Remixing the Classroom: Flipping, Clicking, and Reinventing the Lecture

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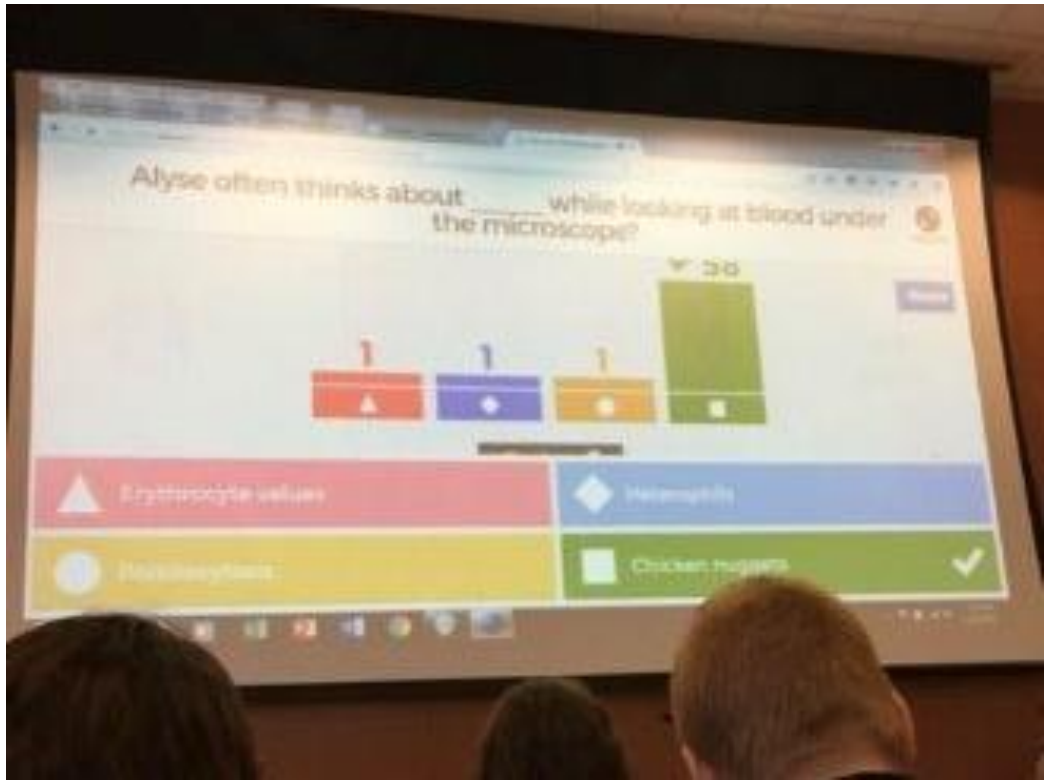
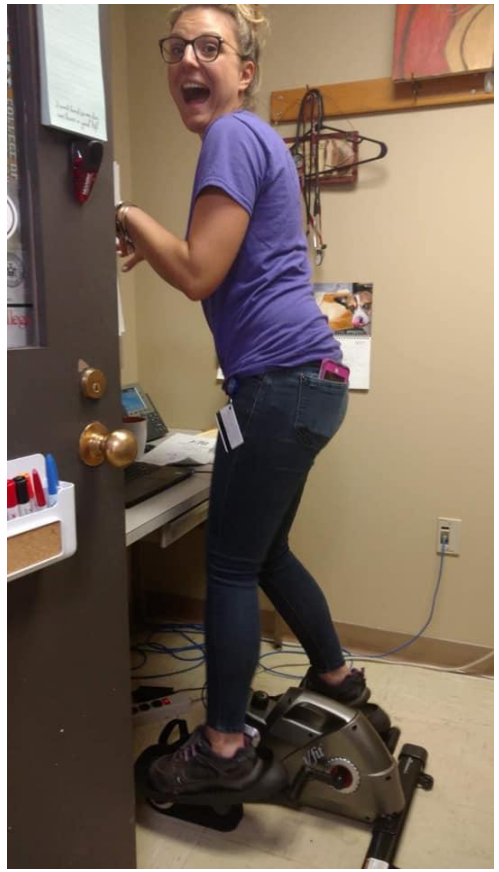


The Why

- In-person and online courses
- Small and large class sizes
- Traditional and non-traditional students
- Assessment without high stakes and MC tests
- Experiences!



- Primary Instructor in the following classes:
  - VETS-171: Pathology and Parasitology Lecture and Lab
  - VETS-115: Medical Math for Veterinary Technicians
  - VETS-305: Introduction to Public Health
  - VETS-289: VTNE Prep Course
  - MATH-111: Math for Veterinary Professionals
  - VETS-132: Large Animal Care Lecture and Lab
  - VETS-216: Diversity, Equity, and Inclusion in Veterinary Medi
  - VETS-450: Veterinary Technology Internship
  - VETS-120: Introduction to Veterinary Science
  - VETS-185: Preceptorship I
  - VETS-205: Preceptorship II
  - UNIV-100: First-Year Seminar
  - VETS-250: Veterinary Clinical Management
- Secondary Instructor in the following classes:
  - VETS-210: Clinical Laboratory Techniques Lab
  - VETS-160: Introduction to Research Animal Techniques Lab
  - VETS-131: Small Animal Care Lab
  - SUNY Ulster and Mercy College Farm Camp
  - SUNY Ulster RATS Camp

Knowledge gains!

- Attendees will develop an understand of active learning and examples of several learning designs.
- Attendees will identify areas in which they can implement active learning strategies within their class.
- Attendees will discuss their ideas of active learning strategies with fellow colleagues.

What makes an effective teacher?

Top 3 definitions from Faculty:	Top 3 definitions from Students:
• **Loving the subject and knowing the material well (50%)** • Organized, well prepared (44%) • **Variety of teaching methods and formats (41%)**	• Keeps entire class time interesting and enjoyable (45%) • **Loving the subject and knowing the material well (34%)** • **Interacts with students, hands on approach (29%)**

(Barkley & Major, 2022)

What makes an ineffective teacher?

Top 3 worst qualities from Faculty:	Top 3 worst qualities from Students:
• **Disrespectful** • Lack of knowledge • **Not caring, poor communication skills**	• **Disrespectful** • Having unrealistically high expectations • **Not caring/ not being accessible or helpful**

(Barkley & Major, 2022)

Instructional Alignment Analysis

Clear educational objectives?

How will you determine how students will demonstrate learning?

Strategies for engagement, equity, and inclusion?

Teaching method or strategies?

Attainment of objectives?

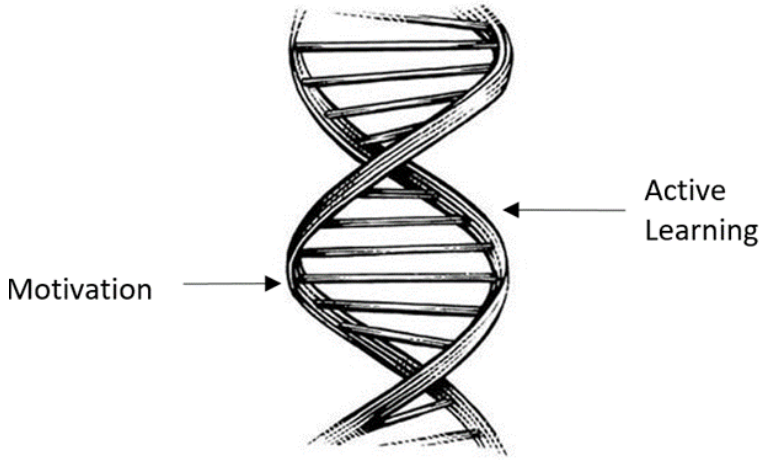
Active Learning – What is it?

Active learning is a teaching approach where students are actively involved in the learning process, rather than passively receiving information through lectures. It emphasizes participation, engagement, and critical thinking.

