Tiffany Trotter | First Observation

Lesson Plan: Metalsmithing I Title: **Silver Cast Rings** Length: 9 days

Pre-Assessment:
This will need to be done prior to teaching your lesson. Outline the method you will use to determine the skill/knowledge level of your students based on the concepts/enduring understandings/objectives of the lesson. (Hint: turn these into questions.) Be specific in describing what you would recognize as proficient skill/knowledge.

What attributes make a work sculptural?
How can you incorporate the elements and principles of design to enhance your artwork?
What is silver casting?
What differentiates a mass produced and a handmade piece?

Performance:
What will students accomplish as a result of this lesson? This can be presented to students in the form of a story. In this narrative the students take on a role and create a learning product about a specific topic for a certain audience. (RAFT – Role / Audience / Format / Topic)

So today, we are going to exploring techniques that date all the way back to the bronze age over 5000 years ago. One of the things that I want you to keep in mind in how many times this process has probably been used over the past 5000 years. If you partake in this does that mean that you are joining into a tradition? How can what you will design make your art different from anyone else's? How can your composition tell a story about you or something important to you? How can movement bring your artwork into a unique place? These are things that I want you to think about as we explore lost wax silver casting.

Concepts:
List the **big ideas** students will be introduced to in the lesson. These ideas are universal, timeless and transferable. Examples of concepts used in art might include: Composition, Patterns, Technique, Rhythm, Paradox, Influence, Style, Force, Culture, Space/Time/Energy, Line, Law/Rules, Value, Expressions, Emotions, Tradition, Symbol, Movement, Shape, Improvisation, and Observation **Look for concepts in the standards, content specific curriculum, etc.**

Movement and Composition

Enduring Understanding (s):
Enduring Understandings **show a relationship between two or more concepts**; connected with an active verb. The best enduring understandings not only link two or more concepts; but demonstrate why this relationship is important. Like concepts, they are timeless, transferable and universal. **Align Standards, Prepared Graduate Competencies (PGCs) and Grade Level Expectations (GLEs) to Enduring Understandings.**

Art media, techniques and processes work together to create art.
Visual art has context and meaning that can be recognized and critically evaluated.

Standards: (All lessons should address all standards.)
1. Observe and Learn to **Comprehend**
2. Envision and Critique to **Reflect**

3. Invent and Discover to **Create**
4. Relate and Connect to **Transfer**

Objectives/Outcomes/Learning Targets:
Objectives **describe a learning experience** with a **condition → behavior (measurable) → criterion.** Aligned to: Bloom's – Standards – GLEs - Art learning and, when appropriate, Numeracy, Literacy and Technology. **Should be written as:** Objective. (Bloom's: _____ - Standard: _____ - GLE: _____ -Art learning: _____ -Numeracy, Literacy, and/or Technology)

Using art materials, SWBAT build and create their own lost wax casting utilizing 3 of the elements and principles of art and design.
(Bloom's: Create, Standard: Create, GLE: 2, Art Learning: Inherit Characteristics of Art and Design, Technique)

Using art materials, SWBAT refine and professionally finish their silver cast ring utilizing appropriate tools/technology.
(Bloom's: Create, Standard: Create, GLE: 1, Art Learning: Technique and Art and Art History, Technology)

Given class discussion, students will be able to analyze fellow student artwork and defend their reasoning through a class critique/discussion.
(Bloom's: Analyze, Standard: Comprehend, GLE: 3 -Art learning: Reflect and Assess, Literacy)

Given a prompt, SWBAT talk about their artwork utilizing age appropriate vocabulary.
(Bloom's: Apply, Standard: Reflect, GLE: 2, Art Learning: Reflect and Assess, Literacy)

Given oil clay, SWBAT create 3 idea examples that demonstrate deep thinking by utilizing class examples, techniques and the elements and principles of design.
(Bloom's: Create, Standard: Transfer, GLE: 3, Art Learning: Ideation, Literacy)

Differentiation:
Explain <u>specifically</u> how you have addressed the needs of exceptional students at both end of the skill and cognitive scale. Describe the strategies you will use for students who are already proficient and need growth beyond what you have planned for the rest of the class, as well as modifications for students with physical and/or cognitive challenges. **Students must still meet the objectives**.

