BAD IDEAS ABOUT LEARNING

SORTING TRASH FROM TREASURE

Presentation for Faculty Development Fridays 4 -18-25

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LEARNING SUPPORT



WRITING SUPPORT

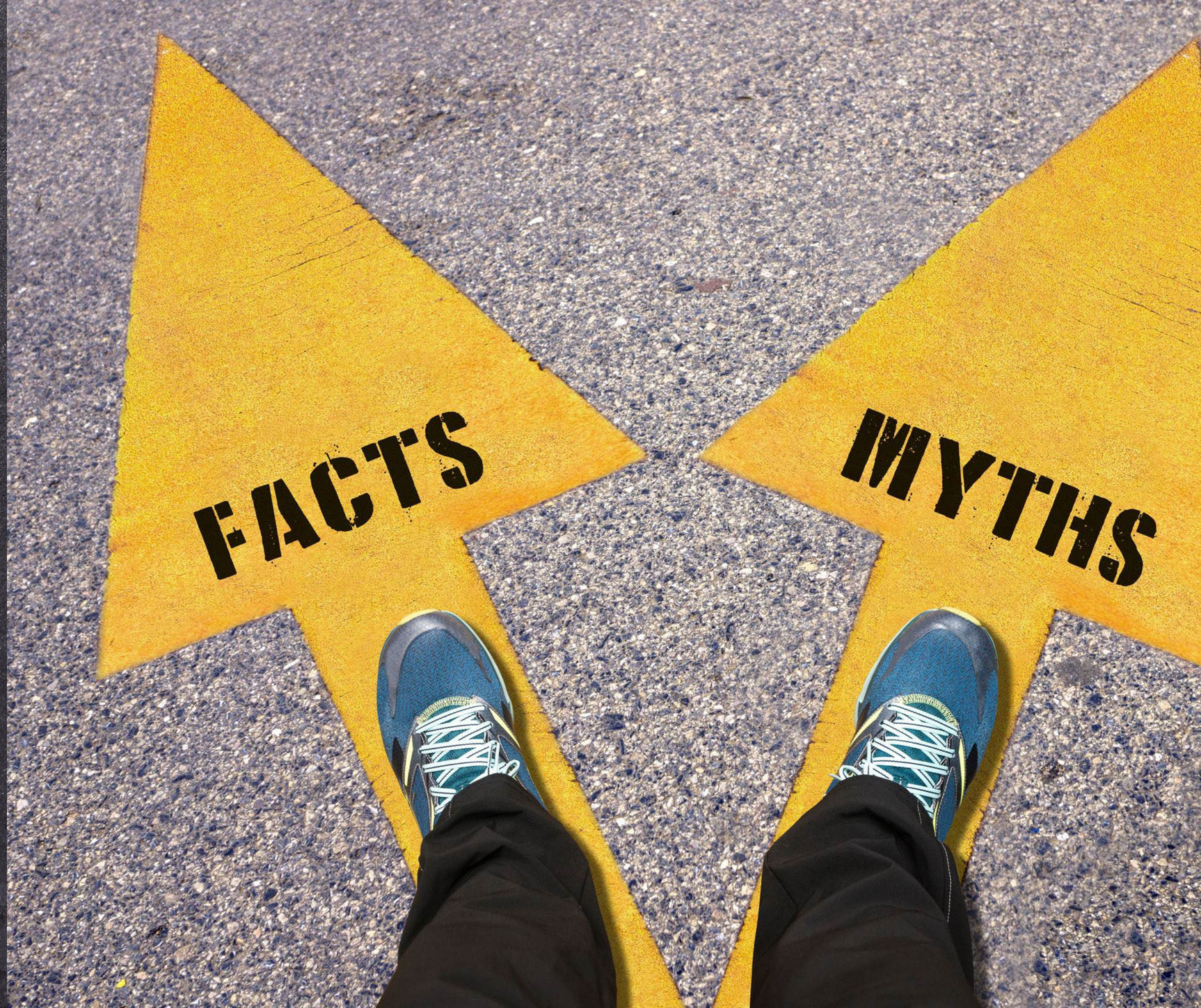
TUTOR PROGRAM COORDINATION

RESOURCES

Referrals to other OHSU services
Individual study cubbies
Collaborative learning space
Relaxation space, massage chair

CONTEXT

Even educators are vulnerable to learning myths!



TODAY'S OBJECTIVES

01.

Identify prevalent ideas about learning

02.

Clarify; sort trash from treasure

03.

Identify evidence - based practices to enhance learning

W HAT HAVE YOU HEARD?

IDEA # 1

We learn better when we receive information in our preferred learning style.

IDEA # 1

We learn better when we receive information in our preferred learning style.

FACT CHECK

While people have preferences for receiving information, there is no evidence for learning styles.

IDEA # 1

We learn better when we receive information in our preferred learning style.

FACT CHECK

While people have preferences for receiving information, there is no evidence for learning styles.

