

Three Challenging Student-Centered Classroom Activities for Any Topic

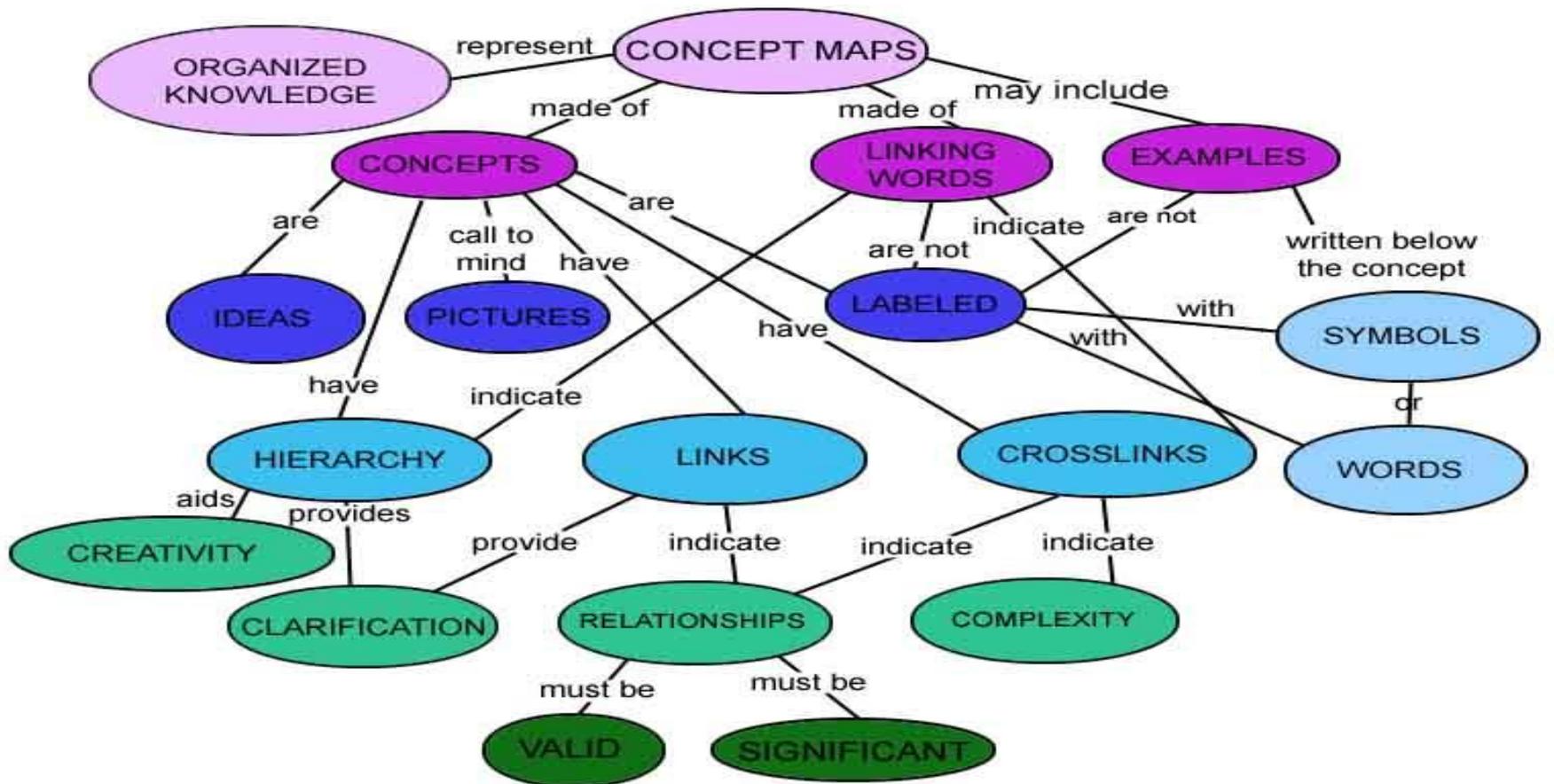
Dr. Angela Vaughan

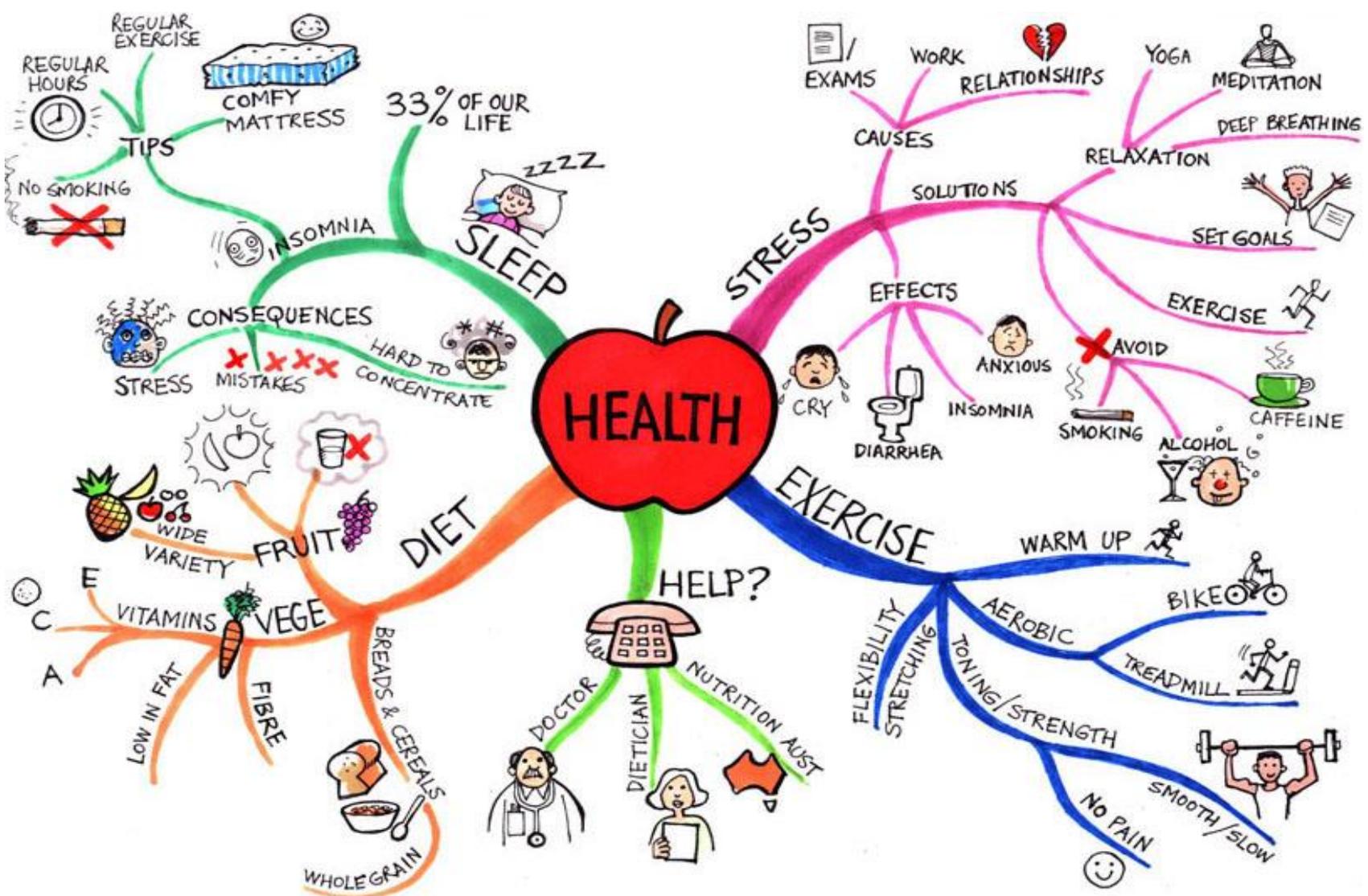
Visual Imagery

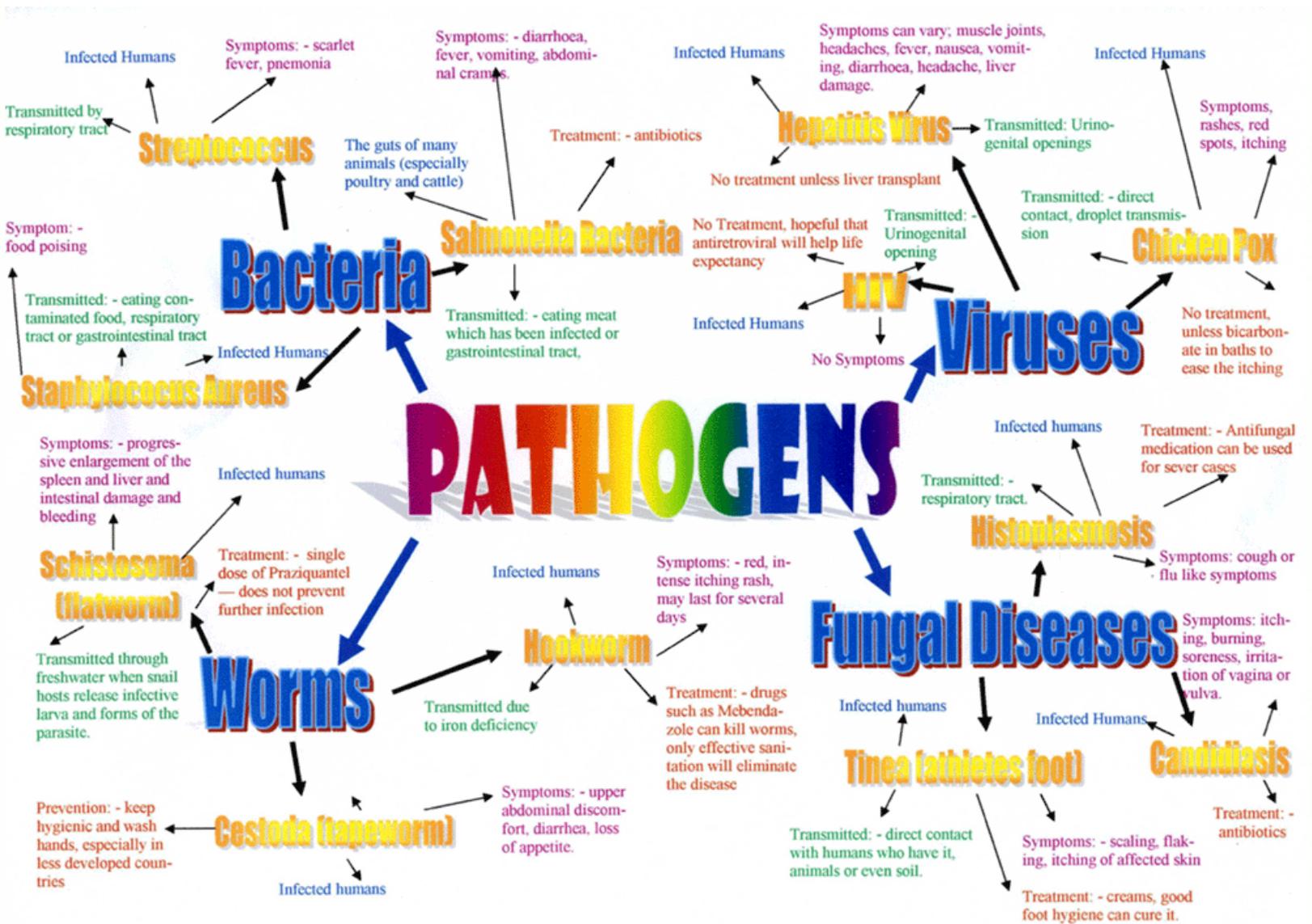
- ▶ The purpose of these activities is to help students:
 - Experience the power of visual imagery to process information.
 - Think critically and creatively and to use collaborative problem solving.
- ▶ Memory Palace
- ▶ Graphic Organizers
- ▶ Sample Assignment

Visual Imagery – Memory Palace

- ▶ Familiar Location
- ▶ Characteristics
 - Outrageous
 - Vivid
 - Funny
 - Multiple Senses
 - Racy
- ▶ More powerful if students create their own

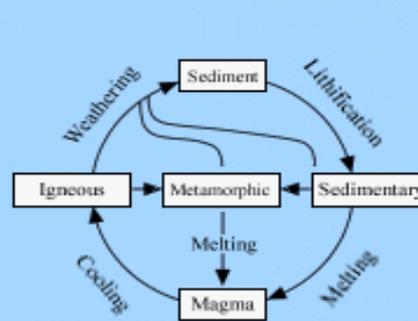






Classification of Rocks

Classifications of rocks are based on their origins



The Rock Cycle

Igneous Metamorphic Sedimentary

How Formed	cooling magma	heat & pressure applied to rock	weathering & lithification
Examples	granite gabbro rhyolite basalt obsidian	slate schist gneiss marble quartzite	limestone sandstone conglomerate shale coal chalk