Differentiation: (Multiple means for students to access content and multiple modes for student to express understanding.)	**Access** (Resources and/or Process)	**Expression** (Products and/or Performance)
	Individual Discussion	Writing about it Talking about it
Extensions for depth and complexity:	**Access** (Resources and/or Process)	**Expression** (Products and/or Performance)
	Individual Discussion	Talk about further demonstration of details/depth of knowledge

Literacy:
List terms (vocabulary) specific to the topic that students will be introduced to in the lesson **and describe how literacy is integrated into the lesson.**

Class Discussion
Class Critique
Vocabulary: Elements and Principles of Art and Design, Silver Casting, Lost Wax Casting, Certridge, Flex Shaft, Dental Tools,

Materials:
Must be grade level appropriate. **List** everything you will need for this lesson, including art supplies and tools. (These are the materials students will use.) **List all materials in a bulleted format.**

Sheet wax
Purple wax
Blue wax
Sticky wax
Dental Tools
Oil Clay
Alcohol burning lamp
Torch
Flex Shaft
Centrifuge
Polishing Machine
Soap
Hot Water
Silver
Files
Soft paint brushes
Cups
Black Paper
Jar

Resources:
List all visual aids and reference material (books, slides, posters, etc. Be specific; include title, artist, etc. **Make reference to where the material can be found.** (These are the resources used by the teacher to support/develop the lesson.) **List all resources in a bulleted format.**

Powerpoint
Daily Images

Preparation:
What do you need to prepare for this experience? **List steps of preparation in a bulleted format.**

Prepare Powerpoint
Prepare Daily Images
Prepare oil clay examples
Prepare wax examples

Prepare cast silver examples

Safety:
Be specific about the safety procedures that need to be addressed with students. **List all safety issue in a bulleted format.**

Don't eat materials
Use finger gloves and goggles when using polish machine
Use goggles when using flex machine
Pull hair back and hold away from the body when lighting and using the torch

Action to motivate/Inquiry Questions:
Describe how you will begin the lesson to **stimulate student's interest**. How will you pique their curiosity and make them interested and excited about the lesson? **What inquiry questions will you pose?** Be specific about what **you will say and do** to motivate students and get them thinking and ready to participate. Be aware of the varying range of learning styles/intelligences of your students. Some ideas might include: telling a story, posing a series of questions, role-playing, etc.

So today, we are going to exploring techniques that date all the way back to the bronze age over 5000 years ago. One of the things that I want you to keep in mind in how many times this process has probably been used over the past 5000 years. If you partake in this does that mean that you are joining into a tradition? How can what you will design make your art different from anyone else's? How can your composition tell a story about you or something important to you? How can movement bring your artwork into a unique place? These are things that I want you to think about as we explore lost wax silver casting.

Ideation/Inquiry:
Ideation is the creative process of generating, developing, and communicating new ideas, where an idea is understood as a basic element of thought that can be visual, concrete or abstract. List and describe inquiry questions *and* processes you will engage students in to help them develop ideas and plans for their artwork.

So today, we are going to exploring techniques that date all the way back to the bronze age over 5000 years ago. One of the things that I want you to keep in mind in how many times this process has probably been used over the past 5000 years. If you partake in this does that mean that you are joining into a tradition? How can what you will design make your art different from anyone else's? How can your composition tell a story about you or something important to you? How can movement bring your artwork into a unique place? These are things that I want you to think about as we explore lost wax silver casting.