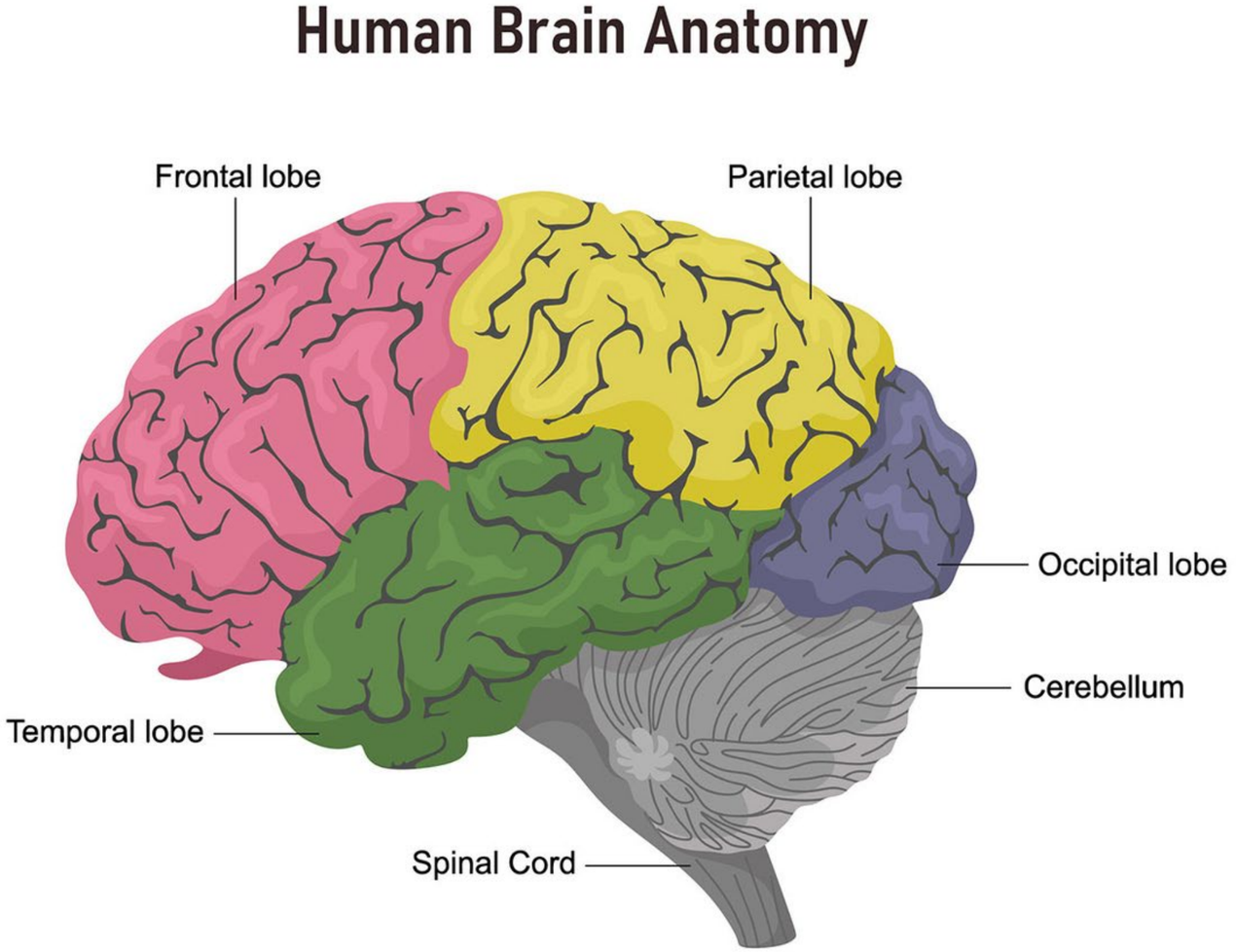
People learn best from words with images!

NOT THIS

Temporal
Lobe
Frontal Lobe
Parietal Lobe
Occipital Lobe
Cerebellum
Spinal Cord

AND NOT THIS

BUT THIS!

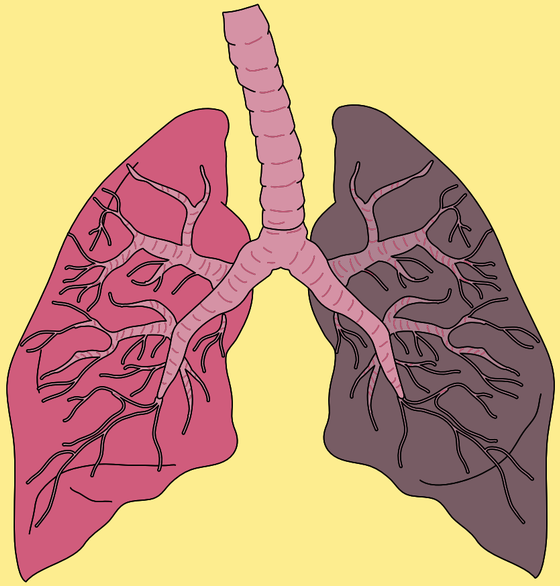


https://www.hopkinsmedicine.org/health/conditions-and-diseases/anatomy-of-the-brain

RECOMMENDATION

to enhance understanding

Use images!*



Healthy vs diseased lung

IDEA #2

We can multitask when we need to

IDEA # 2

We can multitask when we need to

FACT CHECK

We can’t multitask!
(There is no such thing!)

IDEA #2

We can multitask when we need to

FACT CHECK

We can’t multitask!
(There is no such thing!

We learn a little better from spoken words than than written words

HOW DOES THIS SLIDE FEEL?

