Lesson Plan

Sculpted Systems

Grade- 12th

Objectives

1. Students research a human body system (cardiovascular, neurological, respiratory, skeletal, or muscular) and reinterpret it through sculpture.

2. Sculptures must show scientific reference to the chosen system and also their chosen artist through materials, form, and color.

Materials

Bioart examples
Clay (air dry or kiln dry if you have a kiln)
Paint- appropriate pain or glaze for clay use

Time Requirements

Approximately 5-6 classes

Artist Resources

https://bioart.niaid.nih.gov/	Angela Palmer	Anna Dumitriu	Annie Catrell
Chiharu Shiota	Damien Hirst	Kit Paulson	Nychos
Rogan Brown	Tal Danino		

Writing an artist statement - https://www.saic.edu/sites/default/files/legacy/Artist_Statement.pdf

Currating an exhibition for students- https://theartofeducation.edu/2022/09/sept-how-to-help-students-curate-exhibitions-to-promote-ownership-and-lessen-the-load/

Sculpted Systems

National Core Standards Visual Art:

VisualArt

VA:Cn10.1.IIa Utilize inquiry methods of observation, research, and experimentation to explore unfamiliar subjects through artmaking.	VA:Pr4.1.IIIa -? Critique, justify, and present choices in the process of analyzing, selecting, curating, and presenting artwork for a specific exhibit or event.	VA:Cn11.1.IIIa Appraise the impact of an artist or a group of artists on the beliefs, values, and behaviors of a society.
VA:Cr2.1.IIa Through experimentation, practice, and persistence, demonstrate acquisition of skills and knowledge in a chosen art form.		

Science Standards
Lessons with Standard Alignment

		NGSS	SEP	CCC
1. Introduction & Inspiration	Show examples of anatomical art; discuss how sculpture can communicate science	HS-LS1-2. Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms	using, synthesizing, and developing models to predict and show relationships among variables between systems and their components in the natural and designed world(s).	Systems & System Models Models (e.g., physical, mathematical, computer models) can be used to simulate systems and interactions—including energy, matter, and information flows—within and between systems at different scales.
2. Research Phase	Students research one body system, key organs, functions, and optional system interactions	HS-LS1-2 Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific	Compare, integrate and evaluate sources of information presented in different media or formats (e.g., visually,	Systems & System Models; Models (e.g., physical, mathematical, computer models) can be used to simulate

		functions within multicellular organisms	quantitatively) as well as in words in order to address a scientific question or solve a problem.	systems and interactions—including energy, matter, and information flows—within and between systems at different scales. Structure & Function The functions and properties of natural and designed objects and systems can be inferred from their overall structure, the way their components are shaped and used, and the molecular substructures of its various materials.

3. Planning & Sketching	Sketch preliminary design; plan materials, scale, key features, and how function will be shown	HS-LS1-2 Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms	using, synthesizing, and developing models to predict and show relationships among variables between systems and their components in the natural and designed world(s)	Structure & Function; Models (e.g., physical, mathematical, computer models) can be used to simulate systems and interactions—includin g energy, matter, and information flows—within and between systems at different scales. Systems & System Models The functions and properties of natural and designed objects and systems can be inferred from their overall structure, the way their components are shaped and used, and the molecular substructures of its various materials.
4. Sculpture Creation	Build sculpture focusing on accuracy and reinterpretation	HS-LS1-2 Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms	using, synthesizing, and developing models to predict and show relationships among variables between systems and their components in the natural and designed world(s)	Structure & Function; Models (e.g., physical, mathematical, computer models) can be used to simulate systems and interactions—including energy, matter, and information flows—within and between systems at different scales. Systems & System Models The functions and properties of natural and designed objects and systems can be inferred from their overall structure, the way their components are shaped

				and used, and the molecular substructures of its various materials.
5. Presentation & Peer Critique	Present sculpture; explain system and artistic choices	HS-LS1-2 Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms	Constructing explanations and designing solutions in 9–12 builds on K– 8 experiences and progresses to explanations and designs that are supported by multiple and independent student-generated sources of evidence consistent with scientific ideas, principles, and theories.	Structure & Function The functions and properties of natural and designed objects and systems can be inferred from their overall structure, the way their components are shaped and used, and the molecular substructures of its various materials.
6. Reflection	Write short reflection connecting art-making to scientific understanding	HS-LS1-2 Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms	Make and defend a claim based on evidence about the natural world or the effectiveness of a design solution that reflects scientific knowledge, and student-generated evidence.	Cause & Effect Cause and effect relationships can be suggested and predicted for complex natural and human designed systems by examining what is known about smaller scale mechanisms within the system.

