LESSON PLAN

Student Teacher: Sarah Greer

**Lesson Title: Automata:** Decontextualized Art Automata Sculptures

**Grade Level:** 10-12

**Central Focus (Big Idea):** Students will understand that technology can be incorporated into the art making process by effectively portraying the influence of an artwork via a mechanical sculpture made from cardboard and mixed materials.

**Social Issues / Concepts of the Lesson**

* Emotional Life
* Mental Stability
* Art & Technology
* Personal Connections to Art

Essential Questions:

* What is the importance of learning about technology and its effects on the human experience?
* What are comparisons that can be made between technology and the human being?
* How do youth cultures benefit from understanding how technology has changed over time while examining its impact on their lives?
* How can artists help technology to develop and evolve while also using technology as an art medium?
* How can young artists communicate artistic messages through technology?
* How does the construction of automata appropriating images from Western Canon artists help adolescents examine possibilities for communicating a message linking the historical with the contemporary?

**Day 1**

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| **Time** | **Learning Activities** | **Purpose** |
| 5 Minutes | **Orientation/Engagement/Motivation**: Introductions of the teacher and studentsTeacher will assign 3 groups. Each group will have A,B,&C assigned to each member.**Topic Question:*** *Can someone tell me how technology plays a role in creating art?* (videogames, television, movies, mobile apps)

**Association Questions:*** *What are some forms of technology you use every day?* (cell phones, computers, transportation, video games)

The teacher will write the list on the board* *From some of what the class listed, who can tell me what forms of technology required an artist to create them?* (cell phones, computers, transportation)
* *What can someone tell me about our findings?*(artists are very important in terms of developing technology- they are prevalent everywhere)
 | The teacher and students discover similarities in interestsStudents contribute their ideas and notions about art and technology in relation to the past, present, and future. Students will explore how art and technology coexist in their lives and how art plays a vital role in more places than we realize. |
| 10 minutes | **Presentation/Explicit Instruction**: Teacher will show a PowerPoint while continuing the motivational dialogue. Students will look at the art and express their unique perspective on automata and how art and technology coexist.**Visualization Questions:*** *Who can tell me how the artist, Paul Spooner uses art and technology for his work?* (he uses traditional methods of wood carving and automata technologies to create automatons)
* *What can someone tell me about the process of creating an automata?*(the artist learns through trial and error, the artist must be precise in calculations, the artist must be knowledgeable in art and technology)

The teacher will demonstrate cardboard automata via examples. The students will be encouraged to tinker with the automata.**Demonstration:**1. Students are invited to the table with automata demonstrations
2. The teacher will demonstrate how each automata works via turning the cam mechanism to each
3. The teacher will then ask students to **tinker** with the automata
4. Students will be asked: *What mechanisms do you prefer? What ideas or examples come to mind with these cam systems? Have you experienced using automatons before?*

**Transition Questions:*** Who can tell me what they think I was influenced by in my automata? (Chinese ink drawings)

Why did I choose Chinese ink drawings? I chose them because I find inner peace in viewing traditional Chinese ink drawings.* *Who can give me an example of any artist that has been influenced by classical works?* Let’s explore two examples.
 | Students have an opportunity to experience art and technology coexisting through automata. Students will be exposed to artists that embody the coexistence of art and technology.Students will productively explore a variety of cam systems as well as the cam system that will be used for this project. Students will have the opportunity to understand through **tinkering** how automata function. |
| 5 minutes | **Teacher Demonstration**: The teacher will have students gather and stand around table where teacher safely demonstrates how to cut cardboard.**X-Acto Blade Safety Demonstration**Give students **X-Acto Blade Safety Sheet**1. Teacher will direct students to demonstration table
2. X-Acto safety handout will be handed out
3. Teacher will explain the following safety tips for using an X-Acto
* Always be aware of the position of your hands – you do not want to have anything you do not want cut in the direction of your blade
* Cut in a direction towards you and to the side of the body– you want full control of the blade and you do not want to harm anyone near you
* Never cut away from yourself – it is easy to lose control of the blade and you could ruin your project or even worse, harm yourself or another
* Press down firmly – you may need to make more than one cut to successfully perforate the cardboard
* Follow a straight edge – this will aid in guiding your cut and will serve to prevent injury or mistakes to your work
* Always be sure a cutting board is below the cardboard and where you are cutting – you do not want to injure yourself or harm the surface you are working on
* When you are not using the X-Acto, you must cover the blade with the cap
* Never play or fool around with the X-Acto blade
* Move slowly – rushing your project will result in a higher chance for error or worse, injury
1. Teacher will ask students to demonstrate proper cutting techniques with a pen and pen cap following the instructions above
 | Students will see an example of what they are going to making and understand the expectations of the activity.Students will effectively learn how to safely cut cardboard. Learning how to properly use X-Acto is beneficial for safety as well as an effective tool for efficiently using cardboard as a medium. |
| 15 minutes | **Independent Practice/Application:** The teacher will prompt students to collect materials needed to begin cutting out shapes for the automata.Shapes needed to cut: * 3 10x5” rectangles
* 1 circular cam
* 2 5x5” squares
* 4 triangles (made from 2 1x1” squares)