Why Is Participation In Leisure Important? Implications for Psychosocial Well-Being

Leisure satisfaction > Life satisfaction

- source of motivation
- brings meaning and purpose
- promotes skill development, sense of competence
- constructive use of time and supports healthy routines
- supports emotional and psychological well-being
- supports development of coping skills

(Amarshi, Artero, & Reid, 2006; Law, 2002; Mitchell, 2009)

W HAT ABO UT THIS O NE?

WHICH SLIDE DO YOU PREFER?

Why Is Participation In Leisure Important? Implications for Psychosocial Well-Being

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- supports development of coping skills

(Anarshi, Artero, & Reid, 2006; Law, 2002; Mitchell, 2009)

a

b

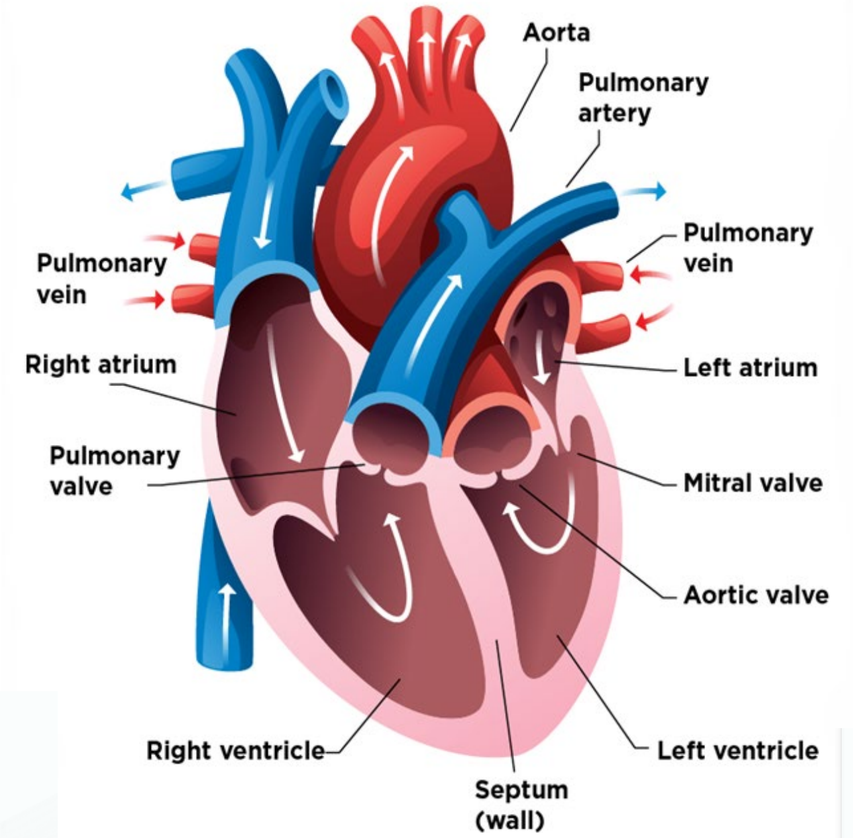
HOW MIGHT YOU CHANGE THIS?

Circulation of the heart:

- Strong muscle that acts as a pump (as big as its “owner's" fist)
- Left and right Atria (upper part of the heart)
- Ventricles (lower part of the heart).
- Septum: wall that divides the right side of the heart from the left.
- How the healthy heart pumps blood:
  - the heart pumps blood high in oxygen (red blood) to the body.
  - after the body uses the oxygen, the blood low in oxygen (blue blood) returns to the heart's right atrium, then flows into the right ventricle.
  - The right ventricle pumps blue blood into tiny vessels in the lungs where it picks up oxygen and turns red.
  - Red blood returns to the left atrium and flows into the left ventricle. The left ventricle pumps blood into the aorta, which carries it to the body.
  - This process happens over and over again. ..

YOU COULD DO THIS...

Circulation of the heart



"The heart is a strong muscle that acts as a pump..."

RECOMMENDATIONS

for slide design:

Simple design

Minimal text

Narrate the details*

IDEA # 3

We learn when we receive
information

IDEA # 3

We learn when we receive information

FACT CHECK

Learning occurs when we *process* information

IDEA # 3

We learn when we receive information

FACT CHECK

Learning occurs when we *process* information

There is a limit to how much information we can process at any given moment (working memory)