Procedure

Introduction - bioart, body systems

1. Start the lesson by exploring bioart and body systems using the engagement strategy Thinking palette-Parts / Purposes / Complexities. Display body systems for class. Asks students what each system is responsible for, what their parts are. Look at bio artists and specifically those who use human body biology in their work.

Explain the project and hand out rubric to students (sculpture, bio art research, 2 sculpture elements, at least one identifiable feature of body system)
Give students a small piece of clay so they can sculpt a small study based on the example provided.

- Students discuss what the different systems are, what makes them up, and how they are connected
- Students research bioart and its impact, and choose one artist from those provided as inspiration for their sculpture, and choose one body system to sculpt.
- Compile inspiration, and body system they want to reinterpret, and bioart research- submit.

Sculpted Systems

Sculpture elements and initial ideas

2. Teacher displays sculpture examples on board to use as elements of sculpture lesson.

- Students have group discussion identifying sculpture elements they see in the examples.
- Students work on their sculpture sketches. Identify 2 sculpture elements they will use.

3. Small groups of 3-4 provided feedback to each other based on initial sketches and ideas. Students take notes on feedback (this will be collected at the end of the project).
    - solidify sketches based on feedback

Formative assessment- Exit ticket- which 2 elements, which body system, and material. What they are struggling with?

Sculpting (3-4 classes)

4. Provide feedback while students work on sculptures.

Artist Statement and Curating

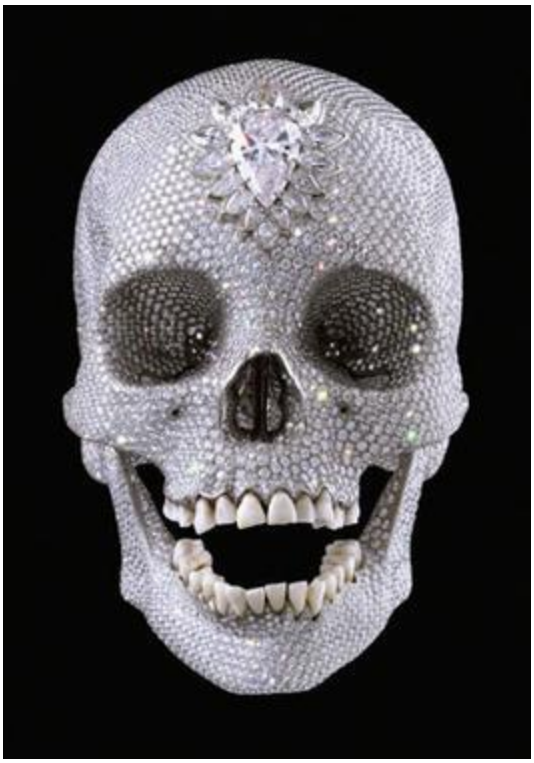
5. Teacher presents how to curate a show and examples of artist statements. Provide a template for statements for students.
    - Students work on their statements- these will be displayed next to their sculpture.
    - Working together, students decide how the sculpture should be arranged around the Room. Give students both Curating Planning sheets