PP/SD

Example: Pattern of Positive and Negative Exponents with Base 4

4^4		$(4 \cdot 4 \cdot 4 \cdot 4)$	256	$\begin{matrix} \uparrow \\ 4x \text{ larger} \\ \downarrow \\ 4x \text{ smaller} \end{matrix}$
4^3		$(4 \cdot 4 \cdot 4)$	64	
4^2		$(4 \cdot 4)$	16	
4^1		4	4	
4^0		1	1	
4^{-1}	$\frac{1}{4^1}$	$\frac{1}{4}$	$\frac{1}{4}$	
4^{-2}	$\frac{1}{4^2}$	$\frac{1}{(4 \cdot 4)}$	$\frac{1}{16}$	
4^{-3}	$\frac{1}{4^3}$	$\frac{1}{(4 \cdot 4 \cdot 4)}$	$\frac{1}{64}$	
4^{-4}	$\frac{1}{4^4}$	$\frac{1}{(4 \cdot 4 \cdot 4 \cdot 4)}$	$\frac{1}{256}$	

Visual Imagery Example

- How are these ideas related?
- What structure would you use to represent these relationships?

Excitement	First Exams	Frequent Calls Home
Sadness	Roommate Problems	Anxiety About Going Home
New Freedom	Do I Fit In Here	Experiencing Consequences

Visual Imagery Assignment

▶ Assignment Design

- Students are divided into small groups of 3–4.
- Assignment and discussion can be completed over two 50–minute class sessions (after completion of demonstrations and lessons on information processing).

▶ Materials

- Large Easel Pads
- Post-it Notes (various sizes and colors)
- Colored Pencils and Markers
- Textbooks and Student Notes

Concept Attainment Model

- ▶ The purpose of these activities is to help students:
 - Problem solve collaboratively and discover new concepts together.
 - Think critically.
- ▶ Pritchard, F. F. (1994). *Teaching thinking across the curriculum with the concept attainment model*. Retrieved from ERIC database. (ED379303).

Concept Attainment Model

▶ Activity Design

- Students are divided into small groups of 2–3.
- Activity can be completed in approximately 30 minutes or less (depending on how quickly the students solve the problem).

▶ Materials

- Worksheet
- Pen or pencil
- Students should not use any other materials (i.e., textbook, notes, etc.)

Concept Attainment Model

▶ Facilitating the Activity

- Ideally students will not have read materials related to the topic; however, this task is still difficult if students have prior knowledge.
- Introduce the task with only the directions. Do not give any indication to the topic or area of discussion.
 - I usually tell students we are going to learn a new concept and we will do it by completing this activity.
 - When giving the instructions, remind students the intent is not to name the concept but to identify examples and its attributes.

Concept Attainment Model

- ▶ Facilitating the Activity (cont)
 - Give progressively more guidance as time goes on. Students should struggle with this activity.
 - When students have completed their first guess, tell them how many “yeses” they have correct. Do not tell them which ones are correct and give no other feedback.
 - Once correct, have students identify the attributes of the examples, “what make the example a yes.” Then students create their own examples using the attributes.

Concept Attainment Model Example

	Yes or No	Yes or No
1. Sean goes to work every day so he can earn a paycheck.		
2. Halle decides to read another chapter in her text because she finds the topic interesting.		
3. Each day, Susan leaves for school early so she can get a good parking spot.		
4. Matthew signs up for additional math classes because he feels he is a strong math student.		
5. Cody decides to form a study group for his chemistry class.		
6. Deion signs up for an 8am class because it is required for his major.		

Designing and Delivering a Lesson

- ▶ The purpose of these activities is to help students:
 - Develop creative problem-solving skills.
 - Develop presentation skills.
 - Develop effective collaboration skills.
 - Work efficiently within time constraints.