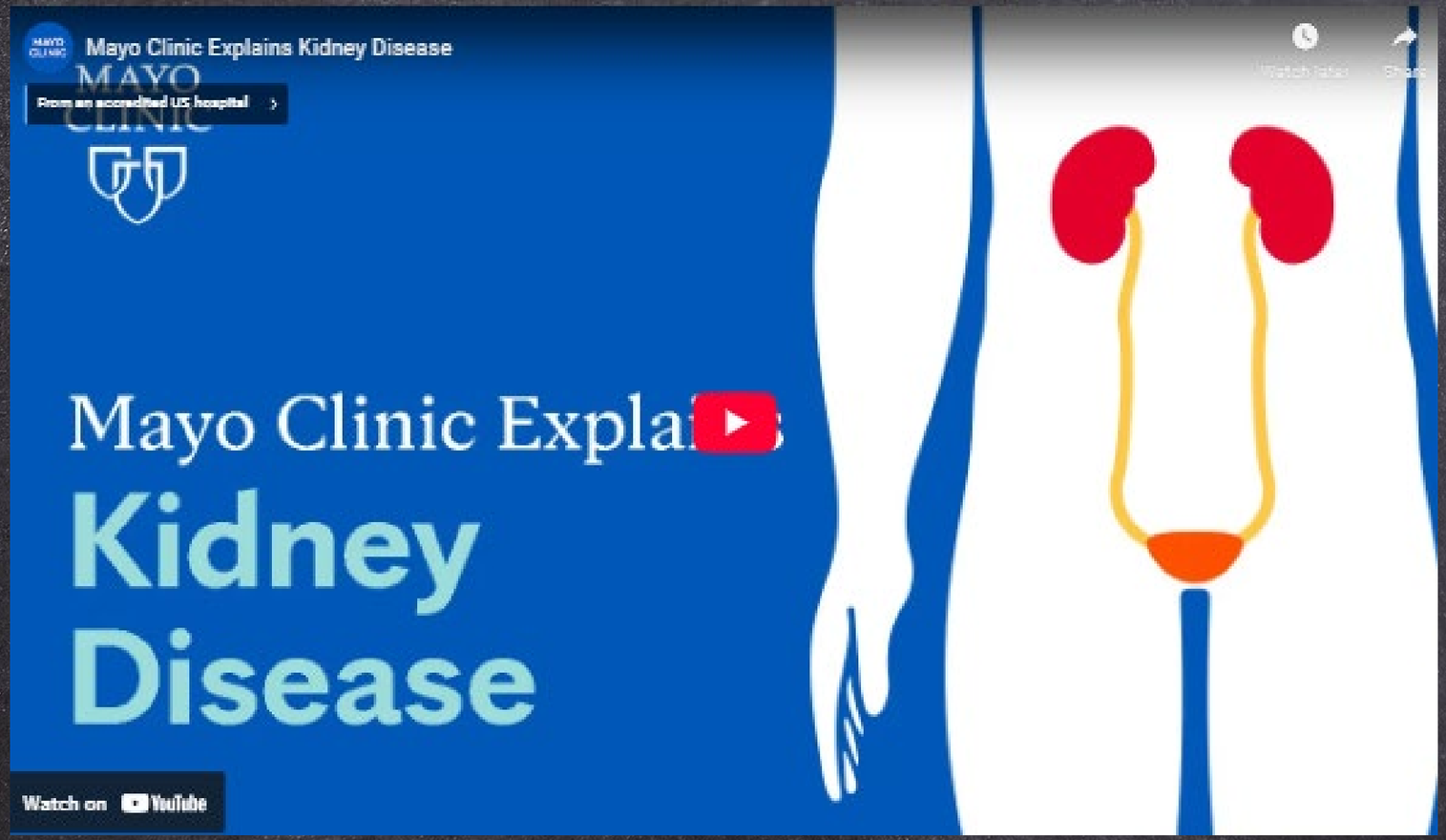
PRETRAINING

first pass
(first, the basics)

second pass
(then the details)

PRETRAINING EXAMPLE 1

Short video



https://www.youtube.com/watch?v=OVk4YXwJp98

PRETRAINING EXAMPLE 2

Vocabulary list

A

Abdomen The part of the body that contains the internal organs between the pelvis and the chest cavity.

Access A means to get into the body. Accesses to the bloodstream for hemodialysis are fistulas, grafts, etc. Access to the peritoneal cavity for peritoneal dialysis is a catheter.

Angiotensin-converting enzyme inhibitor (ACE inhibitor) Medicine used to treat high blood pressure. ACE inhibitors can also help prevent or slow kidney damage.

Acute Rapidly developing; severe; short duration.

Acute renal failure A sudden and severe decrease in kidney function that may be short term.

Albumin A protein in blood plasma that acts as a carrier and helps to maintain blood volume and blood pressure.

Albuminuria A condition in which albumin is present in the urine. There are filters in the kidneys that prevent large molecules, such as albumin, from passing through. If these filters are damaged, albumin passes from the blood into the urine.

Albumin creatinine ratio (ACR) A test that compares the amount of albumin in the urine with the amount of creatinine. It is used to detect whether albuminuria is present.

Allograft An organ or tissue transplant from one person to another.

Alport syndrome An inherited condition that results in kidney disease. It generally develops in childhood and is more serious in boys than in girls.