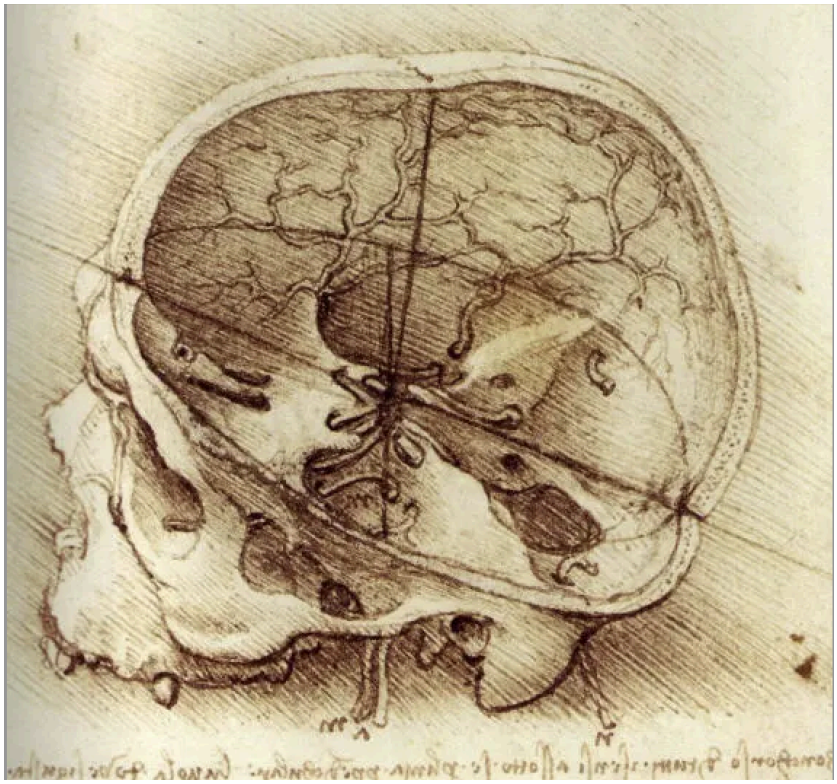
6. Using the agreed upon arrangement students place their works with their now finished artist statements.
    - Present their work to the class, everyone participates in a feedback.
    - Complete self-reflection exit ticket.