The teacher will assist students with questions and guide students to safely use X-Acto knives. | Students will have the opportunity to begin developing their automata (for the whole lesson, they will accomplish the task from start to finish).Students will have the opportunity to ask the teacher for clarifications. |
| 5 minutes | **Closure** * *Who can tell me how art and technology coexist in your daily life?* (I use my cell phone every day and artists were needed to design the phone and the apps I use)
* *Who can tell me what it means to be “inspired” by a work of art?* (a piece of art can hold significant meaning to the viewer for a plethora of reasons and some art enacts people for change in either politics, social issues, or daily life)

The teacher will instruct Groups A, B, and C of each group to clean up.After clean up, teacher will hand out Think Sheet #1 and cardboard automata PDF | Students can personally reflect on art and technology coexisting in daily life as well as experience how others interpret art and technology in their lives. Students will also begin to brainstorm how art can be inspiring, allowing them to begin understanding how art influences them in their own personal lives. |

**Day 2**

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| **Time** | **Learning Activities** | **Purpose** |
| 5 Minutes | **Orientation/Engagement/Motivation**: * Good morning, class. *Who can tell me something they learned last week in art class?* (Ex: Paul Spooner creates automata in his workshop and creates themes of comedy)
* *How many of you have thought more about the role of the artist in the technologies you use daily? Who can share an example?* (I noticed the intricate patterns and designs in the interior of my car this morning)

**Topic Question:*** In your groups, I want you to share the artists you researched on your think sheet. Ask eachother to share about one artist on your list and why they are inspirational to you.

**Association Questions:*** *Who can share an example of an artist and a work of their art that they find inspiring? Why is that image inspiring to you?*
 | Students will review the previous lesson as a refresher. Students can further consider the ways art and technology coexist in our lives as well as the lives of others. |
| 20 minutes | **Presentation/Explicit Instruction and Teacher Demonstration**The teacher will prompt students to collect materials needed for automata construction.1:Students will be guided to follow the teacher in a step-by-step process to assemble the base to their automata* Line edges to be flush with one another
* Glue one edge at a time and allow time to dry
* Use a straight edge or ruler for a 90° angle
* Example of a base will be present in each group

**Glue-Gun Safety Tutorial** Give students **Glue Gun Safety Sheet*** Keep the hot glue gun away from flammable materials and use in work areas that are clean and dry.
* Use a wire or metal safety stand to hold the hot glue gun when you are not using it to glue items.
* Never lay a hot glue gun on its side.
* Place a piece of paper or cardboard under the safety stand to catch hot glue drips and prevent damage to the underlying surface.
* Always focus on the gluing task. If you need to look away from gluing, stop using the hot glue gun and place it in the safety stand.
* Do not touch the heated nozzle of a hot glue gun.
* Never point a hot glue-gun nozzle at another person
* Do not tilt a hot glue-gun nozzle upwards or attempt to use a hot glue gun to glue overhead items.
* Never leave a plugged in hot glue gun unattended.
* Skin that comes in contact with hot glue should be immediately plunged into cold water.
* If hot glue contacts an eye, irrigate the eye with cold water and seek medical attention immediately.
* If you are injured by a hot glue gun, notify your project leader, parent, or guardian. Seek medical attention if the injury is serious.

2:Students will be guided to follow the teacher in a step-by step process to develop cams.* Each group will have one cam system example at their table (up and down cam, axle, cam follower)
* Gathering around the demonstration table, students will be asked to create items in unison and will be encouraged to help one another – the class will continue once all are on the same step
* Using cardboard for our cam, we will use a toilet paper roll to serve as our cam border
* Form the “egg shape” with your toilet paper roll
* Use a pencil to trace on cardboard – this will be the inside of the cam frame
* Follow your X-Acto safety sheet and safely cut out your “egg shape”
* Follow your hot glue safety sheet and safely glue your cam frame and cam cardboard cutout as seen in the example on your table
* Use a pen to begin a hole in the center of your cam – this is where you will place your axle (the skewer)
* Place axle in hole
* Create two holes center to the sides of your automata frame
* Place axle in holes
* Tinker to be sure the axle turns
* Create cam follower (skewer, hot glue, bottle cap, pennies)
* Hot glue a bottle cap to pennies and glue skewer (cam follower) to pennies. Use plenty of hot glue to keep attached
* Follow the cam follower example.
* Cut hole in top of frame in middle center
* Insert cam follower
* Use straw as guiding point on top
* Once you are certain the cam works (**tinker!**) remove your cam follower and hot glue the straw on top (follow example)
* After hot glue dries, reinsert cam follower
* Fasten sides of axle (follow example)
* Tinker – ask questions if your cam does not work – work together to troubleshoot
 | Students will follow prompts to create the base and cam alongside peers.Students will have the opportunity to ask questions and obtain clarifications on any step.Students will be guided to learn how to safely use a hot glue gun. This will be critical for students to work independently and safely.Student will be guided as a group in creating their cams. The purpose of this is to be sure all students are working on the same step for two reasons 1: this eases safety issues (such as hot glue stations and X-Acto stations) 2: students will learn to troubleshoot to problem-solve together |
| 10 minutes | **Independent Practice/Application:** Students will continue to develop their cams or assemble their frames. | Students will work independently and/or with the aid of their group (as needed). This allows students to troubleshoot on their own. |
| 5 minutes | **Closure** * *Who can tell me the type of cam we are creating?* (up and down)
* *Who can tell me about their ideas on what they want to be* ***automated*** *on their automaton? Who can provide an idea how their idea might be able to work?* (look at your pdf for guidance)