Key Features:

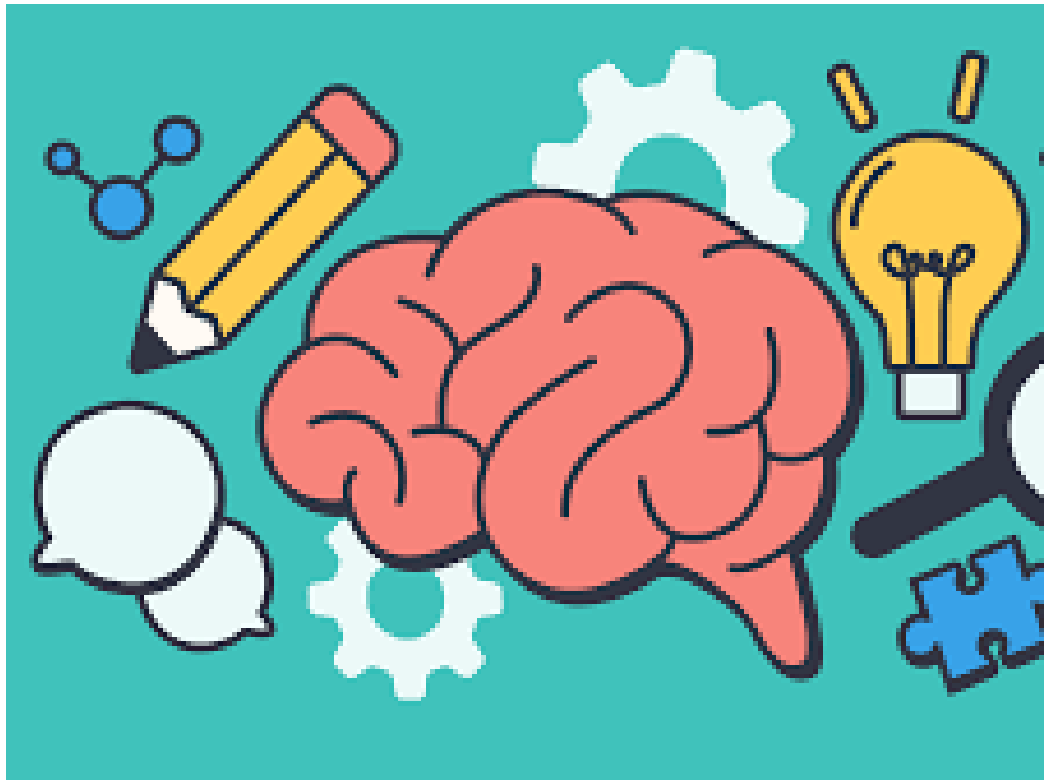
- •**Student-centered**: Focuses on what students do to learn, not just what instructors do to teach.
- •**Interaction**: Involves discussion, collaboration, and problem-solving.
- •**Application**: Encourages applying knowledge through activities like case studies, group work, debates, or simulations.

Why It Matters:
Active learning helps improve **understanding, retention, and motivation**, making it especially effective in college and higher education settings where critical thinking is key.



Why? Research shows!

- Evidence that active learning is **more effective than lecture** dates back more than twenty-five years (Bonwell, 1991)
- "...regularly taking brief breaks from lectures to engage students in activities such as quick quizzes or group discussions is **effective** at improving learning gains..." (Barkley & Major, 2022)
- "...lectures supplemented with active learning techniques generate **higher learning outcomes** than lectures by themselves" (Barkley & Major, 2022)
- A meta-analysis of 225 studies comparing active learning versus lecture-centered course designs in STEM (Science, Technology, Engineering and Math) disciplines found that students in traditional lectures were **1.5 times more likely to fail than students in courses with active learning** (Freeman et al., 2014)



Tips and Strategies to Promote Active Learning

Basic needs need to be met before higher level needs

An instructor's enthusiasm is contagious! Be your best self :)

Present expectations! RUBRICS

Help students develop learning strategies

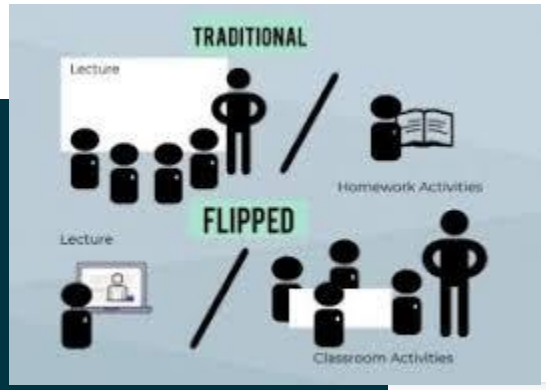
Limit info

(chunk it)

Provide constructive criticism and feedback

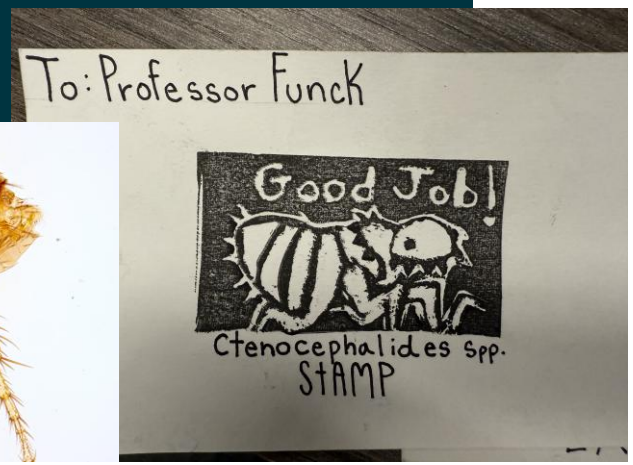
(Barkley & Major, 2022)

Tips and Strategies to Promote Active Learning cont.



In absence of clearly defined goals, we become strangely loyal to performing daily acts of trivia.

MARY KAY ASH



- Universal Learning Design – make inclusive
- *Teach for retention!*
- **Be clear on learning goals**
- Teach in ways that promote effective transfer
- **Use flipped (reversed, inverted) classroom organization**

(Barkley & Major, 2022)

A **flipped classroom** is a teaching model where students learn course content OUTSIDE of the classroom—typically through videos, readings, or other online materials—and then use class time for active learning activities like discussions, problem-solving, or group work.

Pros:	**Cons**:
1.Active Engagement 2.Flexible Learning Pace 3.Better Use of Class Time 4.Improved Collaboration 5.Stronger Student Responsibility	Unequal Access to Technology 2. Increased Student Responsibility 3. Time-Intensive for Instructors 4. Learning Curve 5. Inconsistent Effectiveness 6. Assessment Challenges

Active Learning Designs (Barkley & Major, 2022)

Teaching Problems Addressed:
Low Motivation
Poor Attention
Poor Note-Taking
Lack of Participation
Surface Learning

Learning Taxonomic Level:
Foundational Knowledge
Learning How to Learn
Application
Caring
Human Dimension

3-2-1

Contemporary Issues Journal

Jigsaw

Quick Write

Translate That

Guided Notes

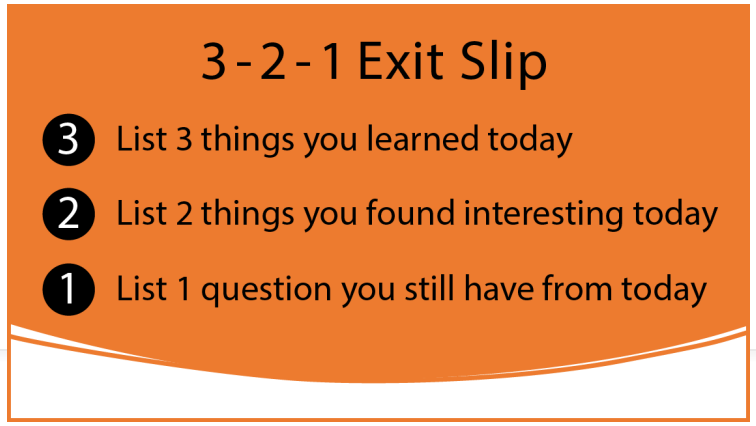
Support A Statement

Post-Test Analysis

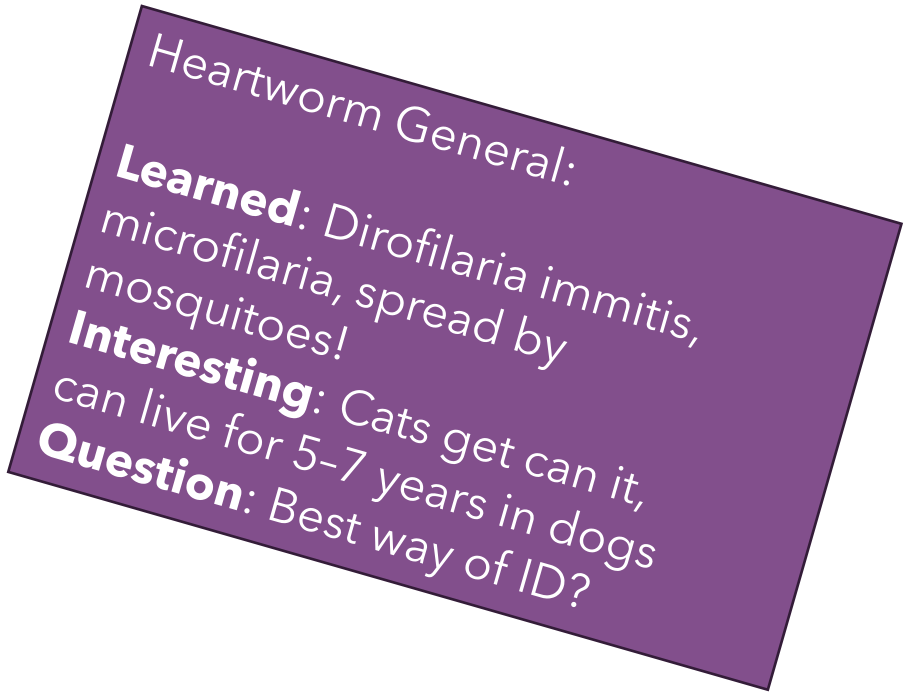
Case Studies

Hands-On

3-2-1 Learning Activity



- Activity Type: Graphic Organizing, Reflecting
- Assists both students and instructors
  - Summarize, evaluate, and question
  - Assessment
- Various methods
  - *General*: 3 things learned, 2 things of interest, and 1 question
  - *Compare/Contrast*: 3 similarities, 2 differences, and 1 question
  - *Reading*: 3 most important ideas, 2 supporting details, and 1 question
  - *Pyramid*: 3 things learned, 2 questions, and 1 description of application into their lives

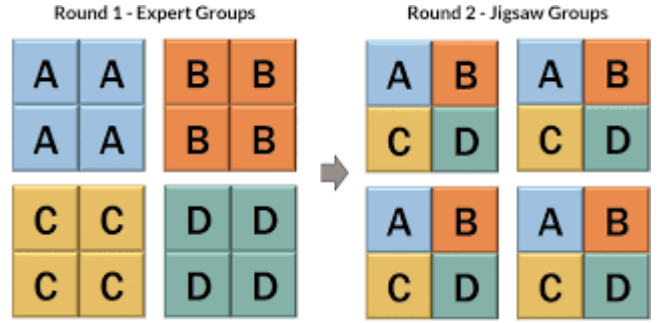


Contemporary Issues Journal

- Activity Type: Group Work, Learning Assessment, Project Learning, Reflection, Writing
- Very flexible!
- Referencing, citations, reputable resources, client communication
  - WordDoc, infographic, online blog/article, discussions
  - Rubric and/or example recommended if grading
  - Reflection

Who, What, When, Where, Why?
What are three main key points of this article?
Reflection to coursework, life, work, etc

Jigsaw



- Activity Type: Group Work, Reciprocal Teaching
- Great for collaboration and learning responsibility
  - In-person, breakout rooms, videos, shared docs, webpage building
- Assessment – pre and post
- Learners are introduced to “chunking” info to create bigger picture
- Give topic, divide equally into sections, set time limit, collaborate!
  - Students in groups become “experts” in their section to teach class
  - Find ways to assist peers in learning material: explanations, examples, pneumonics, drawings, etc.

Quick Write

- Activity Type: Writing
- Recall and communication of topic – "define (term)"
- Assess student's understanding of topic of SLOs
- Formative assessment or grade as participation
- Typically timed – flashcards, assignment, "quiz setting"
  - Announce prompt, time, and response type
  - Start and stop time
  - Hand in or self "grade"
    - Assessment: Find common gaps, strengths

Recall a topic you taught – earlier, recently, today and have students recall that information

Example: Define zoonotic

"What is one zoonotic disease you find important, and why should pet owners be aware of it?"

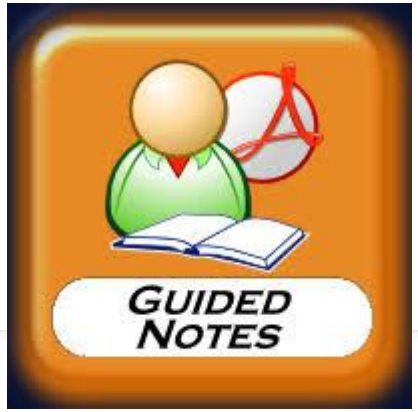
Translate That!

- Activity Type: Reciprocal Teaching
- Elaborative rehearsal – long term memory process
- "Imagined audience", student restates lecture idea using their own "voice" (rethink and express)
    1. Segments, intervals to allow for retention
    2. Audience can be client, coworker, upcoming student
    3. Pause lecture – let ALL students gather their thought as you pick #
        1. Variation as post class as assignment (discussion thread) or make into groups
        2. Extra turns = extra credit
    4. Can have students add or correct info post translation
- Randomize being selected – must pay attention!
- Assesses comprehension, allows students to see self-progress

Topic: Canine parvovirus
Audience: Owner

Pet Owner-Friendly Translation:
"Your puppy has a virus called parvo, which spreads easily between dogs. It mainly attacks the stomach and intestines, causing severe vomiting and diarrhea, sometimes with blood. Because of this, puppies can get dangerously dehydrated very quickly. This is especially serious in young dogs who haven't had all their vaccines yet. We need to treat your puppy right away with fluids and supportive care to give them the best chance of recovery."

Guided Notes



- Activity Type: Note Taking
- Set of notes summarizing key terms or learning objectives in lecture
- Remove concepts, phrases, key words – then give to students
  - Quizlet AI
  - Generators
  - Assignment?
- Present prior to lecture
- Self-evaluation

Guided Notes: Food Safety in US

Support/Refute A Statement

- Activity Type: Writing
- Craft a statement relating to material – it can be an opinion, inference, theory, etc! Can be given ahead of time.
- Have students use lecture material/notes and/or outside sources to support/refute the statement
  - Variation: Own opinions, create a statement, own experiences
- Assignment, volunteers, individual, groups, discussions
  - Online can include timestamps or slide # for presentation

Post Test Analysis

- Activity Type: Reflection and Learning Assessment!
- *First stage:* Before exam submitted, student predicts score, rates effort, lists study strategies, and identifies easiest and hardest content for themselves
  - Assists in understanding effort vs perception and ID of study strategies
- *Second stage:* After receiving exams, write emotional response to score, compare to prediction, analyze questions
  - Recognize strengths and gaps, analysis of study strategies on future exams

Case Studies

- Activity Type: Problem Solving
- Real-world scenarios!!!
- Crafted to require analysis, problem solving, decision making, and justification of actions
  - Explain the issue
  - Definition of terms
  - Analysis, Synthesis
  - Recommendations, Treatments, Tests, Etc
- Written or oral – have fun with it!
  - Breakout rooms or discussions
- Individual, pairs, groups, cross case comparison, preceptorships (formal write up)

Signs of Active Learning

- Contribute their own perspective
- Try to understand someone else's point of view
- Use higher order learning strategies (critical application, analyzing, evaluation)
- Demonstrate curiosity and interest
- Seek personal relevance
- Pursue additional opportunities for learning

(Barkley & Major, 2022)

Post-Engagement Activity Assessment

Did or Didn't it…

- Match the learning goals (objectives)?
- Meet personal goals for topic?
- Engage students?
- Promote learning?
- Help assess student understanding?

Active Learning Examples

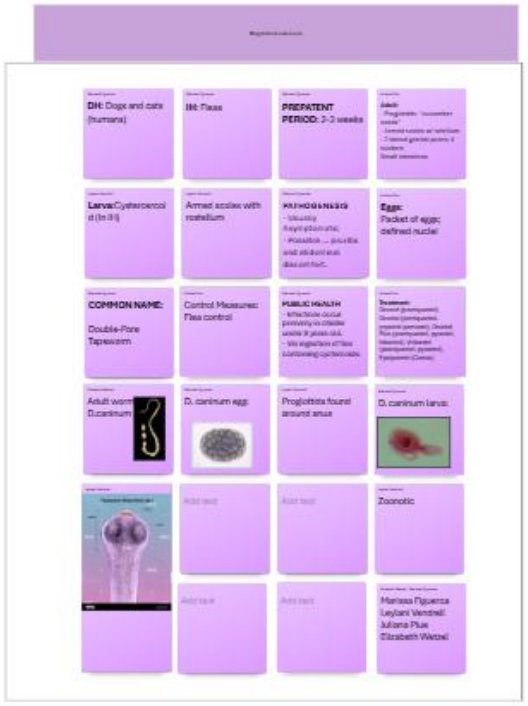
ALYSE FUNCK

JEANETTE REINHARDT

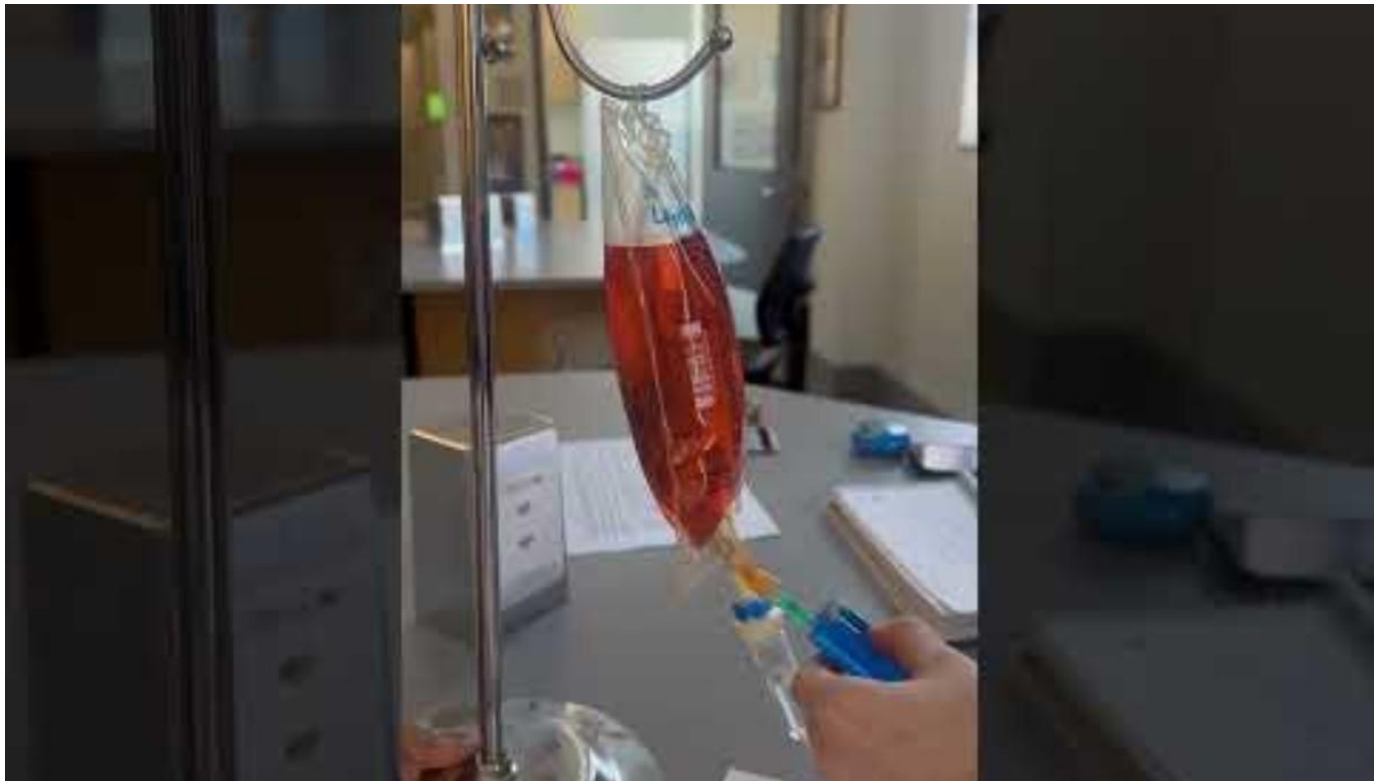
Parasitology Study Board

[Cestodes 1-5 Study Board]

Microsoft Whiteboard
Zoom Whiteboard
Miro
Sticky Notes

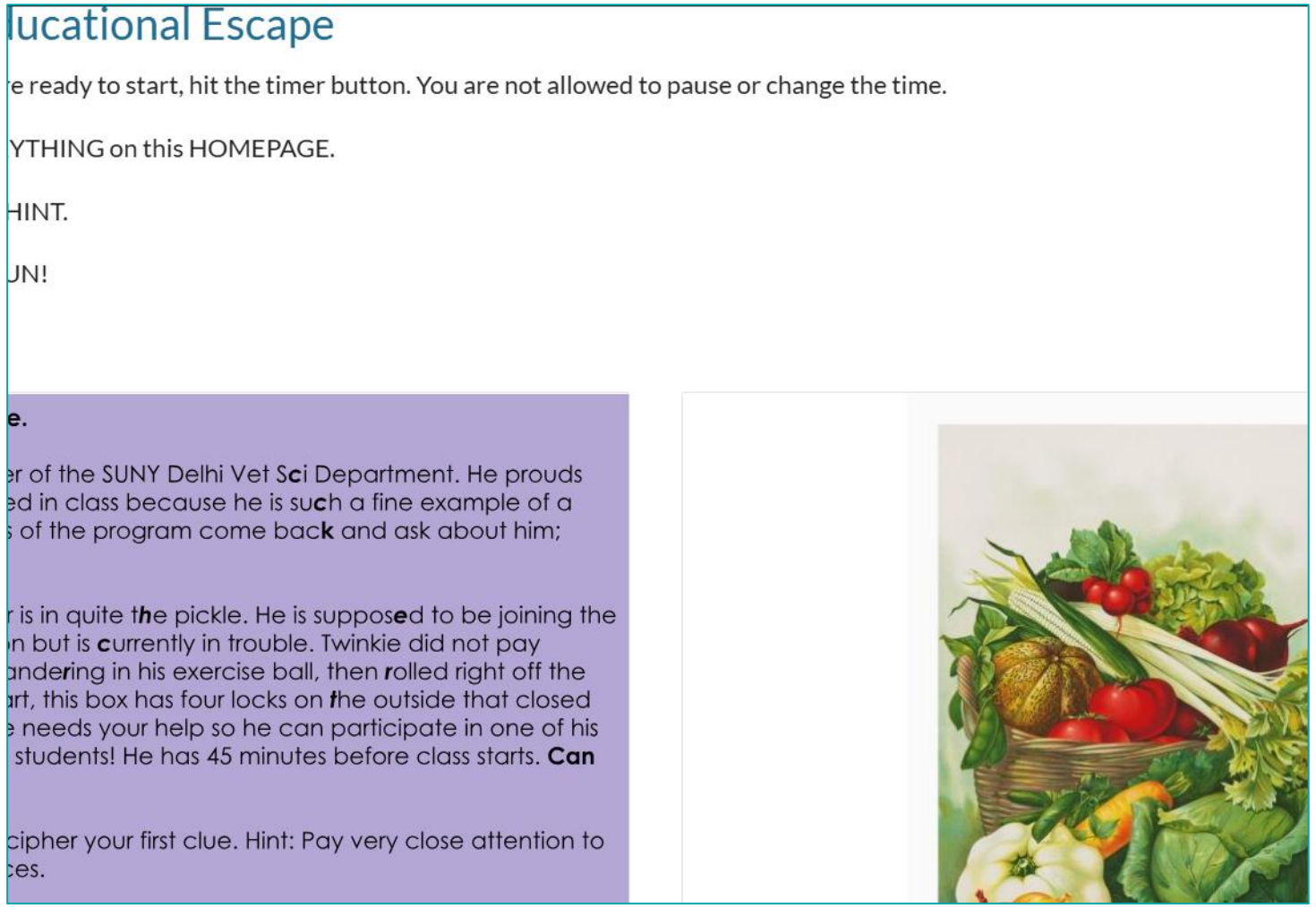


Constant Rate Infusion (CRI) Activity

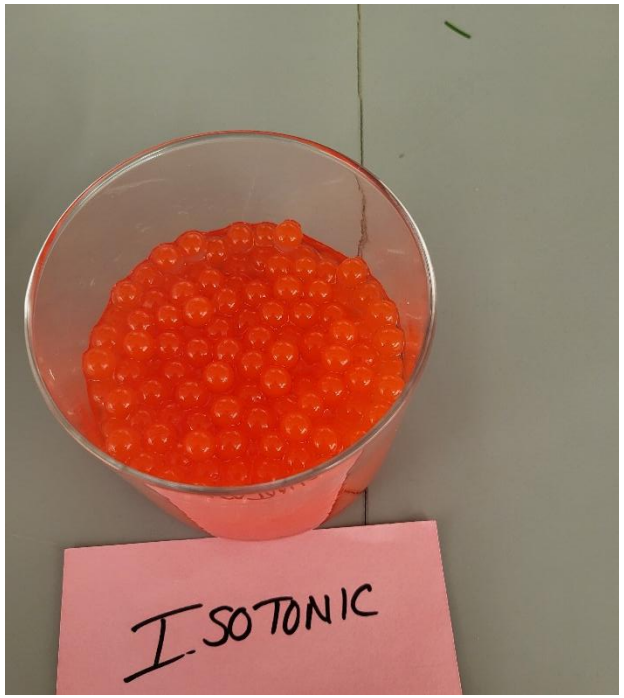


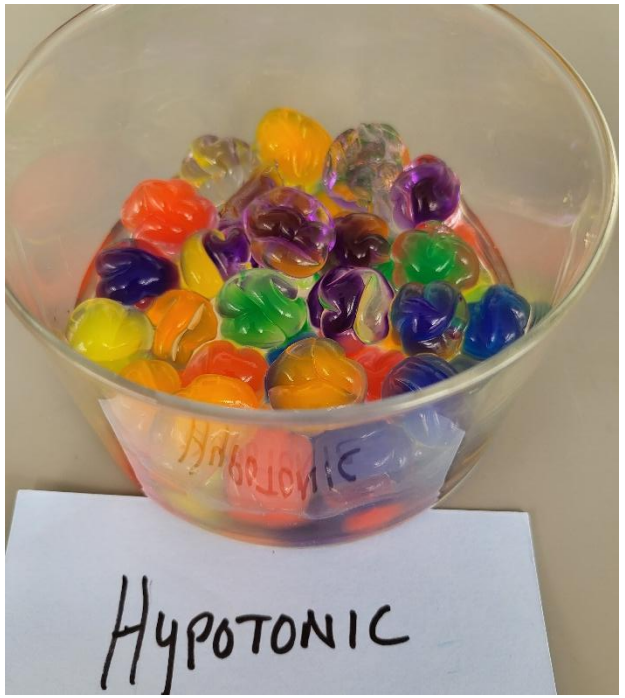
Med Math Escape Room

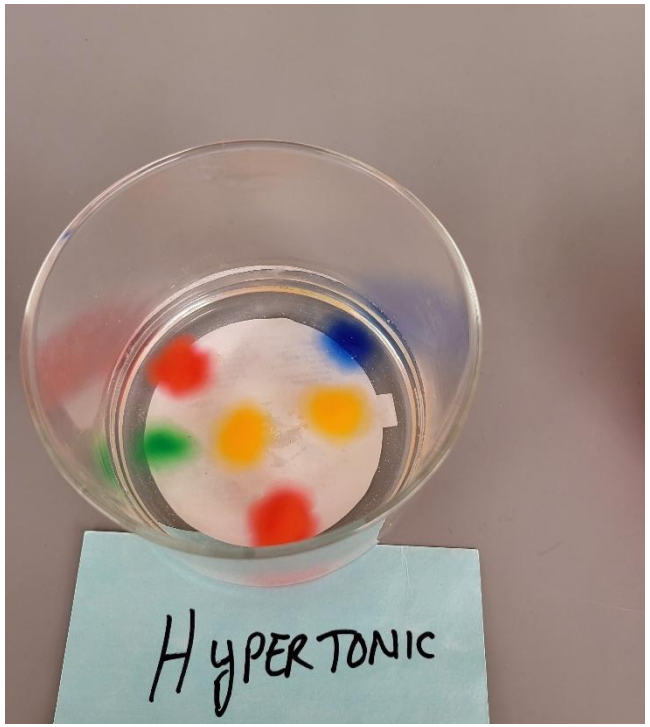
[Med Math Escape Room]



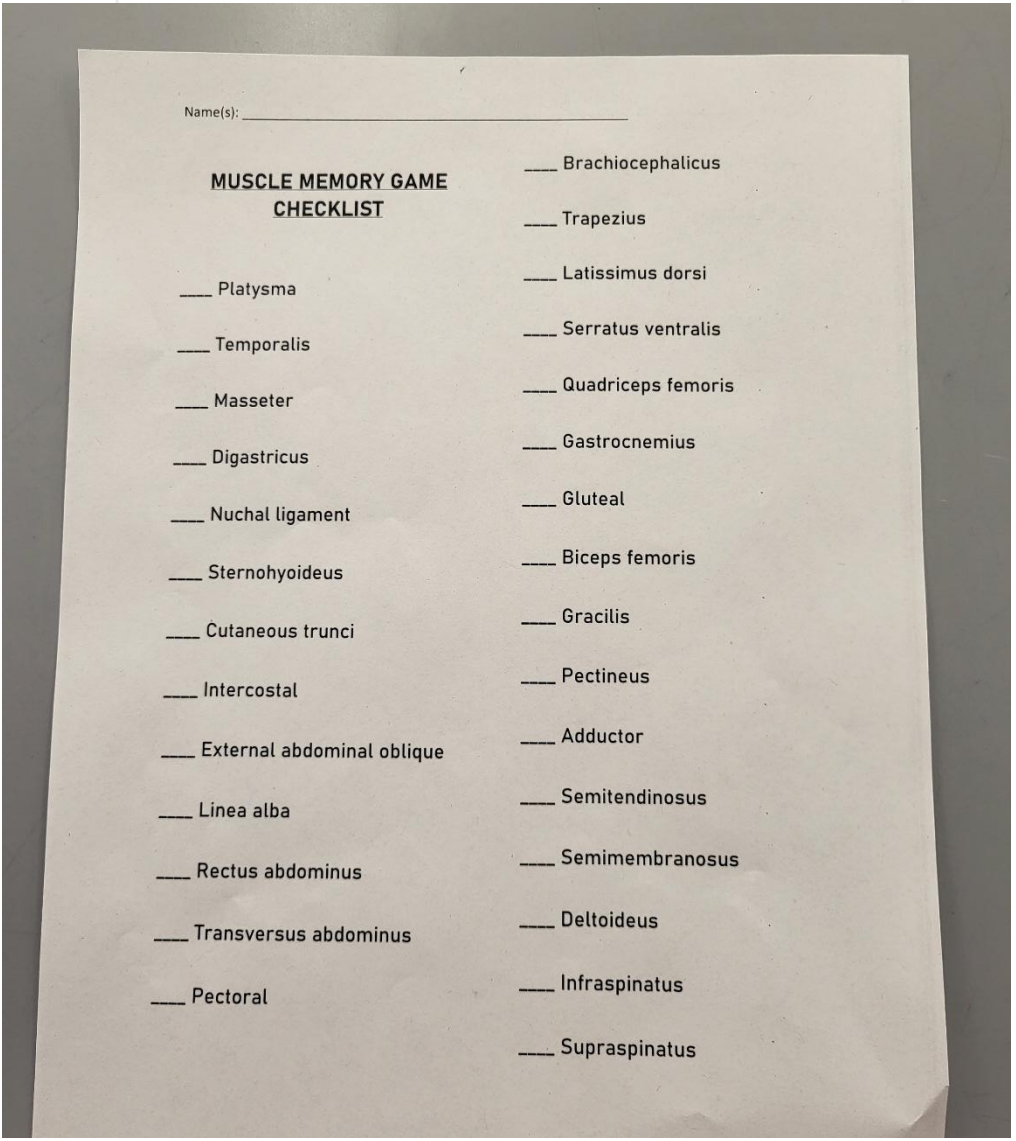
Solutions







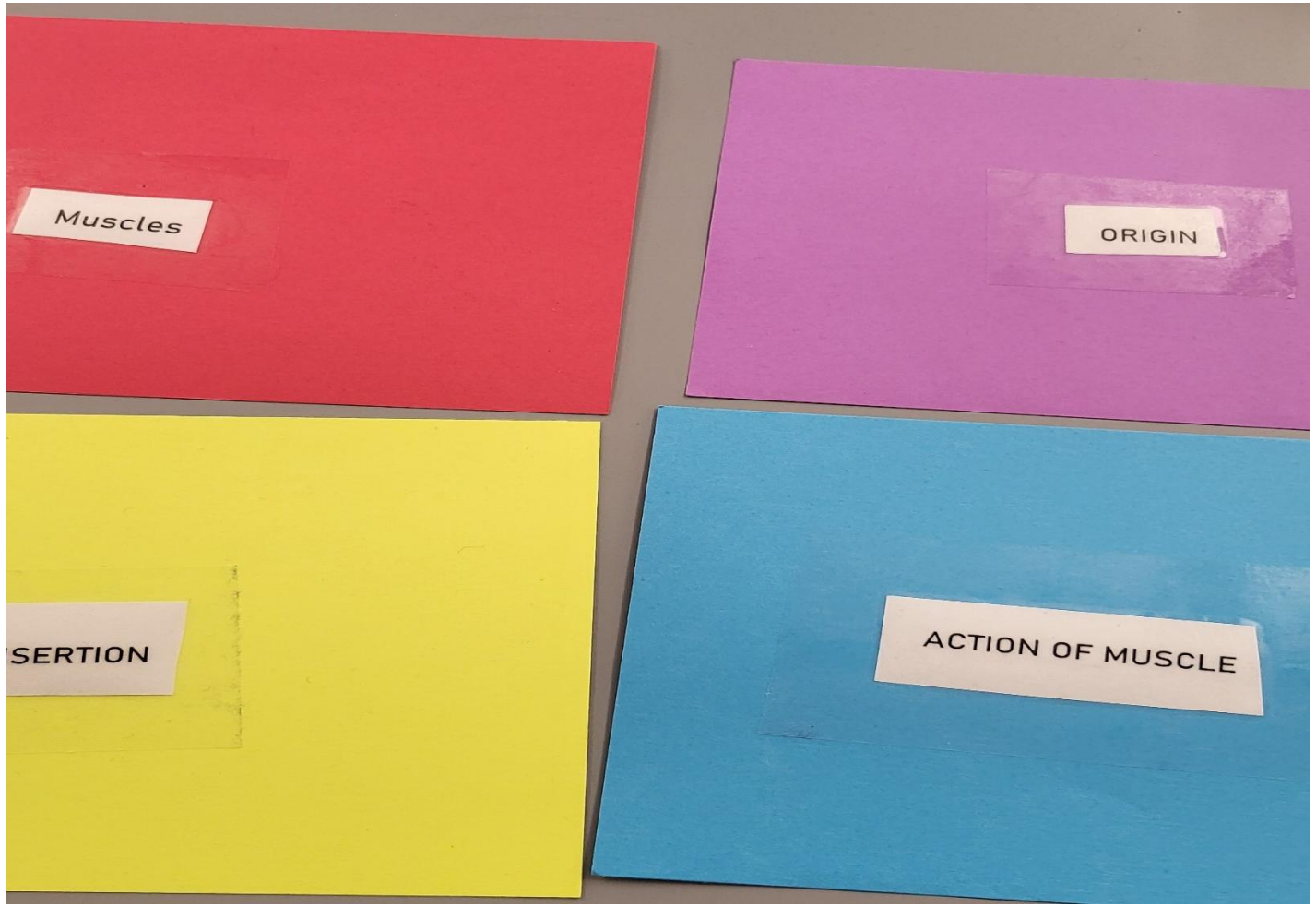
MUSCLE MEMORY MATCHING GAME

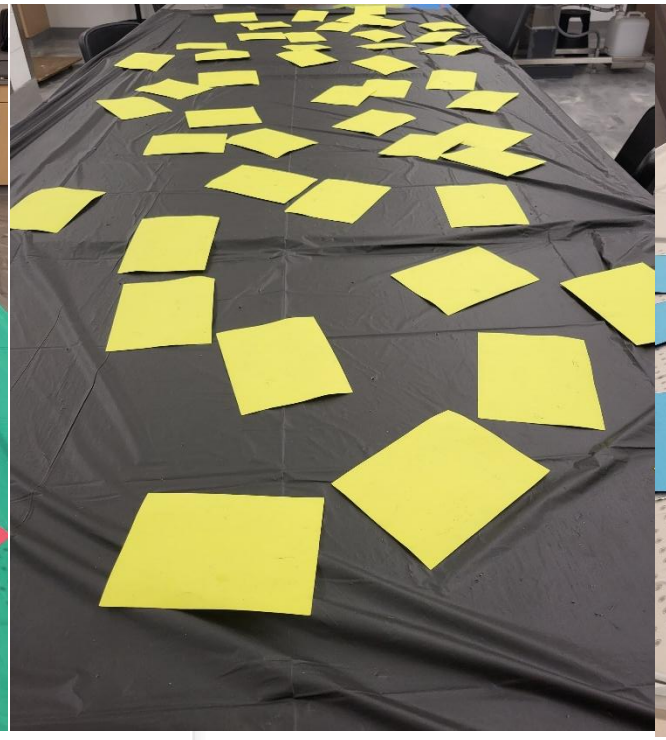
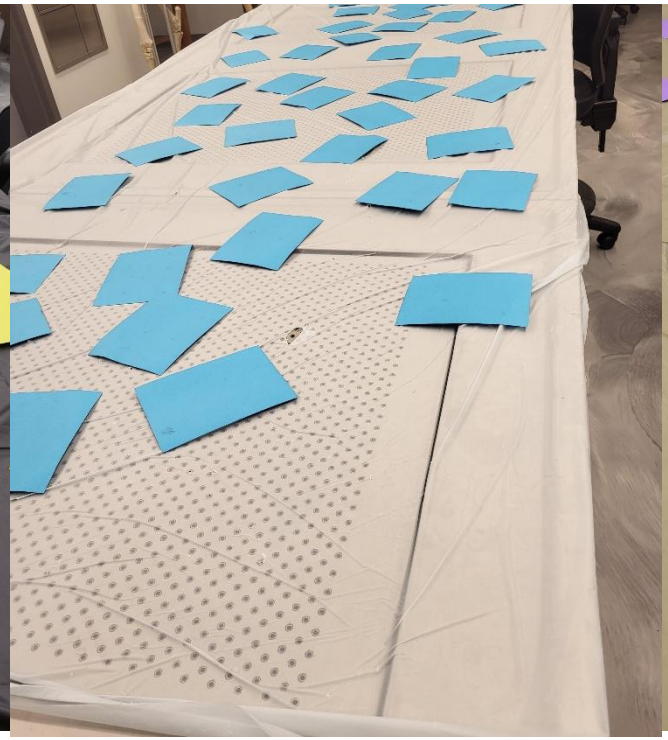
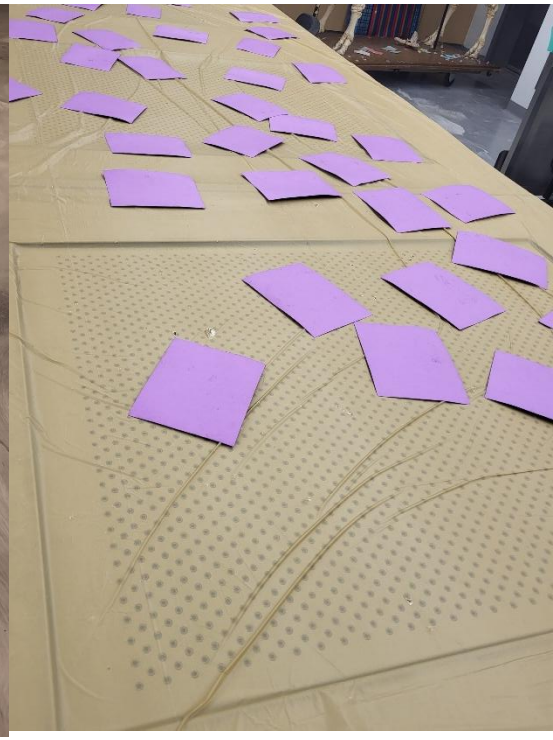


Name(s): _____

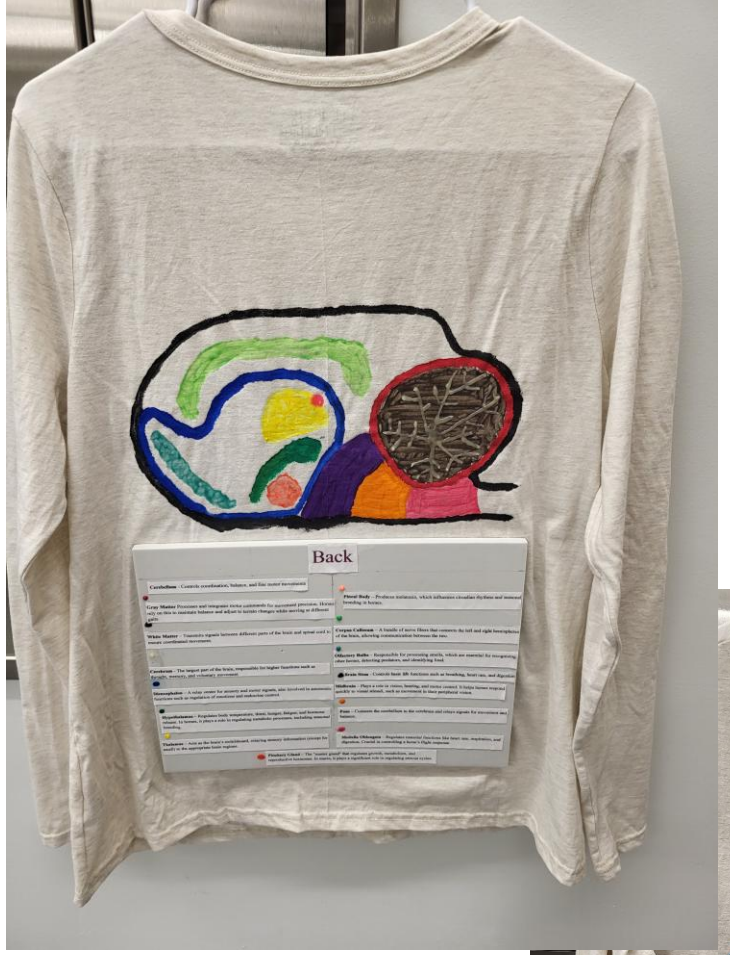
MUSCLE MEMORY GAME CHECKLIST

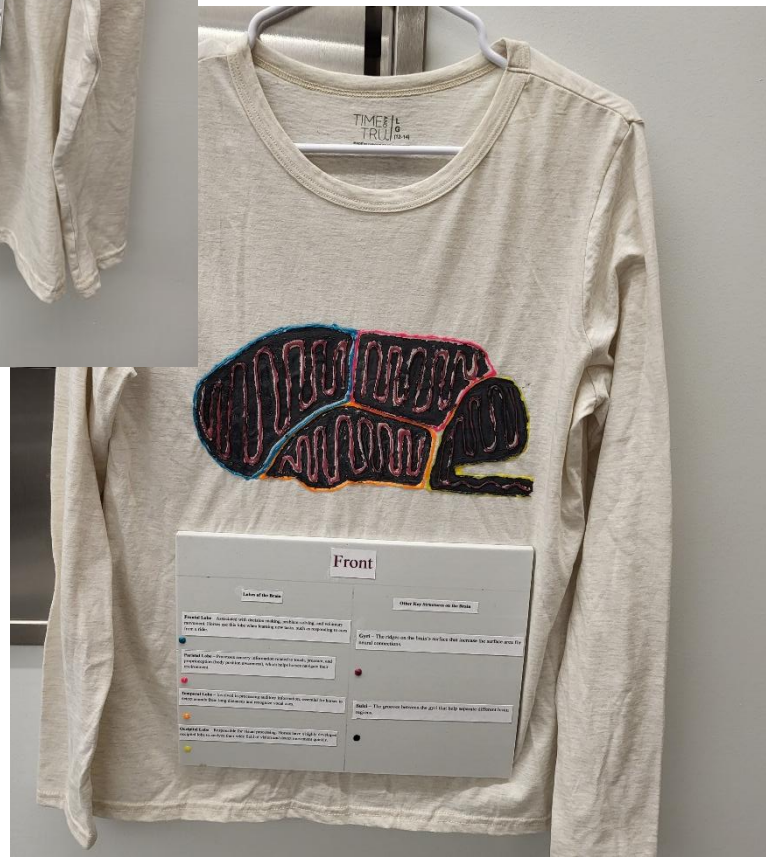
___ Platysma
___ Temporalis
___ Masseter
___ Digastricus
___ Nuchal ligament
___ Sternohyoideus
___ Cutaneous trunci
___ Intercostal
___ External abdominal oblique
___ Linea alba
___ Rectus abdominus
___ Transversus abdominus
___ Pectoral
___ Brachiocephalicus
___ Trapezius
___ Latissimus dorsi
___ Serratus ventralis
___ Quadriceps femoris
___ Gastrocnemius
___ Gluteal
___ Biceps femoris
___ Gracilis
___ Pectineus
___ Adductor
___ Semitendinosus
___ Semimembranosus
___ Deltoideus
___ Infraspinatus
___ Supraspinatus



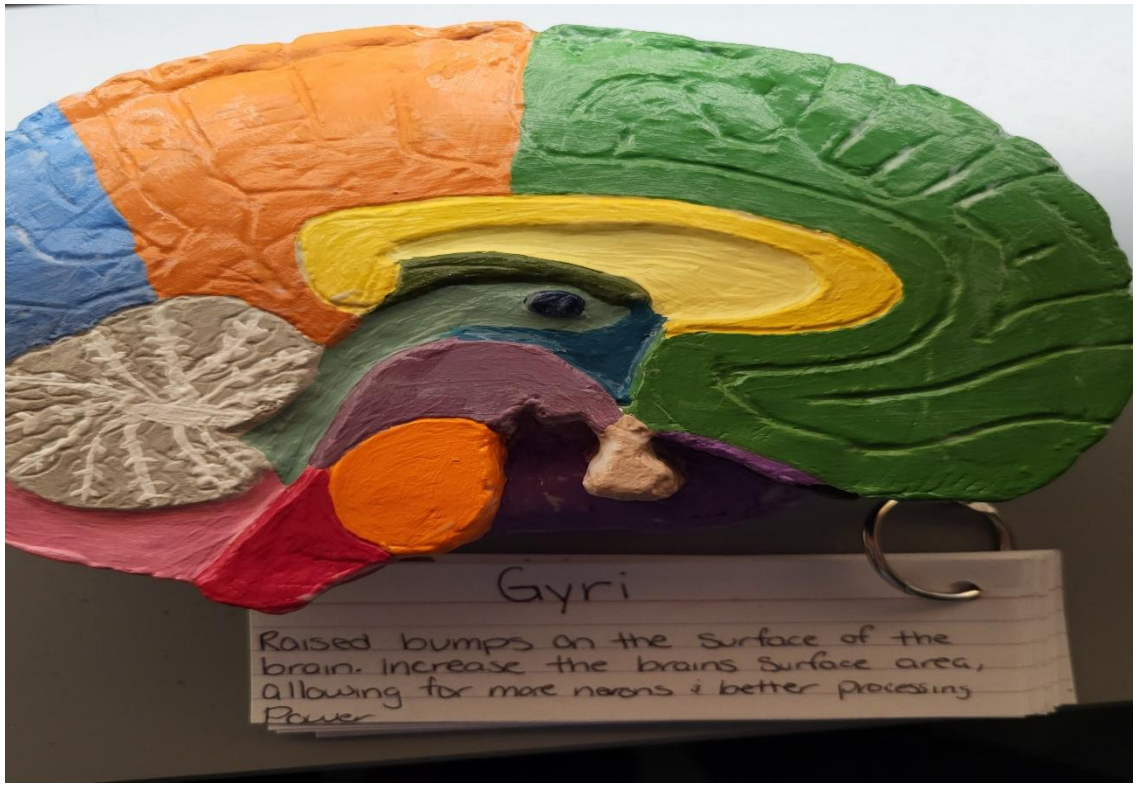






Parts of the Brain
White matter
Pineal body
Grey matter
Corpus collosum
Thalmus
Hypothalamus
Diencephalon
Pituitary gland
Medulla oblongata
THE BRAIN PROJECT
Lobes of the Brain
Sulci
Parietal
Gyri
Occipital
Frontal
Temporal
Olfactory bulbs


Back


Front


CRAFT FOAM
AFRICAN ELEPHANT


Gyri
Raised bumps on the surface of the brain. Increase the brains surface area, allowing for more neurons & better processing Power

rves & muscles used in seeing, hearing, walking, talking, & eating. It is also the connection between
e parts of the brain to the spinal cord (for information).

Optic Chiasm - Recives information from the optic nerves (vision), send impulses to the brain.

Midbrain - located between the pons & cerebrum,

Pons - located rostral to medulla oblongata, seperated from medulla oblongata by a horizontal groove. Nerve fibers running transversely across the pons gives its rounded, plump look.

Medulla oblongata - The area of the brainstem that connects with the spinal cord.

- lobes of Brain -

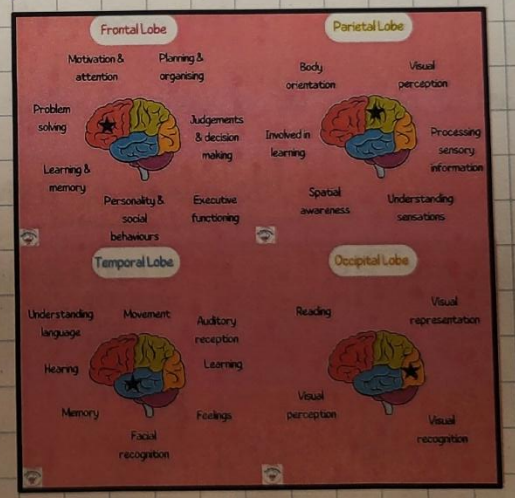
Summury - Helps control thinking, planning, organizing, problem-solving, short term memory & movement.

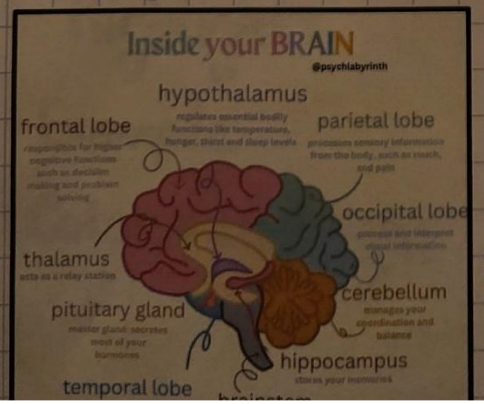
Frontal - lying immediately behind the forehead

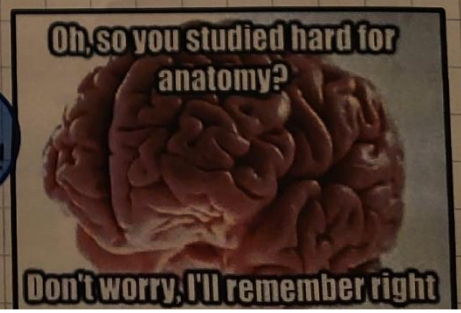
Parietal - lying behind parietal bone

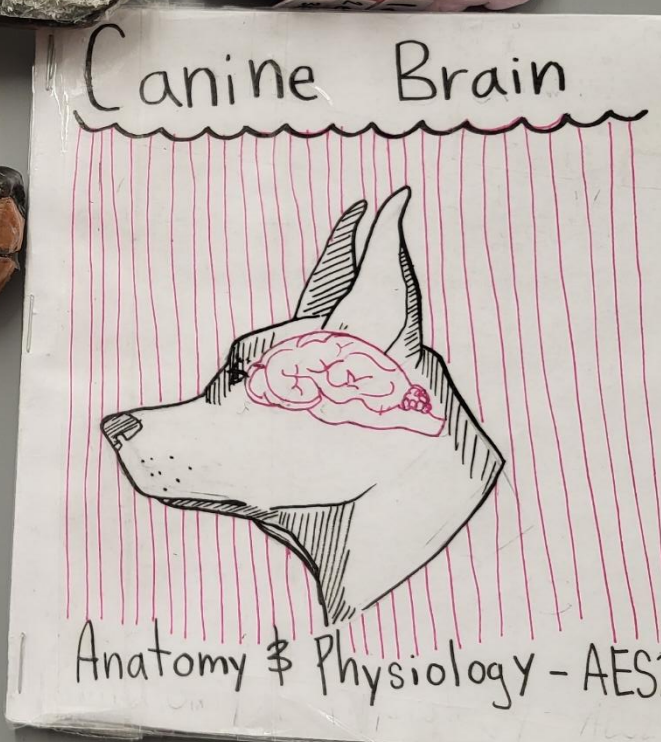
Temporal - lying behind the temporal bone

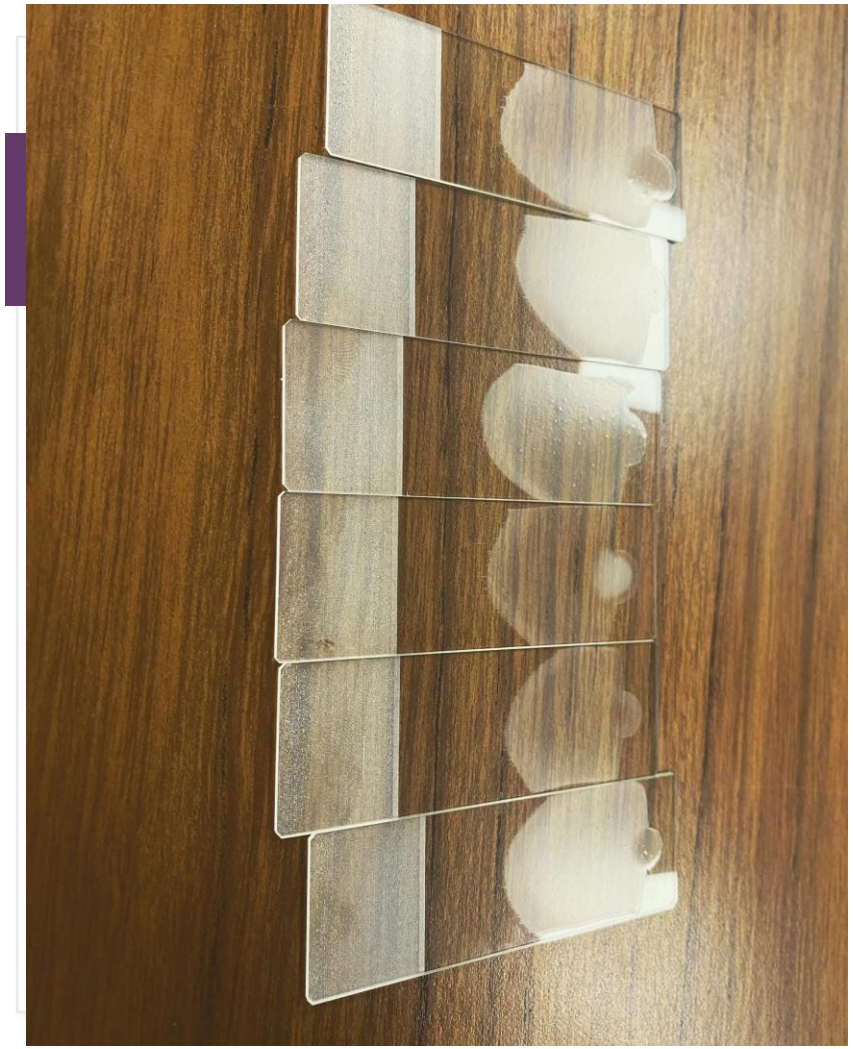
Occipital - lying behind the occipital bone





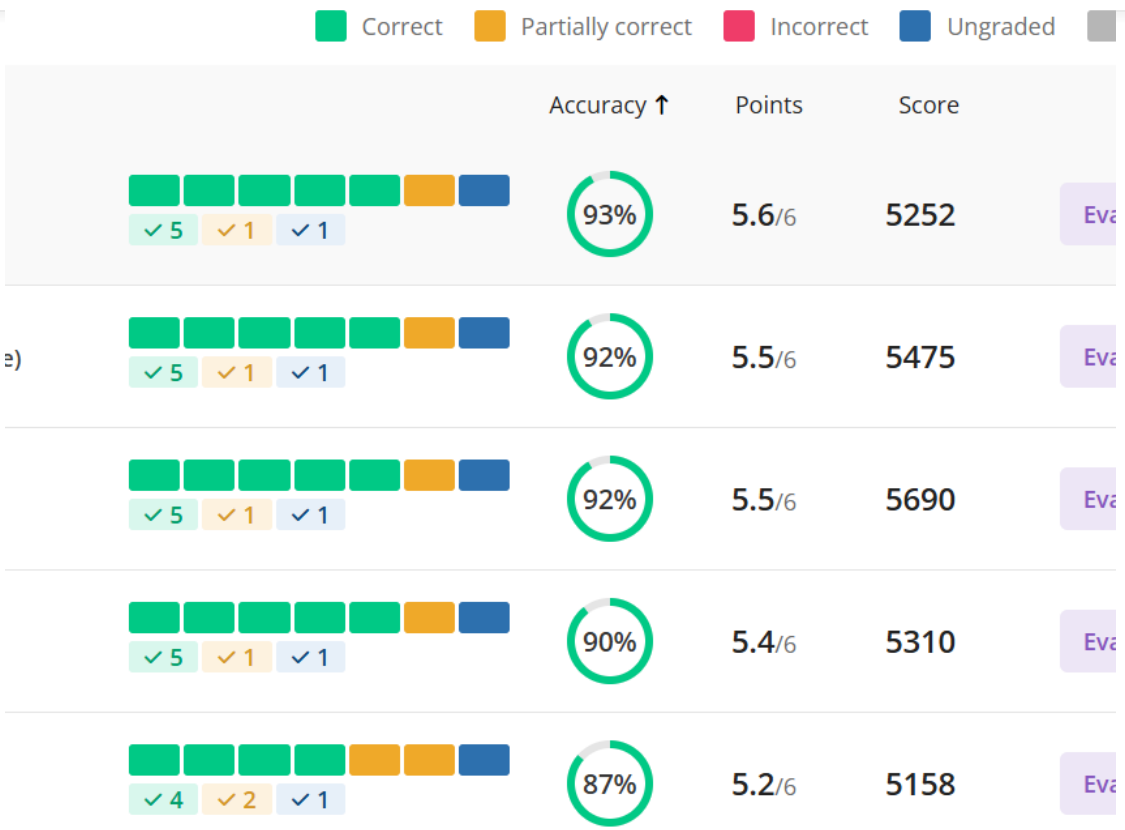






Wayground for Lecture

- [Cestode 1-3 Lecture Wayground]



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Thank you!

Scan me!

- Presentation
- Wayground Resources
- Rubric Examples
- K. Patricia Cross Academy Resources

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