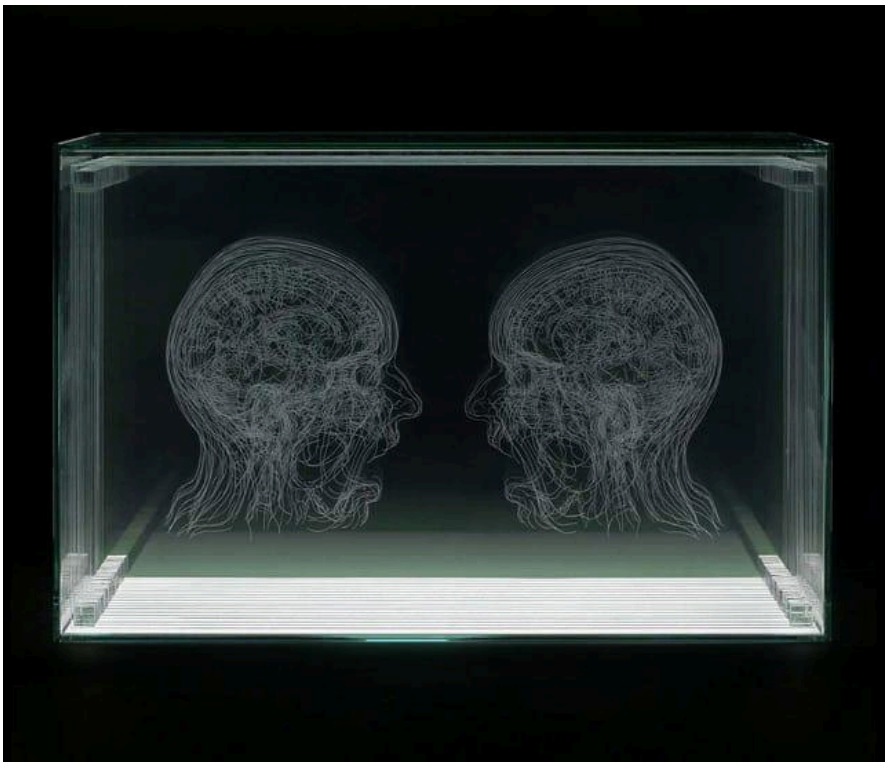
Sculpted Systems

Bioart Examples

Sculpted Systems







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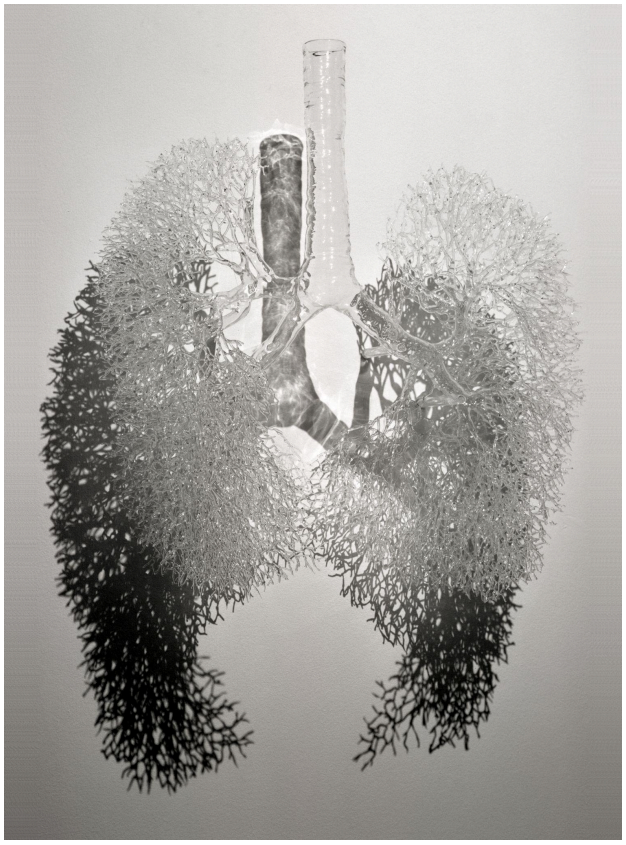