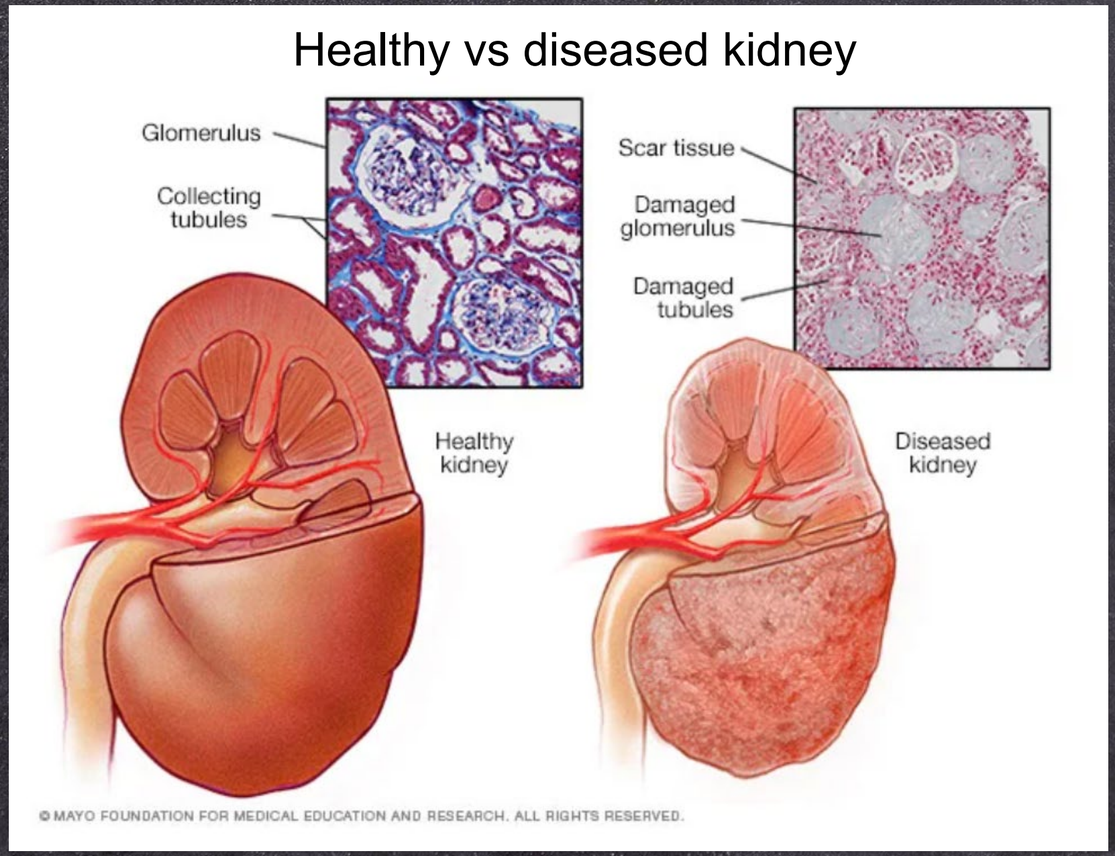
Ambulatory Able to walk; movable.

Analgesic-associated kidney disease A condition in which there is a loss of kidney function due to long-term use of analgesic (pain-relieving) medications. Analgesics that combine aspirin and acetaminophen are most dangerous to the kidneys.

https://www.freseniuskidneycare.com/glossary

PRETRAINING EXAMPLE 3

Drawing



https://www.mayoclinic.org/diseases-conditions/chronic-kidney-disease/multimedia/img-20207486

PRETRAINING IS NOT PREWORK!

pretraining

(the basics)

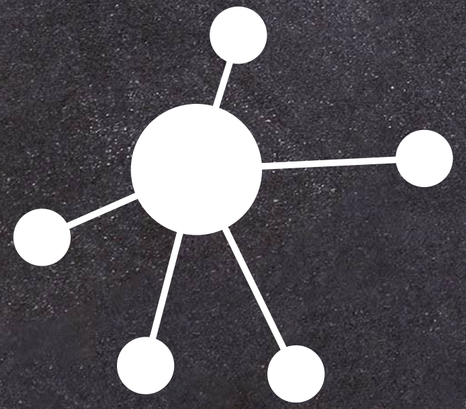
first pass

prework

(the details)

second pass

MAKE CONNECTIONS



Relate to what they already know

Make comparisons

Real world application

RECOMMENDATIONS

to enhance processing

Offer Pretraining

Early access to slides

Make connections

IDEA # 4

Adults can pay attention to long lectures

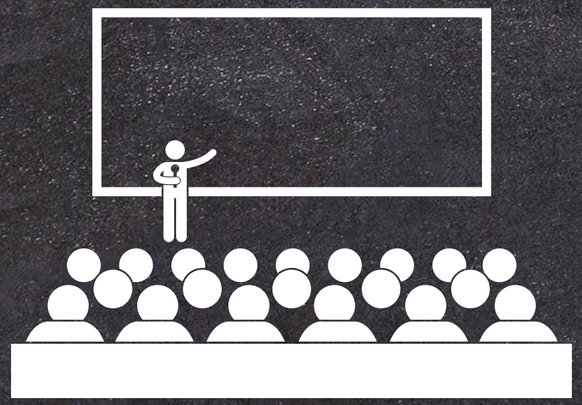
IDEA # 4

We can pay attention to long lectures

FACT CHECK

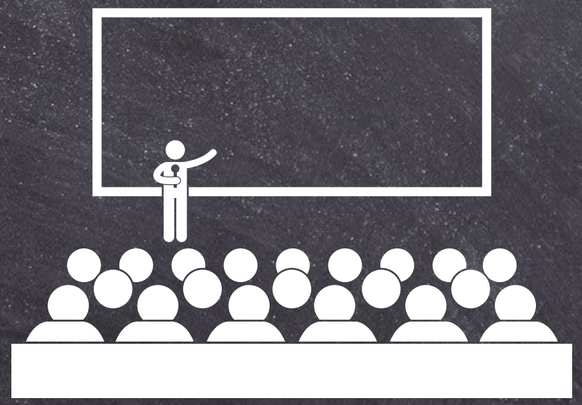
Our attention span has limits!

C HUNKING



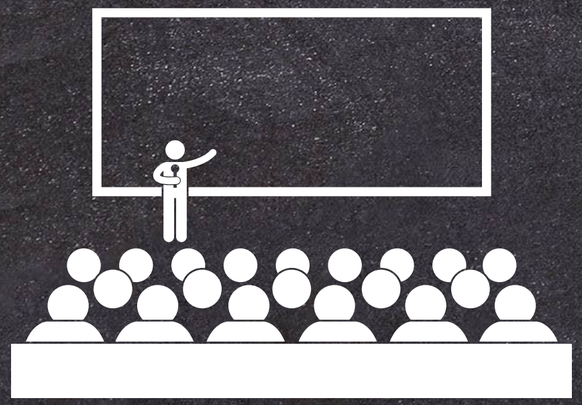
Lecture

Activity

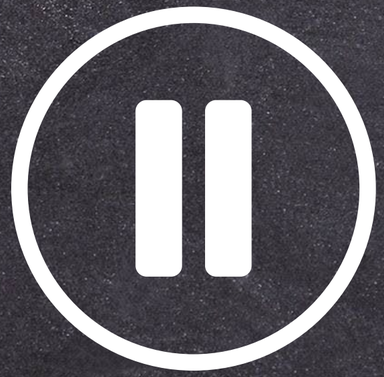


Lecture

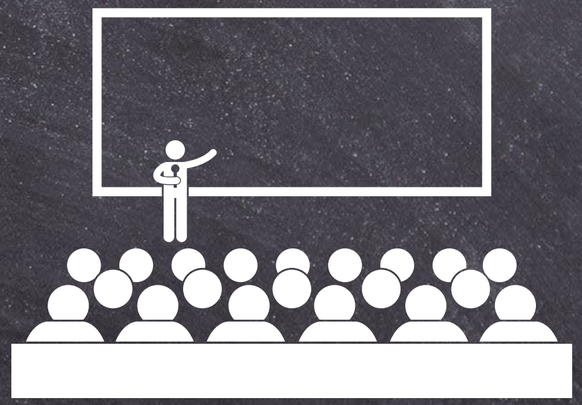
CHUNKING
(ENCOURAGE QUESTIONS)



Lecture



Pause (1 min)
Q&A



Lecture

HOW COULD YOU CHUNK YOUR LECTURES?

(IF YOU ALREADY CHUNK, CAN YOU SHARE HOW?)

RECOMMENDATIONS

to work with limits of attention

Chunk into mini-lectures

Encourage questions

IDEA #5

Discovery -based learning is effective

IDEA # 5

Discovery -based learning is effective

FACT CHECK

Discovery -based learning is not very effective

IDEA # 5

Discovery -based learning is effective

FACT CHECK

Discovery-based learning is not very effective

Guided instruction is!

WORKED EXAMPLE

Exploring Genetic Inheritance:

Using Punnett Squares to Predict Offspring Traits

Example: "Punnett Square Analysis: Predicting the Probability of Short Pea Plant Offspring"

Problem:

In pea plants, the allele for tall height (T) is dominant, while the allele for short height (t) is recessive. If a heterozygous tall plant (Tt) is crossed with another heterozygous tall plant (Tt), what is the probability that the offspring will be short?

Steps to Solve:

1. Identify the genotypes of the parents:
   - Parent 1: Heterozygous tall (Tt)
   - Parent 2: Heterozygous tall (Tt)
2. Set up the Punnett square:
   - Write the possible gametes (T or t) from each parent across the top and side of the square.
3. Fill in the Punnett square:

	T	t
T	TT	Tt
t	Tt	tt

1. Interpret the results:
   - TT: Tall
   - Tt: Tall
   - tt: Short (this is the genotype we are interested in)
2. Determine the probability:
   - Out of four possible combinations, one is "tt" (short), so the probability is 1/4 or 25%.

Final Answer:

There is a 25% chance the offspring will be short.

RECOMMENDATION

to introduce new learning

Use guided instruction

Use worked examples

IDEA # 6

Students understand what is important. They know what to pay attention to or focus on.

IDEA # 6

Students understand what is important. They know what to pay attention to or focus on.

FACT CHECK

Non -experts will not know what to emphasize or what to focus on.

IDEA # 6

Students understand what is important. They know what to pay attention to or focus on.

FACT CHECK

Non-experts will not know what to emphasize or what to focus on.

Experts are biased by the “curse“ of knowledge

SIGNALING

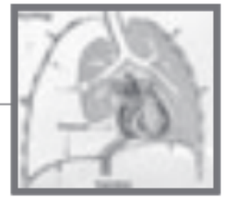
Learning Objectives!

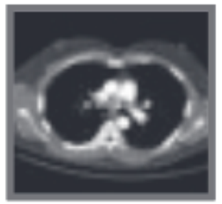
SIGNALING

BEFORE

[IV] Obstructive Shock

- Tension Pneumothorax: results in hyperinflation of the hemithorax resulting in kinking of IVS and decreased preload
- Pulmonary Embolism: results in obstruction of the R ventricular outflow and decrease in L ventricular stroke volume resulting in cardiac failure

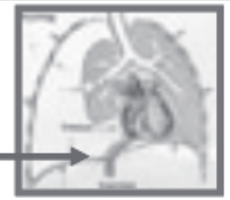


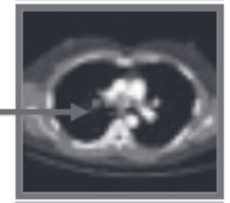


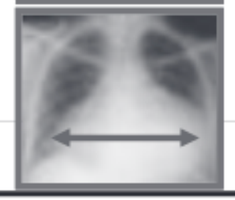
AFTER

[IV] Obstructive Shock

- Tension Pneumothorax
- Pulmonary Embolism
- Cardiac Tamponade

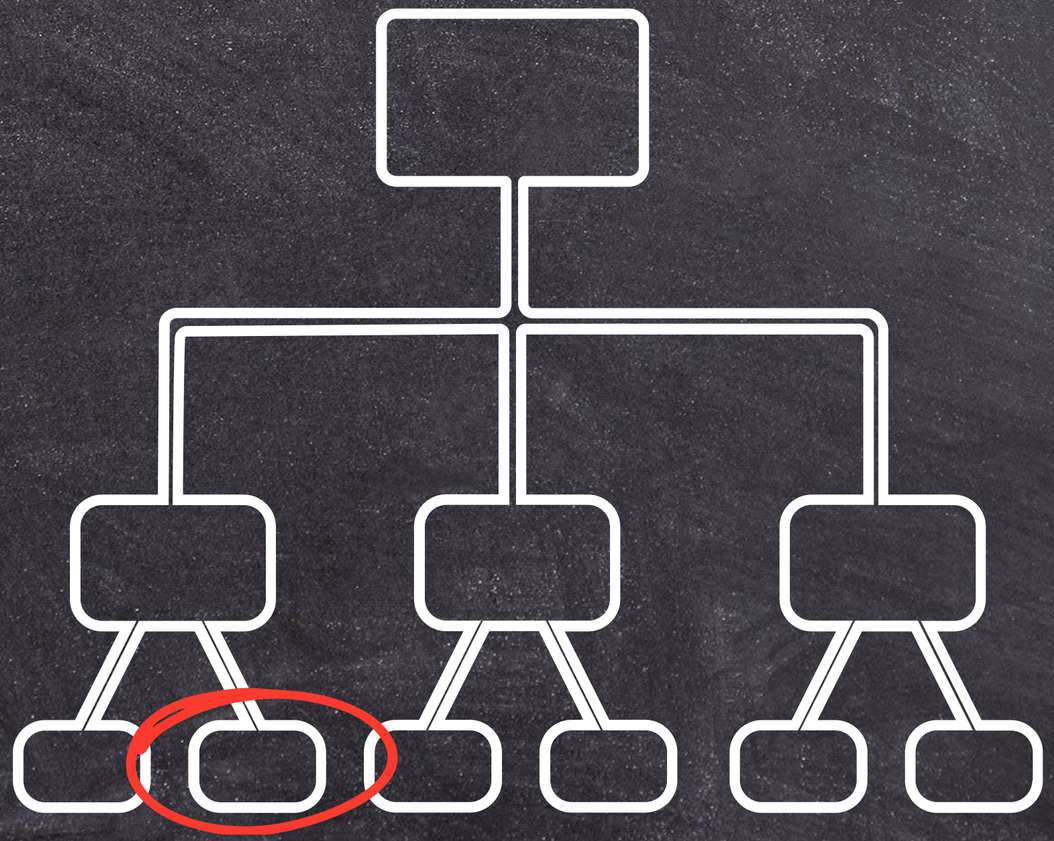






Issa et al, 2011

HIGHLIGHT THE ORGANIZATION



AVOID RESOURCE OVERLOAD

Required vs Supplemental

Which pages?

Which image?

RECOMMENDATIONS

to foster focus

Signal what's important

Highlight the organization

Avoid resource overload

IDEA # 7

- Tests are for assessment

IDEA #7

Tests are for assessment

FACT CHECK

Tests are useful for assessment.