Designing and Delivering a Lesson

▶ Activity Design

- Students are divided into groups of 4–6
 - This number was determined based on class size and amount of time needed to complete the presentations
- Activity can be completed during two 50–minute class sessions
 - 1st day is planning and creating the lesson
 - 2nd day is delivering the lesson
- Materials are provided and specific topics are given to groups
- One group is assigned to be evaluators
 - This group has to determine areas of importance within the unit and then design a rubric to evaluate the presenters

Designing and Delivering a Lesson

▶ Facilitating the Activity

- Helpful to choose topics that students have some prior knowledge but can use some reminders and additional information
 - Example: test-taking strategies
- Remind students that part of the purpose of the activity is to think and problem solve quickly
 - Expectation is not a polished product
- Have resources available
 - Computer lab (or students bring laptops)
 - Google docs
 - Clickers
- Provide some examples and guidance to spur creativity
 - Games
 - Quizzes
 - Class Discussions

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Memory Palace – Teaching Demonstration

- Butter
- Wine
- Milk
- Muffins
- Mustard
- Waffles
- Pork Chops
- Carrots
- Cottage Cheese
- Pizza

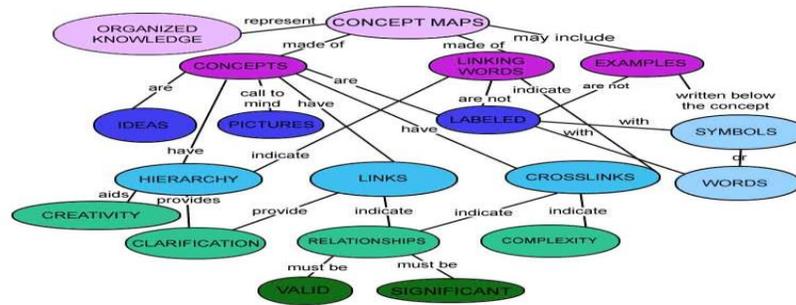
1. You are at your front door and the doorknob has been replaced with a stick of butter. You grab the soft butter and it squishes and oozes between your fingers.
2. The door opens and just inside the door, you see a bottle of wine and a carton of milk boxing. They are arguing about which one tastes better. You hear a loud pop as the wine bottle falls over and the cork flies across the room. The milk carton is also on its side, you take a step and almost slip and fall on the puddles of milk at your feet.
3. You then carefully walk in your living room. The floor has been replaced with a room-sized top of a blueberry muffin. It is still warm from baking, but not hot, you can feel the warmth beneath your feet and you can smell the fresh baked muffin. Your feet begin to sink in. You decide to place your still buttery hands on it. The butter melts into the top of the muffin.
4. You look at your sofa, and sitting on the sofa is your boss, or for students, your favorite teacher, and he or she is squeezing a bottle of yellow mustard on their head. The mustard is in little peaks on their head and is starting to drip down the sides. It is now dripping off the tip of their nose and ears.
5. You then look at your TV. It has been replaced with a giant waffle wearing black frame glasses who is giving a very serious editorial about how the Walking Dead is the best show ever made.
6. You then go to the kitchen, and for pork chops, you see a pig taking a bubble bath in the sink, he's wearing a lime green shower cap and singing over the rainbow at the top of his lungs.
7. You then try to leave the kitchen but a massive army of carrots are bouncing around on pogo sticks, eyes wide and laughing crazily, blocking your way. You push past.
8. You then go to your bedroom and your bed has been replaced by a very large pool of cottage cheese. Abraham Lincoln is in swimming trunks. He runs across the room, jumps and does a cannonball into the pool of cottage cheese. Cottage cheese flies into the air. He asks you to join him.
9. You then walk into the bathroom and the toilet seat is replaced with a pepperoni pizza. The pepperonis look at you and scream. No! No! Please No!

Purpose

The purpose of this assignment is to help you learn how to create a visual study aid that will help you process information into your long-term memories. The end product should be a one-page study aid that will help you prepare for your Mid-term Exam.

Instructions

1. This study aid will be based on your assigned reading of Chapter 5.
2. The type of graphic organizer can be a concept map (mind map – see below) where the main concept is Strategic Learning, Studying, and Test Taking (Chapter 5) or any other format that you think is appropriate.



3. Using the table on page 2, your study aid should incorporate every topic/concept listed in the table which was taken directly from the Chapter 5 reading. Each topic/concept should only be used once. You will work with a partner or group in class to create the organizer.