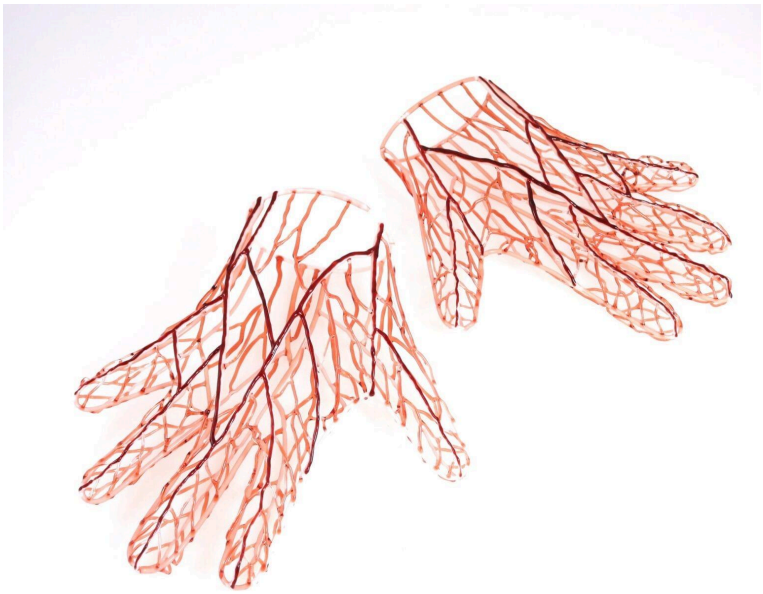

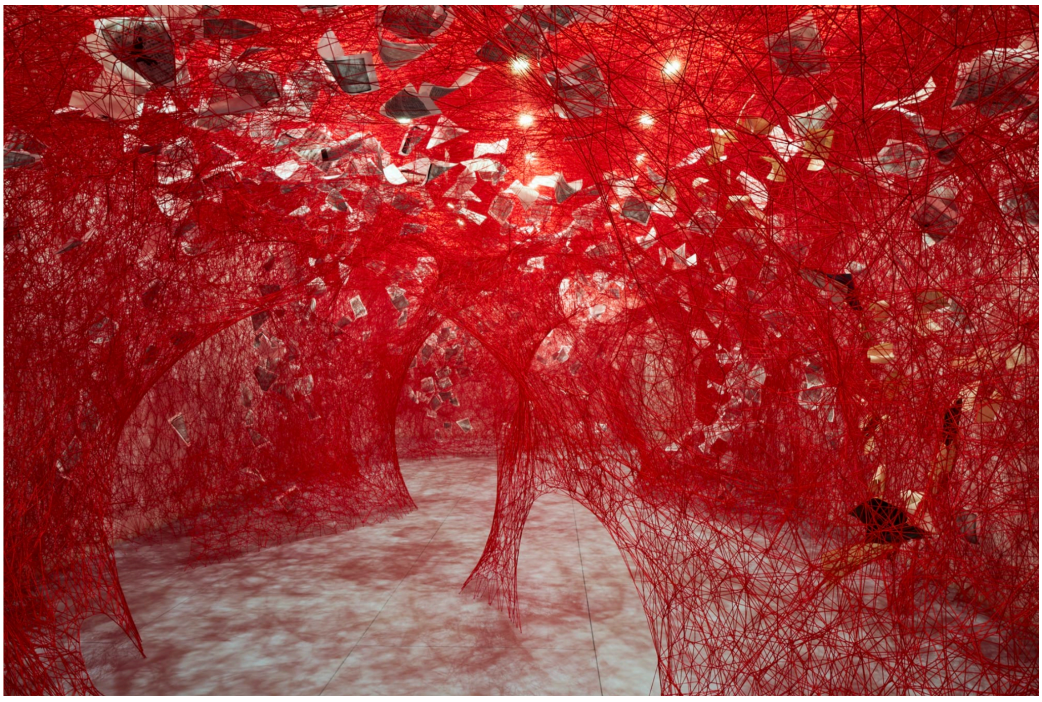

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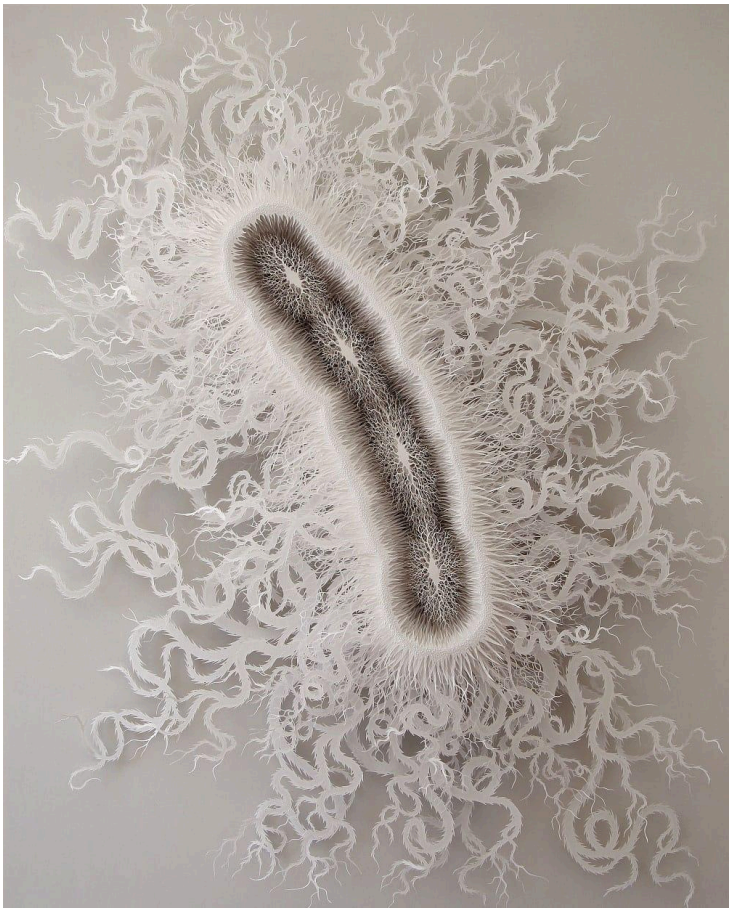

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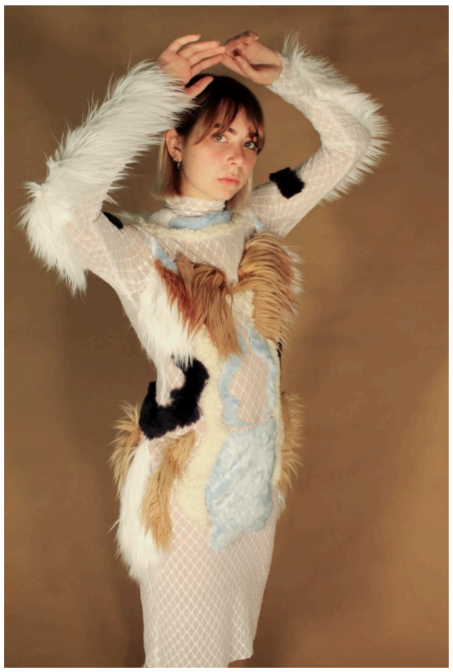


Name -

System Sculpture Planning Worksheet

What is bioart? _____

_____

_____

_____

Body System you're exploring- _____

_____

Key organs, components, and functions _____

_____

_____

Which artist(s) are you drawing inspiration from -

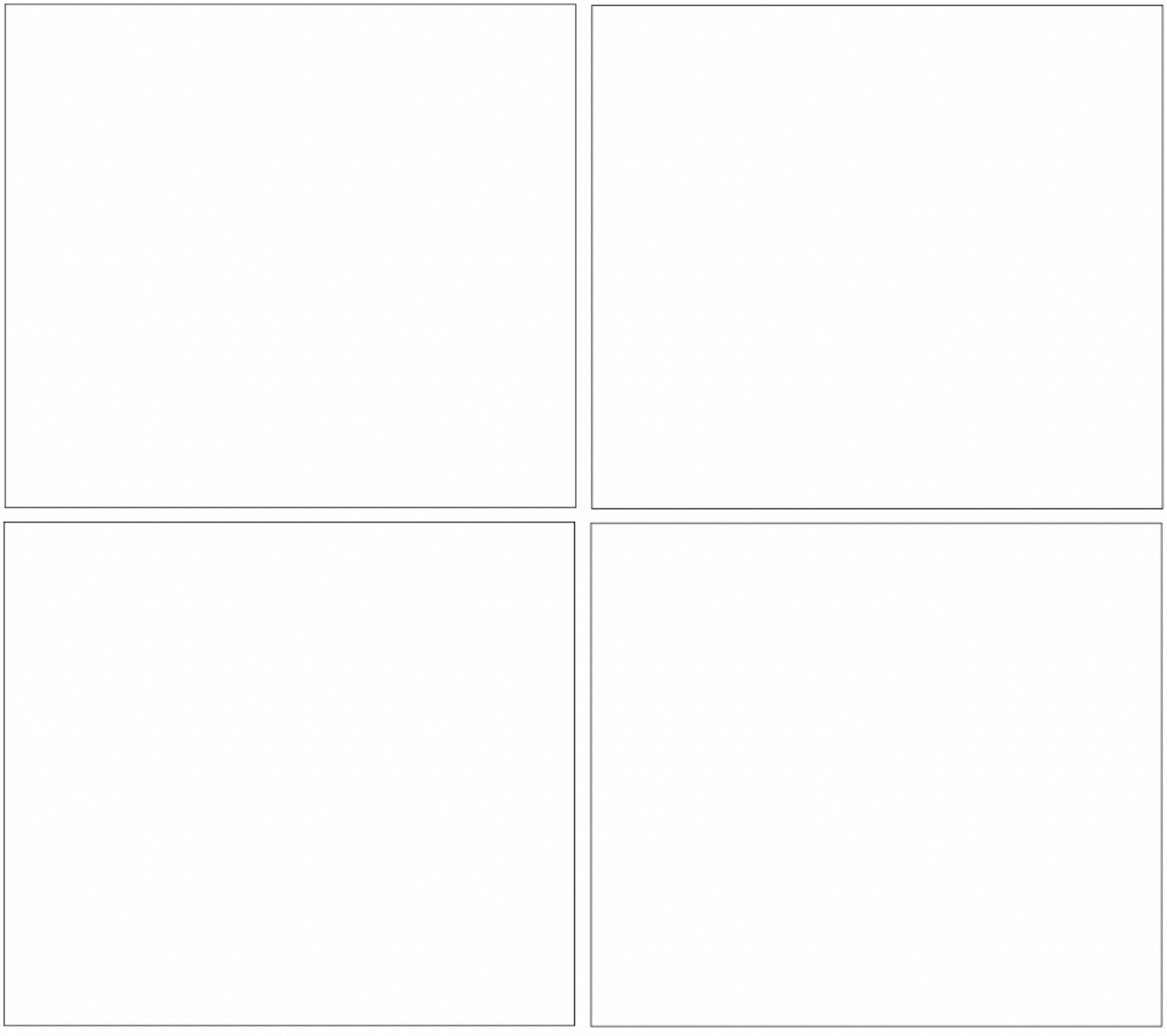
_____

Materials you want to use- _____

_____

_____

System Sculpture sketch ideas



Exit Ticket

PROJECT:		DATE:	