The teacher will instruct Groups A, B, and C of each group to clean up.After clean up, teacher will hand out Think Sheet #2 | Students will begin to think of how their automata will function and how to incorporate their inspired ideas in their automata. |

**Day 3**

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| **Time** | **Learning Activities** | **Purpose** |
| 3 Minutes | **Orientation/Engagement/Motivation**: * Good morning, class. Today we will focus on finishing creating our automata bases and cams. After they are completed, we will **tinker** with our cams to ensure they are working properly.
* *Who can tell me what I mean by* ***tinker****?* (**Tinker**: the act of experimenting and exploring with new media)
* *Who knows what the elements and principles of art are?* (**hand out vocabulary sheet**) Here is a guide with the definitions of the elements and principles of art. Please use this as a reference later in our lesson.

Let’s continue working | Students will review the previous lesson as a refresher. Students can further consider the ways art and technology coexist in our lives as well as the lives of others. Students will also further explore the importance of **tinkering** when working with technology. |
| 22-32 minutes | **Presentation/Explicit Instruction and Teacher Demonstration**The teacher will prompt students to collect materials needed for automata construction.**Repeat any steps for clarifications and aid students where needed**1:Students will be guided to follow the teacher in a step-by-step process to assemble the base to their automata**Glue-Gun Safety Tutorial**2:Students will be guided to follow the teacher in a step-by step process to develop cams. | Students will follow prompts to create the base and cam alongside peers.Students will have the opportunity to ask questions and obtain clarifications on any step. |
| (Teacher Task during construction and tinkering) | **Independent Practice/Application:** Students will talk one-on-one with the teacher to discuss their concept (using think sheets 1&2).*What is your concept idea?**What elements and principles of design will you incorporate?* (see elements and principles handout)*What artist is influencing you for this piece?* *How will this piece be an inspiration piece to your chosen artist?**What will be the emphasis of your piece?**How will your object move along the cam and axle system?**What materials will you need to accomplish your concept?* | Students will each have an opportunity to discuss their concept ideas with the teacher. This will allow one-on-one feedback to further explore concepts.The teacher will be given the opportunity to ensure students focus to create an inspirational piece, not a replication piece. |
| 5 minutes | **Closure** * Let’s brainstorm items we need as a group to complete this project.
* Teacher will compile a written list

The teacher will instruct Groups A, B, and C of each group to clean up.After clean up, teacher will hand out Think Sheet #3*Who can share with the class how your plan has changed for your automata project?**Who can give me an example of modern technology that requires artists to play a part in the developing process?* (cell phone applications) | Students will finalize ideas through brainstorming – by discussing with their peers, ideas can be solidified. |

**Day 4**

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| **Time** | **Learning Activities** | **Purpose** |
| 7 Minutes | **Orientation/Engagement/Motivation**: * *Who can tell me why art and technology are important?* (they coexist and create many forms of entertainment and objects that surround us)

**Topic Question:*** Let’s get in our groups and talk about Think Sheet #3. Talk with your group about your concept ideas and give feedback to eachother.

**Association Questions:*** *Who would like to share a suggestion someone made for you in your design that would be beneficial? Why is it important to consult for a project such as this?* (it is important to consult others because they may have insight into problems that might arise. It is always helpful to have a “fresh pair of eyes” to give feedback)
 | The students have had an extended break form art class. The beginning of class is centered around bringing the focus back to the art lesson.Working in groups to discuss ideas provides students with feedback from their peers that may assist in troubleshooting. |
| 3 minutes | **Presentation/Explicit Instruction**: Teacher will demonstrate automata examples and explain the conceptual framework to create a functioning and aesthetically pleasing piece.The teacher will express these criteria:* The frame should be painted to cover any printed words or deformities
* The work should function along with the cam
* The piece should look professional on all sides besides the back

*Are there any questions?* | Students will be given the opportunity to learn criteria to focus on while developing their final work.Students will be given the opportunity to ask questions for clarifications. |
| 2 minutes | **Teacher Demonstration**: The teacher will give a brief overview of painting the frame.* Paint in one direction
* We want these to look professional; keep in mind what color would work best for your base; we do not want to see printed words on the cardboard (bat example)
* Clean your brush after use
* Allow sides to dry before continuing on other sides
* Be careful to not get paint on your clothing; acrylic does not come out
* Do not paint on any part that needs to move

**Emphasize to not paint on moving parts – this could ruin the functionality of the work** | Students will get a review on painting application and care of materials. |
| 23 minutes | **Independent Practice/Application:** Students will begin painting their frames with color(s). Color(s) should be appropriate to the theme of the work.The teacher will assist students with questions or aid students in need of additional help with any step in the automata process. | Students will have the opportunity to begin decorating the frameStudents will have the opportunity to ask the teacher for clarifications. |
| 5 minutes | **Closure** * *Who can tell me a challenge they have had to confront while creating the technology aspect to this piece?* (the functioning automata, not the decoration) *Who is excited to continue decorating our automata in our next class? What are your plans for the next step?*
* Please let me know of any additional materials you may need for this project. I will do my best to bring them. You are welcome to bring in your own objects too.

The teacher will instruct Groups A, B, and C of each group to clean up. | Students can personally reflect on challenges and solutions in the technology development portion of this assignment.  |

**Day 5**

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| **Time** | **Learning Activities** | **Purpose** |
| 3 Minutes | **Orientation/Engagement/Motivation**: * Good morning. Let’s get started with our automata project. I want you to have as much time as you need to work today. Please ask me questions if you have any.
 | Students will have the opportunity to ask questions if they are needed. They will be able to utilize more time to work on their automata today. |
| 32 minutes | **Presentation/Explicit Instruction**: The teacher will discuss with each student briefly on their automata and assist in any problems that may arise. The teacher will again express these criteria:* The frame should be painted to cover any printed words or deformities
* The work should function along with the cam
* The piece should look professional on all sides besides the back

*Are there any questions?* | Students will be given the opportunity to review criteria to focus on while developing their final work.Students will be given the opportunity to ask questions for clarifications. |
| 5 minutes | **Closure** * *Who can tell me a challenge they have had to confront today? How was the problem resolved?*
* Please let me know of any additional materials you may need for this project. I will do my best to bring them. You are welcome to bring in your own objects too.

The teacher will instruct Groups A, B, and C of each group to clean up.The teacher will disperse Think Sheet #4 | Students can personally reflect on challenges and solutions in the technology development portion of this assignment.  |

**Day 6**

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| **Time** | **Learning Activities** | **Purpose** |
| 3 Minutes | **Orientation/Engagement/Motivation**: * Good morning. Let’s get started with our automata project. I want you to have as much time as you need to work today. Please ask me questions if you have any.
 | Students will have the opportunity to ask questions if they are needed. They will be able to utilize more time to work on their automata today. |
| 27 minutes | **Presentation/Explicit Instruction**: The teacher will discuss with each student briefly on their automata and assist in any problems that may arise. The teacher will again express these criteria:* The frame should be painted to cover any printed words or deformities
* The work should function along with the cam
* The piece should look professional on all sides besides the back

*Are there any questions?* | Students will be given the opportunity to learn criteria to focus on while developing their final work.Students will be given the opportunity to ask questions for clarifications. |
| 5 minutes | **Clean up**The teacher will instruct Groups A, B, and C of each group to clean up. | N/A |
| 5 minutes | **Closure** The teacher will instruct students to display completed automata alongside each other. Have each student demonstrate their working cam system (if any cams do not function, we can aim for an additional session or find another alternative)* *Who can tell me the elements they used within their automaton that represent your selected artwork that inspired you? Who else would like to share?* (aim to have as many students as time allows for sharing)
* Select a work that has not been discussed*.* *Who can guess what [student] was inspired by for this automata? What elements and principles support your hypothesis?* Ask student who created the work: *Did [student name] guess correctly? What would you like to share about your work?*
* *Using this project, who can explain to me why art and technology are important to teach together? Should there be a stronger emphasis on combining art and technology?*
* You have a world of information at your fingertips. When you transition into high school, you will have more tools at your disposal to create more works with STEAM (explain STEAM: science, technology, engineering, art, mathematics).

The teacher will collect Think Sheet #4 and disperse Think Sheet #5 (a reflection) | Students can personally reflect on challenges and solutions in the technology development portion of this assignment. Students can also share their experiences in developing a work of art that incorporates the use of technology. |