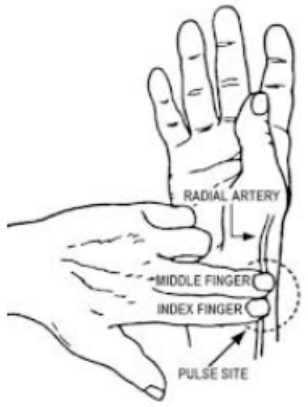
Pulse Rate #1 (1 minute) _____ **x 1 =** ___ **1 full minute RHR**

Pulse Rate #2 (30 seconds) _____ **x 2 =** ___ **1 calculated minute RHR**

Determine your True Resting Heart Rate

Take your pulse first thing in the morning on three different days. Record and average the results below. For an accurate resting heart rate, count your pulse for a full minute or for 30 seconds and multiply by 2. Ideally, you should take your pulse after waking up with an alarm and after a good night's rest. RHR is ALWAYS reported in beats per minute or bpm.

	Resting Heart Rate (RHR)	Time of Day
Day 1		
Day 2		
Day 3		



To average, add up RHR and divide by 3

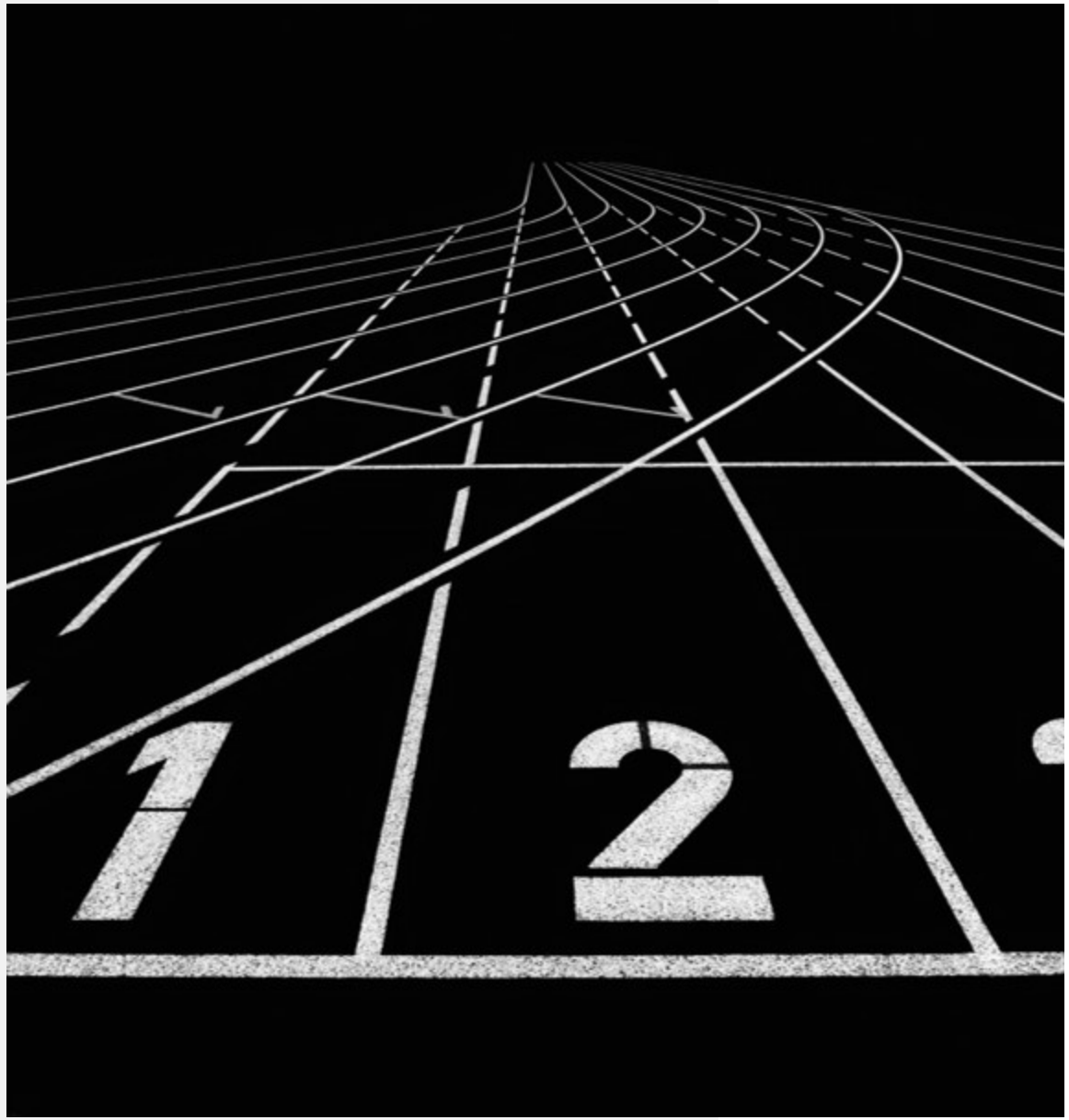
Average RHR = _____

SECTION II: CALCULATE YOUR TARGET HEART RATE RANGE FOR EXERCISE

Calculate your personal target heart rate range for exercise using your average resting heart rate,

NEXT STEPS

- Pilot activities this semester
- Present at next ESW Dept. Meeting
  - Summarize other program findings
  - Post materials in ESW cloud folder
- Update curriculum
  - Apply minimal reassigned time Sp19
- Consult with Dean Ayala, CTE
- Meet with Lorena Ruggero



THANK YOU!

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