The two art/design elements, besides form, I will focus on for this sculpture are (please circle from each column):

Line	Balance
Shape	Unity
~~Form~~ -Not this one	Variety
Space	Emphasis
Color	Movement
Value	Pattern
Texture	Proportion

What body system are you exploring:

What material do you plan to use to make the sculpture:

Are there any questions or concerns you have for me?:

Sculpted Systems

Elements of Design

Line

An element of design; line is created on a surface with a pointed moving tool. Lines can range in size, width, texture, and presentation. Common types of line are vertical, horizontal, diagonal, zig-zag, and curved.

Ancel E. Nunn, Landscape with Victorian Cottage and Gazebo, 1968, acrylic on panel, 21 inches X 31 inches, Tyler Museum of Art, Tyler, Texas.

Shape

An element of design; shape is a two-dimensional enclosed space that represents either an organic shape or a geometric shape. Geometric shapes include squares, circles, rectangles, triangles and other standard geometric shapes. Organic shapes include natural non-geometric shapes that are developed from curvilinear lines.

Rezalia Cleopatra Thrash, Untitled (Still Life with Dogwood Branch), not dated, oil on canvas, 26 inches X 16.5 inches, Tyler Museum of Art, Tyler, Texas.

Form

An element of design; form is a three-dimensional enclosed space that represents organic and geometric shapes in a third space. Geometric forms include cubes, spheres, triangular prisms, rectangular prisms, and cones. Organic shapes include three-dimensional forms observed in nature, such as trees, rivers, and rocks.

Phillip Wade, Tarot Reading, 1994, acrylic on canvas, 36.25 inches X 42.60, Tyler Museum of Art, Tyler, Texas.

Space

An element of design; this term defines the surface area between, before, and behind an object in a composition.

Billy Hassell, Roadrunners Near Marfa, 2007, oil on canvas, 60 inches X 72 inches, Tyler Museum of Art, Tyler, Texas.

Color

An element of design; this term defines the pigments used in a painting. Color can be organized into categories, such as: hues, values, complements, and intensity.

David Bates, Magnolia and Lemon, 1999, woodcut on Japanese paper with over painting, 32.5 inches X 26.5 inches, Tyler Museum of Art, Tyler, Texas.

Value

Value is a spectrum applied to a hue. The color can have a dark value or a light hue. This process of changing the value is caused by adding white for light hues and black for dark hues.

Margie Crisp, Pastoral, 1997, charcoal on paper, 390 inches X 22.25 inches, Tyler Museum of Art, Tyler, Texas.

Texture

An element of design; this term defines an artwork's surface. The artist's use of the chosen medium creates either implied or actual texture.

Mihailo Vukelic, Interference, 2001, cast bronze relief sculpture, 8 inches X 50 inches, Tyler Museum of Art, Tyler, Texas.

Principles of Design

Balance

A principle of design; this term defines the arrangement of the presented imagery with the elements of design. It refers to either asymmetrical compositions or symmetrical compositions.

Donald S. Vogel, Self Portrait, 1989, oil on panel, 24 inches X 24 inches, Tyler Museum of Art, Tyler, Texas.

Unity

A principle of design; this term defines how the elements and principles of design are combined within a composition.

Jim Stoker, East Texas Sumac, 2005, oil on linen, 35.75 inches X 54 inches, Tyler Museum of Art, Tyler, Texas.

Variety

A principle of design; this term defines the combination of imagery, objects, and ideas in an artwork.

Michael Kennaugh, Twisting Skies, 2006, acrylic, gesso, and graphite on paper, 30 inches X 22 inches, Tyler Museum of Art, Tyler, Texas.

Emphasis

A principle of design; this term defines the most prominent area in a composition. The viewer's eye is drawn to this point because the artist used a mixture of the elements and principles of design.

Dick Wray, Untitled, 1979, oil on canvas, 65 inches X 79.25 inches, Tyler Museum of Art, Tyler, Texas.

Movement

A principle of design; this term defines the visual movement observed in a painting. This can be identified as kinetic movement or implied movement. Additionally, movement can be defined as how the viewer's eye moves throughout the composition.

Liz Ward, Ghost of the Old Mississippi: Baton Rouge to Donaldsonville, 2014, watercolor, gouache, graphite, and collage, 72 inches X 32 inches, Tyler Museum of Art, Tyler, Texas.

Pattern

A principle of design; this term defines the repetitive imagery and elements of design found in a composition.

Vincent Falsetta, Untitled (CL 05-3), 2005, oil on canvas, 60 inches X 60 inches, Tyler Museum of Art, Tyler, Texas.

Proportion

A principle of design; this term defines the comparative size between objects in the composition. It can refer to the imagery within a painting or the size between a sculpture and a real object.

Frank Tolbert, Black Necked Stilt, 2015, oil-stick on paper, 60 inches X 44 inches, Tyler Museum of Art, Tyler, Texas.

Sculpted Systems

Name:

Project reflection

1. How did making a sculpture help you understand your body system better?

2. Which two sculpture elements did you use in your work, and how did they support your idea?

3. How did your chosen bioartist influence your final sculpture?

4. If you could improve your sculpture, what would you change and why?

5. How did curating or presenting your work help you think differently about your sculpture or the subject matter?

Artist Statement Worksheet

Name: _____
Body System Chosen: _____
Bioartist Inspiration: _____

1. Brainstorm / Free Writing

Spend 10–15 minutes writing freely. Don't worry about spelling or structure. Use this space:

What your sculpture is about (ideas, themes):

Why you chose this body system:

Which artist inspired you and how:

Materials and sculptural elements you used:

2. Drafting Your Statement

Paragraph One – Main Idea / Thesis

What is the core idea behind your sculpture? Why did you make this piece?

Paragraph Two – Process, Materials & Influence

Describe the materials or forms you used. How did your chosen bioartist influence your work? Pick one part of your sculpture and explain how it connects to your main idea.

Paragraph Three – Conclusion / Reflection

Tie your ideas together. What might you explore next in this work? How does your sculpture communicate your understanding of the body system?

Curration Planning

Work is small groups to manage the following areas of the exhibition.

Write names in the boxes

Layout planners:

Label Makers:

Public Relations planners:

Reflection & Feedback Coordinators

Curration Planning

Explanation of rolls

Layout planners:

Sketch a floor plan of your exhibition space. Include walls, tables, pedestals, and any special zones.

Think about flow: Where should visitors begin? What will draw them in? How will they move through each “zone”?

Consider sight lines: Will some sculptures block others? Are they visible from different angles?

Decide on placement for the exit ticket / feedback station.

Label Makers:

Write and design titles, system labels, short explanatory tags, and bioartist credit.

Mount lables and artist statements next to work

Public Relations planners:

plan how to introduce the work to the class, other students, or visitors; decide who will lead tours or give mini-talks.

“Press” releases materials and organization

Reflection & Feedback Coordinators

Set up a station where classmates, other students, or visitors can leave comments. Provide:

Sticky notes, comment cards...

Prompt questions , for example “What surprises you about this sculpture?”

Summative Assessment

Summative Assessment- Sculpted Systems Date:			
Criteria	Areas for growth	Meets Expectation	Areas of Strength
Sculpture (40 points)		Sculpture includes at least one clearly identifiable structure of the chosen body system.	
		Shows clear influence from selected bioartist based on research.	
		Incorporates two sculpture elements (form, scale, texture, repetition, balance, etc.) intentionally.	
		Demonstrates solid craftsmanship, stability, and thoughtful material use.	
Artist Statement (20 points)		Accurately explains the body system and its function.	
		Identifies the chosen artist and influence on the sculpture.	
		States the two sculpture elements used and why.	

		Writing is clear, coherent, and complete.	
Curation Participation (15 points)		Contributes reasoning for placement decisions in the exhibition.	
		Collaborates respectfully and participates actively in installation of art.	
Presentation (15 points)		Explains the chosen system and key structures	
		Explains idea and design choices supporting it.	
		Share bioartist influence and how it was incorporated in own work	
		Presented in person to class	
Exit Ticket Reflection (10 points)		Responds thoughtfully to prompts, answers are relevant and address the questions.	

		Completes all required parts of the reflection.	