IDEA #7

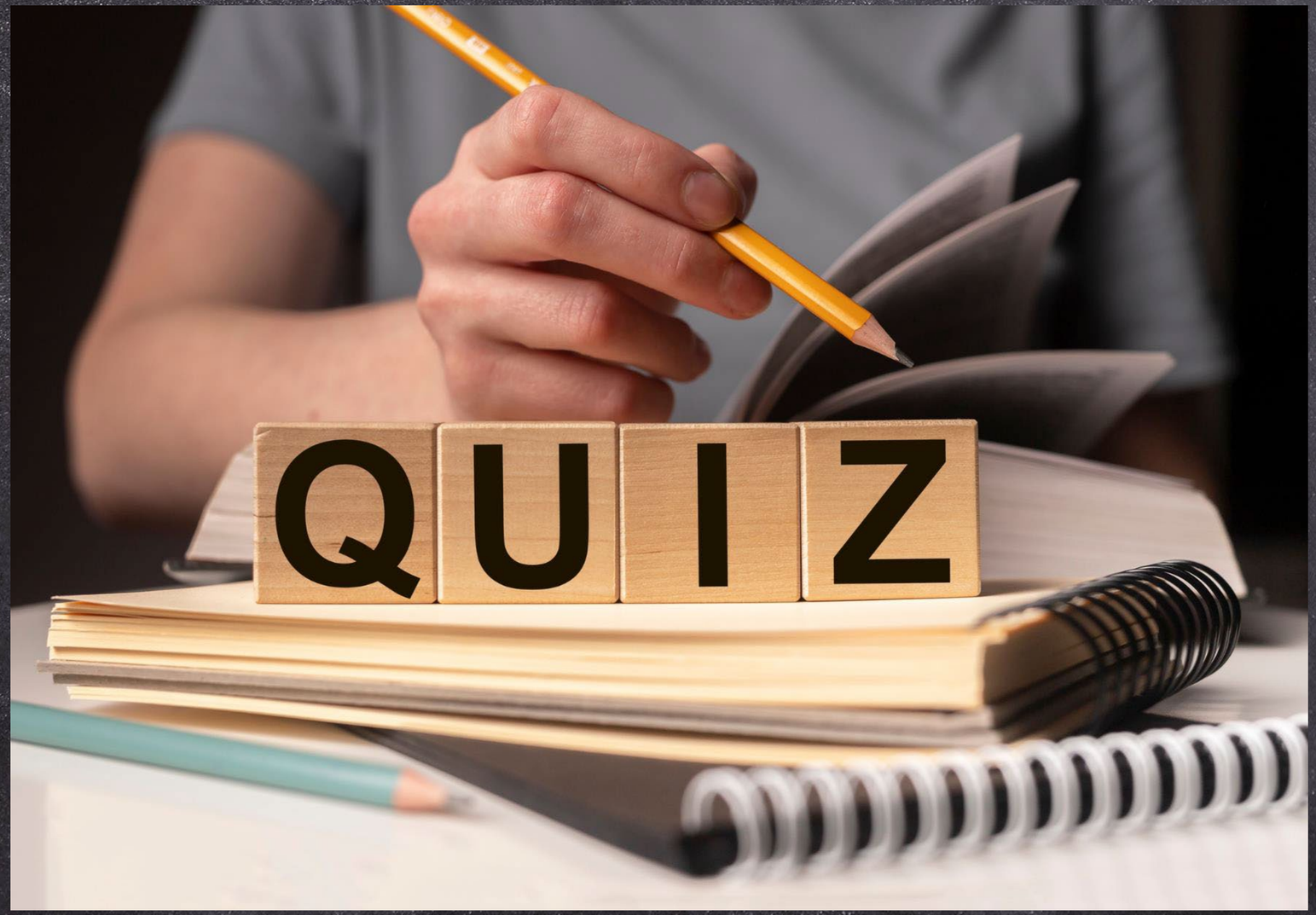
Tests are for assessment

FACT CHECK

Tests are useful for assessment.

They are also extremely helpful for learning!

RETRIEVAL PRACTICE



RECOMMENDATION

to enhance learning and memory

offer frequent
retrieval practice*

(*these don't have to be graded!)

think - pair - share

concept mapping

brain dump

flowchart

IDEAS EXAMINED

1	Do we learn better when we receive information in our preferred learning style?	No
2	Can we multitask when we need to?	No
3	Do we learn when we receive information?	No
4	Can adults pay attention to long lectures?	No
5	Is discovery -based learning is effective?	Not usually
6	Do students understand what is important and know what to focus on?	No
7	Are tests for assessment?	Yes but...

TAKEAWAY TREASURES

help learners prepare to learn

slide access

pretrain

connection making

consider slide design

use words and images*

narrate the details (move details to notes)

use guided instruction

use worked examples

make thinking explicit

give practice opportunities and feedback

foster focus

chunk lectures

signal what's important

highlight the organization

Avoid resource overload

"test" frequently

quizzes for low or no points

think-pair-share

brain dump

concept mapping

CASE STUDY

A newly hired instructor has begun teaching a pre -existing course after the original instructor retired. The professor who previously taught the course left behind course materials for the new instructor, including lecture slides for the entire course.

Each week the instructor presents the course material using the provided slides during the 2 hour class time and makes several observations: the lecture slides consist of almost exclusively printed text, students are appear to be either unengaged or having difficulty understanding the content, and the class average score on the recent midterm was low, with several students not passing. This is especially concerning as students are required to receive a passing grade to remain in their program of study, and therefore students will need to do better on their final exam.

The instructor would like to revamp the course for next year but recognizes that some changes need to be made now, to enhance student learning before the final. Given his current workload and other responsibilities he only has so much time and energy to make these changes but he'd like to identify three impactful changes to incorporate this term.

What three changes would you advise the instructor to make?

WHAT QUESTIONS DO YOU HAVE?

help learners prepare to learn

slide access

pretrain

connection making

consider slide design

use words and images*

narrate the details (move details to notes)

use guided instruction

use worked examples

make thinking explicit

give practice opportunities and feedback

foster focus

chunk lectures

signal what's important

highlight the organization

Avoid resource overload

"test" frequently

quizzes for low or no points

think-pair-share

brain dump

concept mapping

2 STRATEGIES YOU'D LIKE TO TRY?

help learners prepare to learn

slide access

pretrain

connection making

consider slide design

use words and images*

narrate the details (move details to notes)

use guided instruction

use worked examples

make thinking explicit

give practice opportunities and feedback

foster focus

chunk lectures

signal what's important

highlight the organization

Avoid resource overload

"test" frequently

quizzes for low or no points

think-pair-share

brain dump

concept mapping

RESOURCES

FOR STUDENT REFERRALS:

ACADEMIC SUCCESS CENTER

LEARNINGSUPPORT@OHSU.EDU

SUPPORT FOR EDUCATORS:

THE TEACHING AND LEARNING CENTER

TLC@OHSU.EDU

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THANK YOU

Please fill out the survey!

Your feedback is appreciated!