Assignment Created by:

Angela L. Vaughan (2011)

Textbook:

Cuseo, J. B., Fecas, V. S., & Thompson, A. (2010). *Thriving in college & beyond: Research-based strategies for academic success & personal development (2nd ed.)*. Dubuque, IA: Kendall Hunt.

Chapter 5 Topics/Concepts

Sensory input	Information during first and last few minutes	Paragraph form
Post lecture strategies	During reading strategies	Learning and memory process
Think about what you already know	Information in writing	Take notes
Learn with others	Long sessions with short breaks	Emotion
Check syllabus	Variety	Motor learning
Use visual aids	Reading to comprehend and retain	Learn visually
Italicized, underlined, or boldface	Reviewing	Preview headings and summaries
Vary type of work	During lecture strategies	Compare and contrast
Outside help	Part-to-whole	Focus on important information
Cornell Note-taking	Another textbook	Meaningful association
Memory formation	Prereading strategies	Storage
Post reading strategies	Own words	Short review
Explain to someone else	Avoid distracting classmates	First and last sentences
Organized notes	Different subjects in different places	Create examples
Retrieval	Overall organizational structure of book and course	Lecture-listening and note-taking
Reflect on and review your notes	Divide and conquer	Memory recall
Good seating posture	Apply to new problems	Create analogies
Self-monitoring learning	Perception	Read previous lecture and textbook notes
Use all senses	Undivided attention	Prelecture strategies
Find important information	Don't stop taking notes	Learning Deeply
Integration and organization	Meaning in academic terms	Take own notes
Reinforces memory	Verbal and nonverbal cues	Boldface headings
Builds on new material	Help from instructor	Check for missing or incomplete information
Reread after lecture	Paraphrase	Good seating location

Concept Attainment Model

Directions: The purpose of this exercise is to define and to identify the attributes of a particular concept. To help you do this, the following 12 statements include 6 examples of the concept and 6 non-examples. Determine which of the 6 statements are similar. These will be examples of the concept. The remaining 6 statements are only similar in that they are not examples of the concept.

	Yes or No	Yes or No	Yes or No
1. Sean goes to work every day so he can earn a paycheck.			
2. Halle decides to read another chapter in her text because she finds the topic interesting.			
3. Each day, Susan leaves for school early so she can get a good parking spot.			
4. Deion signs up for an 8am class because it is required for his major.			
5. Matthew signs up for additional math classes because he feels he is a strong math student.			
6. Jana waits until the last minute to complete her research paper because she can't decide on a topic.			
7. Mary goes to a tutor every week because she knows her parents will be upset if she fails.			
8. Cody decides to form a study group for his chemistry class.			
9. Brett was angry at his friend so he decided not to speak to him after class.			
10. Nate puts in extra workouts because he wants to get selected for the varsity team.			
11. As the semester progresses, Ava is finding it hard to maintain concentration.			
12. Sarah creates graphic organizers for each chapter in her textbook so she will do well on her final exam.			

List the possible attributes of the 6 "Yes" examples of the concept:

List 3 more possible examples of this concept:

Concept Attainment Model

Key:

	Yes or No	Yes or No	Yes or No
1. Sean goes to work every day so he can earn a paycheck.	Y		
2. Halle decides to read another chapter in her text because she finds the topic interesting.	N		
3. Each day, Susan leaves for school early so she can get a good parking spot.	Y		
4. Deion signs up for an 8am class because it is required for his major.	Y		
5. Matthew signs up for additional math classes because he feels he is a strong math student.	N		
6. Jana waits until the last minute to complete her research paper because she can't decide on a topic.	N		
7. Mary goes to a tutor every week because she knows her parents will be upset if she fails.	Y		
8. Cody decides to form a study group for his chemistry class.	N		
9. Brett was angry at his friend so he decided not to speak to him after class.	N		
10. Nate puts in extra workouts because he wants to get selected for the varsity team.	Y		
11. As the semester progresses, Ava is finding it hard to maintain concentration.	N		
12. Sarah creates graphic organizers for each chapter in her textbook so she will do well on her final exam.	Y		

List the possible attributes of the 6 “Yes” examples of the concept:

- Person is driven to do something or takes action
- Person takes action because of an external reward or to avoid potential punishment

List 3 more possible examples of this concept: