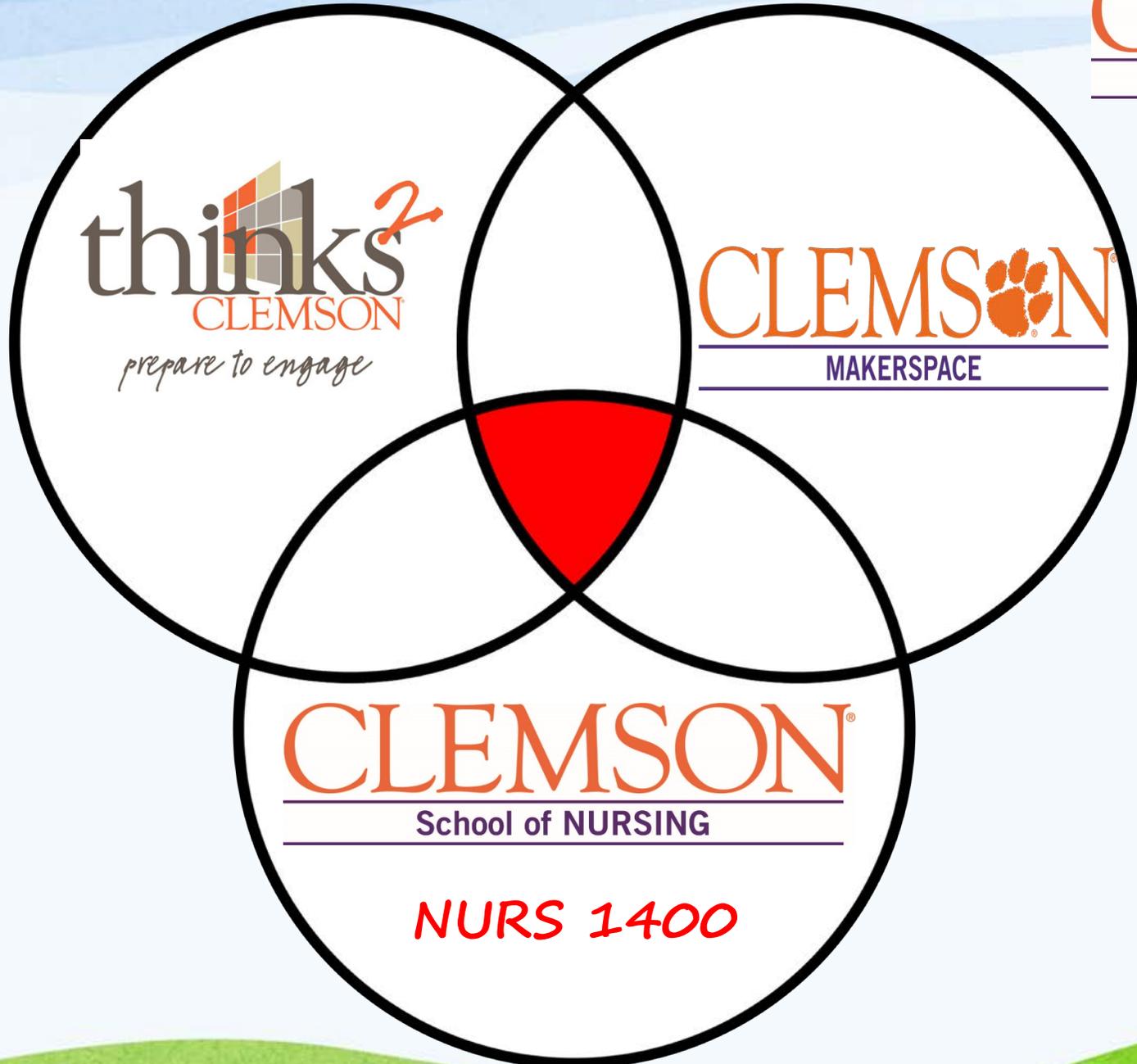




Improving Critical Thinking with Design Thinking and the Makerspace

Nancy Meehan, PhD, RN



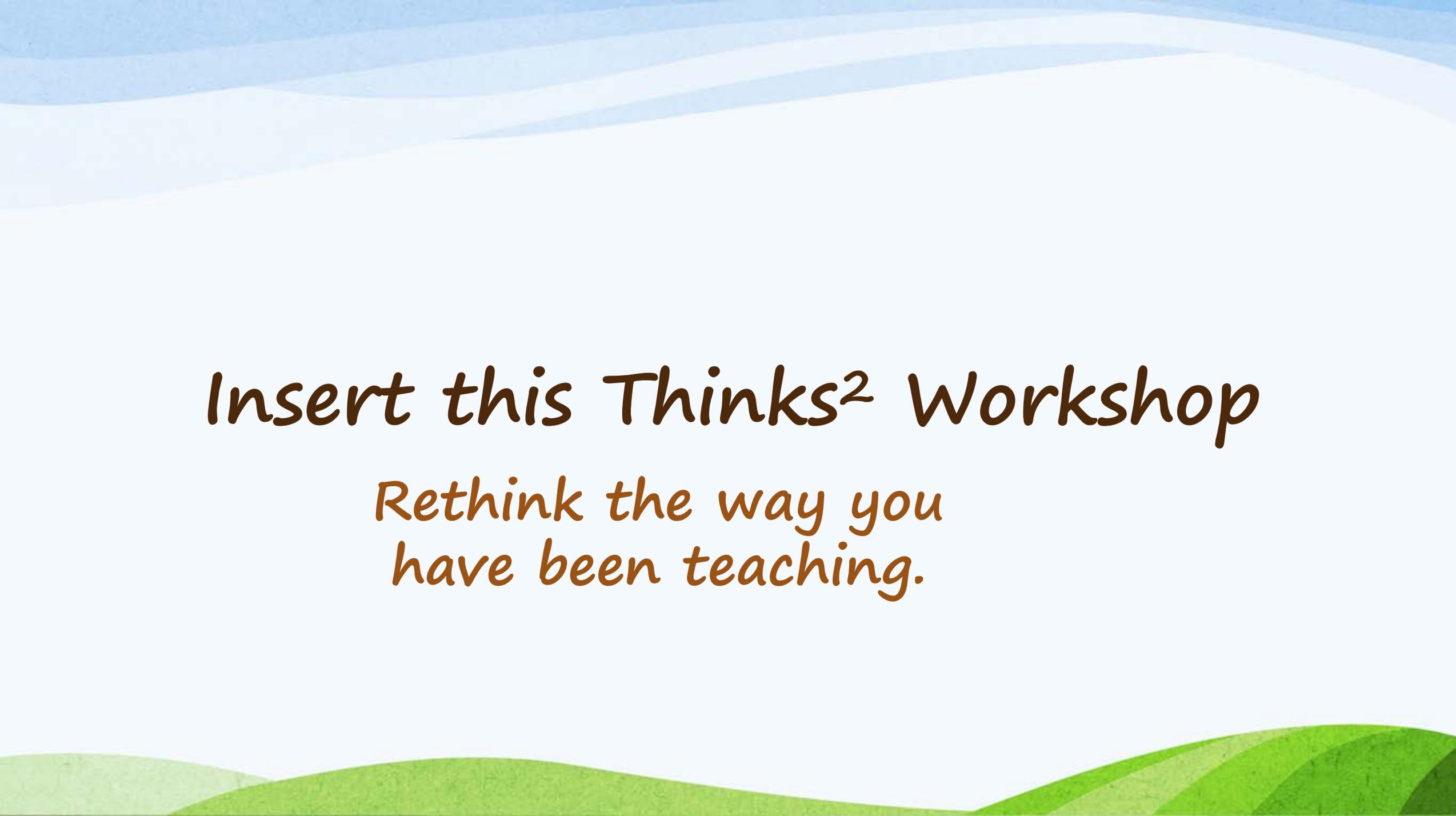
thinks
CLEMSON
prepare to engage

CLEMSON
MAKERSPACE

CLEMSON
School of NURSING

NURS 1400

CLEMSON
School of NURSING



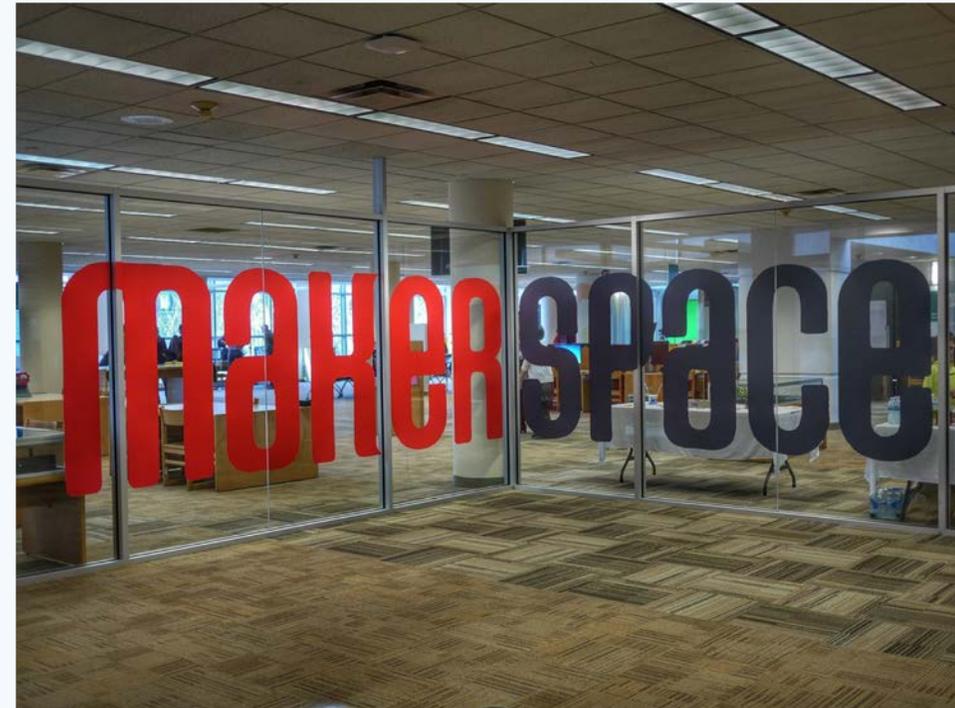
Insert this Thinks² Workshop

*Rethink the way you
have been teaching.*

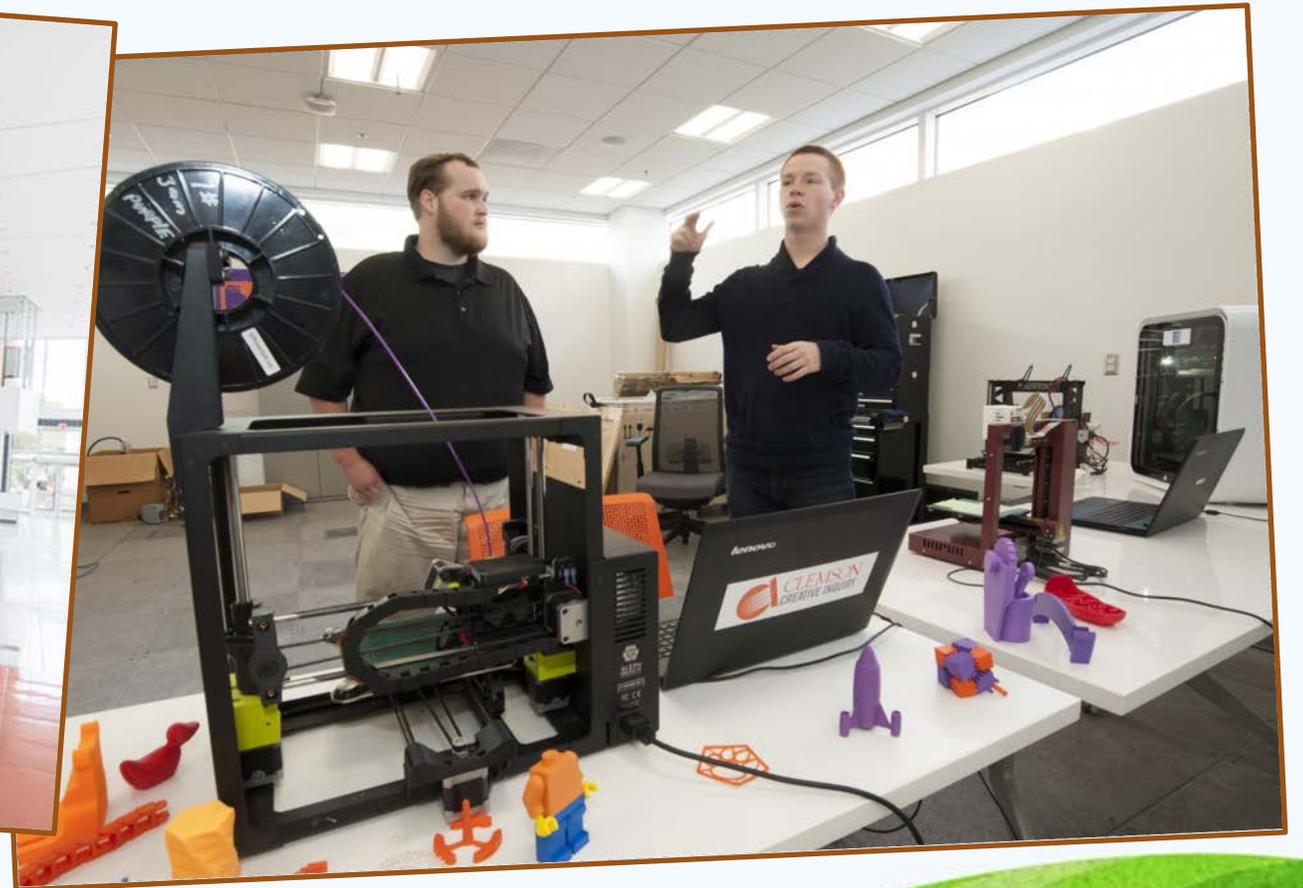


CRITICAL THINKING

What is a MakerSpace?



Watt Family Innovation Center: MakerSpace





Clemson Makerspace

CT2 Makerspace Rubric

	Strong (10 pts)	Acceptable (8 pts)	Unacceptable (6 pts)	Weak (4 pts ea.)
Problem	Problem is clearly defined and evidence, questions, etc. are accurately interpreted.	Problem is clearly defined and evidence, questions, etc. are not accurately interpreted.	Problem is unclearly defined and evidence, questions, etc. are misinterpreted.	Problem is not stated or evidence, questions, etc. are interpreted with bias.
Pros & Cons	Identifies most important arguments for and against the solution chosen.	Identifies relevant arguments for and against the solution chosen.	Fails to identify strong, relevant counter-arguments for the solution chosen.	Fails to identify or hastily dismisses strong, relevant counter-arguments for the solution chosen.
Points of View	Thoughtfully analyzes and evaluates major alternative points of view.	Offers analyses and evaluations of obvious alternative points of view.	Superficially evaluates obvious alternative points of view.	Ignores obvious alternative points of view.
Conclusions	Draws warranted, thoughtful, logically sound conclusions	Draws warranted, logically sound conclusions	Draws unwarranted or unsound conclusions	Argues using unsound or irrelevant reasons, and unwarranted claims
Explanations	Justifies key solutions and results, explains assumptions and reasons.	Justifies some solutions and results, explains reasons	Justifies few solutions and results, seldom explains reasons.	Does not justify solutions and results, nor explains reasons.
Objectivity	Fair-mindedly follows where evidence and reasons lead.	Shows prejudice when following where evidence and reasons lead	Regardless of the evidence or reasons, defends views based on self-interest or preconceptions.	Exhibits close-mindedness to reason
Digital Media	3 or more different types of Adobe Spark products are used in final presentation	2 or more different types of Adobe Spark products are used in final presentation.	1 additional type of Adobe Spark products are used in final presentation.	No integration of Adobe Spark products are used in final presentation.
Effort	Completed work with excellence and exceeded faculty expectations.	Completed work in an above average manner.	Work is complete but lacks initiative and finishing touches.	Work shows minimal effort.
Participation	All group members participate actively and equally in presentation.	All group members participate, but work is unequally shared.	Some group members participate very little or not at all.	One or more group members need to be reassign to another group.
Time	Presentation is between 3 - 3 ½ minutes long.	Presentation is too long or short by 30 seconds or less.	Presentation is too long or too short by more than 30 seconds.	Presentation is too long or too short.

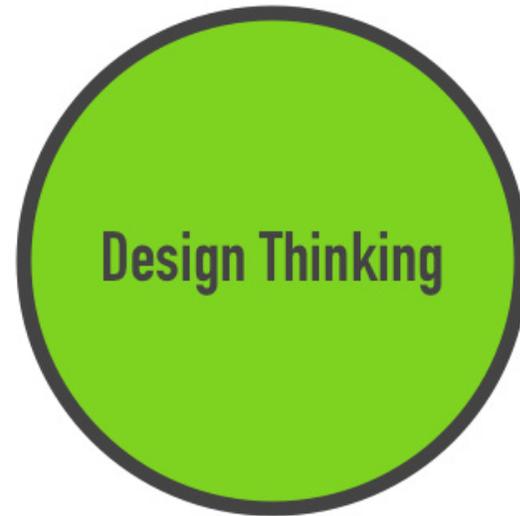
Total Pts Awarded: _____

Maximum Strong 100 pts; Acceptable 80 pts; Unacceptable 60 pts; Weak 40 pts.

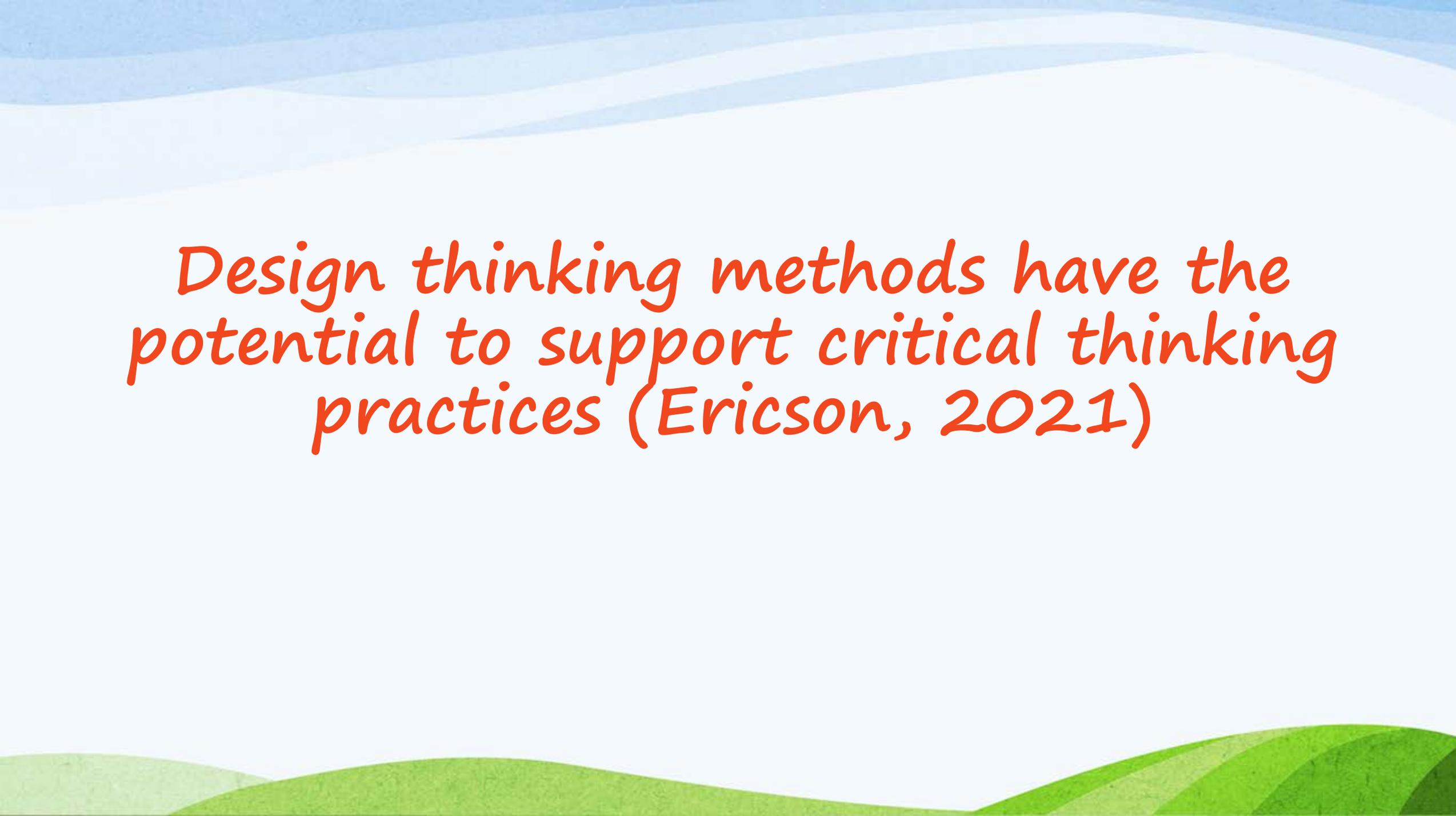
Critical Thinking + Design Thinking



Logical
Quantity matters
Left Brain
Waterfall



Empathy
Insight matters
Right Brain
Agile

The background features a stylized landscape with wavy, layered hills. The top portion consists of light blue and white waves, while the bottom portion consists of green waves. The text is centered in the white space between the blue and green waves.

Design thinking methods have the potential to support critical thinking practices (Ericson, 2021)

*Blending design thinking with
critical thinking fosters innovation
(Turnali, 2016)*

What is Design Thinking for Health?

= a framework to generate innovative solutions through creative problem solving.

Phases of Design Thinking:

1. Empathize
2. Define
3. Ideate
4. Prototype
5. Test

Phases of Design Thinking

1. **Empathize** – with your users.

Gain an empathic understanding of the problem you are trying to solve.

Phases of Design Thinking

2. **Define** – your users' needs, their problems, and your insights.

What is the core problem?

Phases of Design Thinking

3. *Ideate* – by challenging assumptions and creating ideas for innovative solutions.

Start generating ideas
"think outside the box"



Don't Think
Outside The Box
Think Like There Is
NO BOX!

Phases of Design Thinking

4. *Prototype* – start creating solutions

Inexpensive, scaled down version of the product, so you can investigate the problem solutions

Phases of Design Thinking

5. Test – solutions

NURS 1400 Makerspace Projects Clemson Makerday



Brace Yourselves: An Exploration of Wrist Brace Innovation

Group Member Name(s):
Audrey Bowman
Meredith Welsh
Torrey Brown

Number of Objects: 2

Instructor: Dr. Meehan

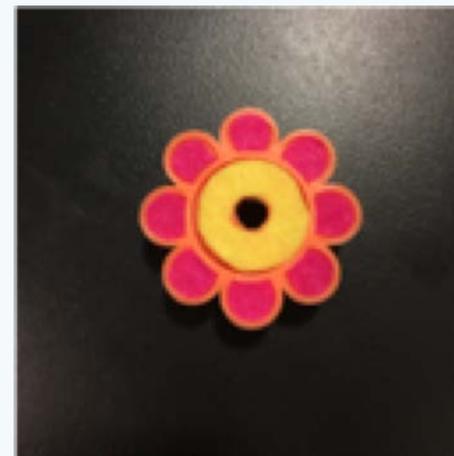


Pediatric Tracheostomy Covers

Group Member Name(s):
Emma Canedo
Megan Holder
Nina Kremser

Number of Objects: 5

Instructor: Dr. Meehan

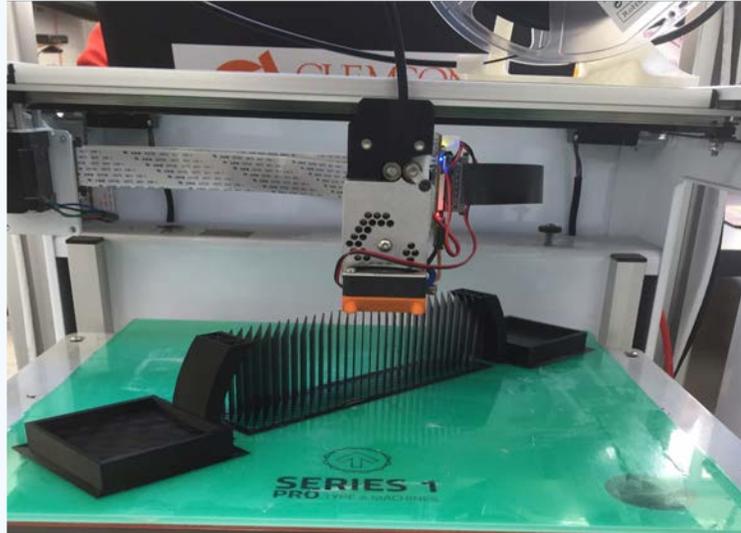


CT Scan Arm Arch

Group Member Name(s):
Anna Corontzes

Number of Objects: 1

Instructor: Dr. Meehan



This arm arch assists weak or injured patients in keeping their arms above their heads during CT scans.

Functional Food Tray

Group Member Name(s):
Kate O'Sullivan
Emily Bryant
Emily Wiley

Number of Objects: 1

Instructor: Dr. Meehan

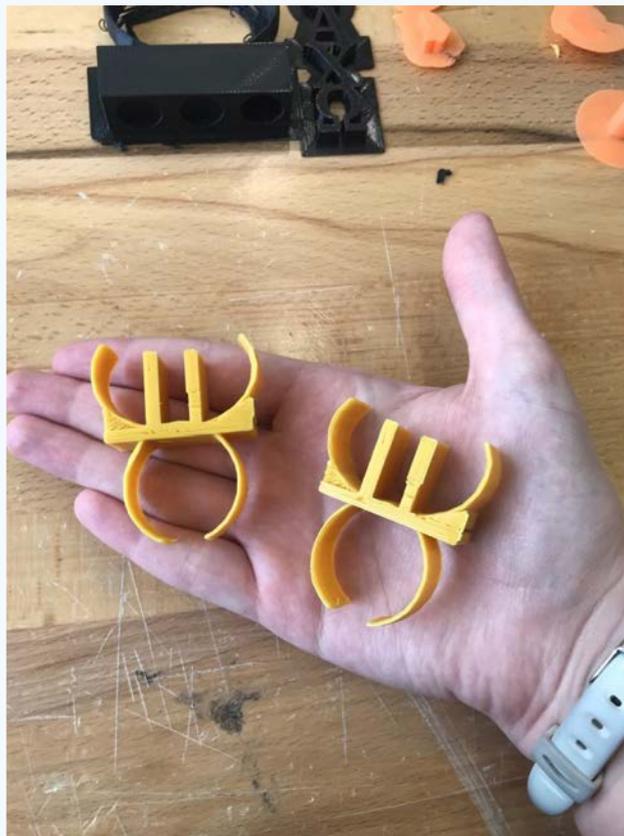


IV Tube Organizer

Group Member Name(s):
Taylor Holmes
Lauren Grandchamp
Mikayla Jenkins

Number of Objects: 1

Instructor: Jason Thrift



Wrist Brace with IV Site

*Group Member Name(s):
Taylor Kneece
Haley Mazzell
Savannah Moody*

Number of Objects: 1

Instructor: Mrs. Seawright



Pediatric Pulse Oximeter cover

Group Member Name(s):
Tallyn Wiggins
Lauren Thomas
Alexus Shedd

Number of Objects: 2

Instructor: Mrs. Lanham



Custom Cane Handles

Group Member Name(s):
Katelyn Sease
Delaney Humphries
Lydia Martzin

Number of Objects: 1

Instructor: Mrs. Seawright



Oxygen Mask with Pacifier

Group Member Name(s):
Morgan Weaver
Murphy Yoxall
Natalie Snyder

Number of Objects: 1

Instructor: Jason Thrift



Remodeled NICU Pacifier

Group Member Name(s):
Bowen Griffith
Mary Margaret Cain
Elizabeth Ray

Number of Objects: 1

Instructor: Dr. Meehan

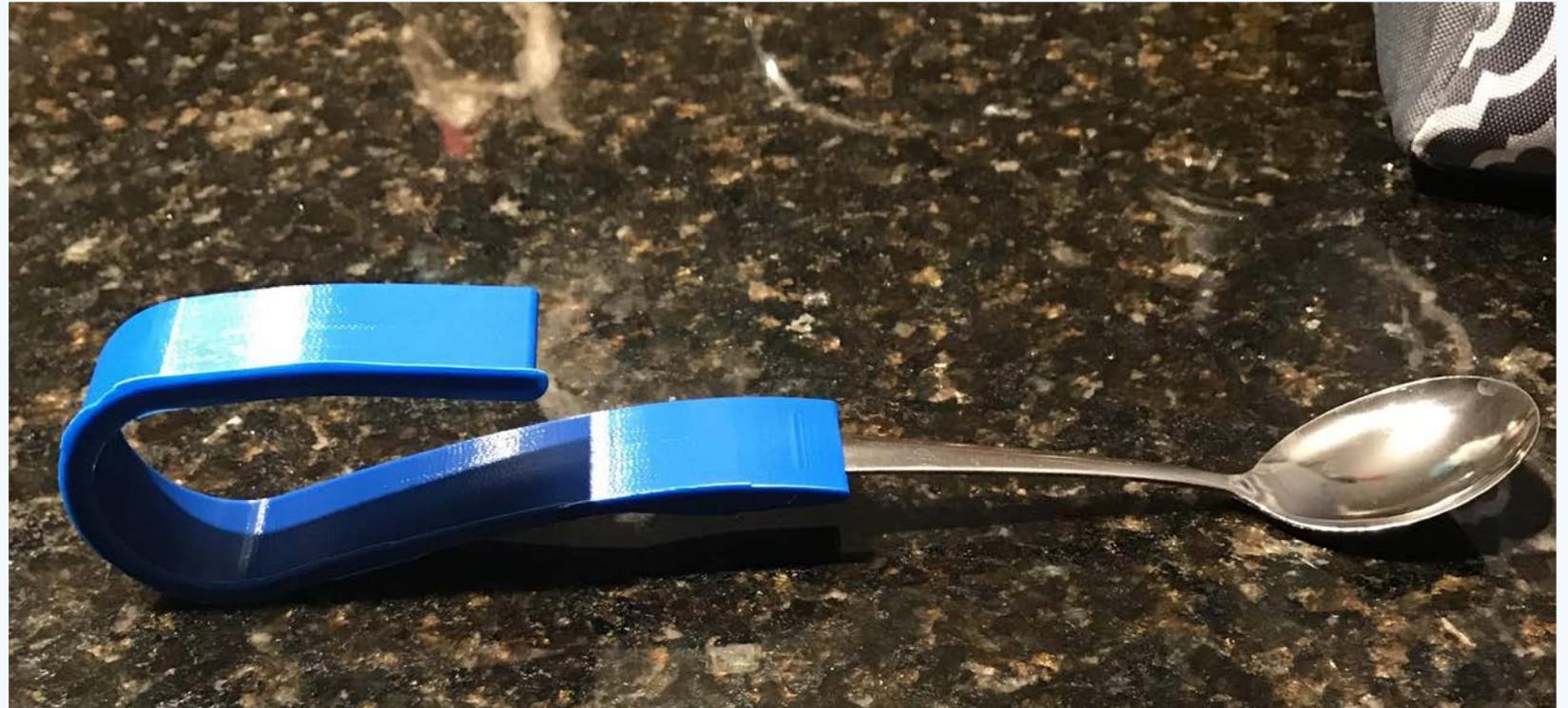


Modified Utensil for ALS Patients

Group Member Name(s):
Carly Berrios
Hannah Hildreth
Jamie Birchmore

Number of Objects: 1

Instructor: Dr. Meehan



Child friendly asthma aerochamber

Group Member Name(s):
Bonnie Brantley
Emily Childers
Allie Hibberts

Number of Objects: 3
pieces (middle with
handles, 2 caps)

Instructor: Dr. Meehan

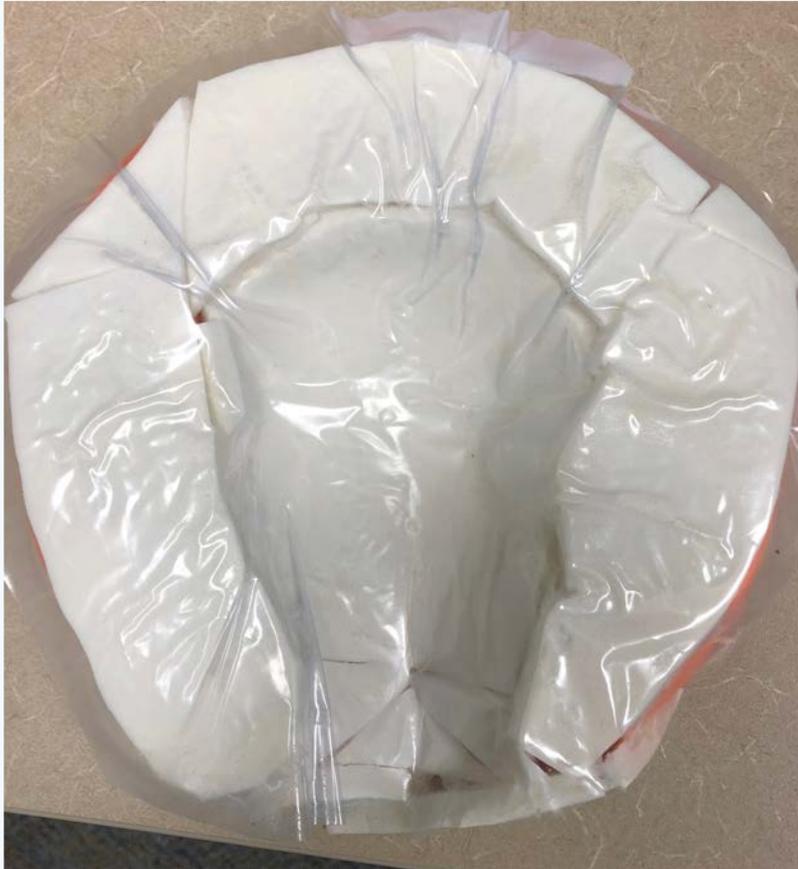


Head Shaper for NICU Infants

Group Member Name(s):
Hailey Connor
Mickenzie Hamilton
Mary Grace Lesesne

Number of Objects: 1

Instructor: Dr. Meehan



Concussion Training Tool

Group Member Name(s):
Chloe Kolb
Clare Buck
Kerry Halliburton

Number of Objects: 1

Instructor: Mrs. Lanham



The background features a stylized landscape with rolling hills. The top portion consists of several layers of light blue and white wavy bands, suggesting a sky or distant mountains. The bottom portion shows rolling green hills in various shades of green, from light to dark, creating a sense of depth and movement.

Diabetes and Patient Education



Medication Nonadherence

*Not 'The End'
Only the Beginning*