Instruction:
Give a detailed account **(in bulleted form)** of **what** you will teach. **Be sure to include approximate time for each activity and instructional methodology: skills, lecture, inquiry, etc.** Include motivation and ideation/inquiry where appropriate; including what student will understand as a result of the art experience

Day 1			**Time**
	Welcome back! Today we are going to be starting a new project where you'll be utilizing techniques that have been around for thousands of years!		**2 minutes**
	We are going to be casting a ring out of silver through a process known as 'lost wax casting'. The earliest examples of lost wax casting were found 3700 B.C. in the Cave of Treasures in southern Israel. Who can tell me where Israel is on this map? Great! Israel is a sovereign state of Western Asia located on the coast of the Mediterranean Sea, between Egypt, Jordan, Lebanon and Syria.	Ideation	**2 minutes**
	Lost wax casting is a technique that has been used by artists for thousands of years and can be used for more than just silver, you can also cast gold, brass or bronze using this method. There are multiple variations to this process but for our purposes you will first be making 3 examples out of wax. Because this project is so 3dimensional we won't be doing sketches but rather you will come up with three ideas and make them out of oil clay, which I'll talk about later.	Developing insight into the artistic process	**7 minutes**
	(Powerpoint) For this project I want you guys to really think about how you can make this wearable, sculptural and unique. When we actually cast your rings you'll end up with about $15 worth of silver so think about how you can really make this special. Show examples from the powerpoint and point out sculptural elements, movement, etc.	Clarifying and analyzing the meaning of words and phrases	**2 minutes**
	(Activity) Get into groups of four and chose one person to come and grab a slip of paper out of the jar. Each slip of paper has an element or principle of design listed on it. Your challenge is for your group to come up with one design that showcases your element or principle. You will have 9 minutes to come up with a design and sculpt it out of the oil wax. After 9 minutes we will have a short group discussion of each piece. During this discussion the makers must remain silent and everyone else must state what they think is successful or not and what the element being showcased is. We will determine the	Developing insight into the artistic process/Studio Habits	**4 minutes**

	winner by anonymous vote for the most successful piece. Let me tell you a little about the oil clay. (Show oil clay and oil clay example) Oil clay is a little different than the clay you have probably seen and are used to working with. The clay minerals used to make clay are bound together with oil rather than water and because the oil does not evaporate the way water does, oil clay does not dry out. That means that you can keep working with it for as long as you like. When you first get the clay it will be a little hard but once you start working with it, it will warm up and be really soft and easy to sculpt. Now that you have all the information you need the challenge will begin in 3….2…..1! Group Discussion Vote Congratulations to the winners! You will receive a few extra points towards your next project. Dismiss!	Analyzing and Evaluating the meaning Evaluating and analyzing actions	**9 minutes** **17 minutes** **4 minutes**

Day 2	Welcome back, today we are going to continue working on our silver cast rings. How can remind me where the first examples of lost wax casting was found and how old those examples are estimated to be? Great! Remember that you need to make 3 rings out of clay as your sketches. (Two image examples: One good, One bad) Before I release you for work time I wanted to share a quick image with you. I think that this example showcase some of those elements and principles of design that we talk about in order to make a really sculptural and unique piece. This second example is what I don't want you to do, who can guess why? It's plain, boring, looks like something you can buy in a store. Remember that you want this to be unique and special and utilizing those elements and principles can help you do that. Work Time. Clean Up. Dismiss.	Ideation Clarifying and analyzing the meaning of words and phrases Studio Habits	**2 minutes** **5 minutes** **35 minutes** **5 minutes**

Day 3	Welcome back into the art room! Today we are going to be talking about the next step in your silver casting project: the wax. The next stage is going to be carving your wax. (Demo, pass around examples) When you have selected which of your clay rings you would like to cast in silver you are going to need some tools. You'll need a glass burner lamp, dental tools and wax. The glass burners are located in the furthest left bottom drawer. When you go to grab one make sure that there is alcohol inside, if not bring it to me and I'll refill it. Inside the lamp is very flammable alcohol so be careful to not spill it or get any on yourself. When you're ready to light the wick just go over to the touches and use a small flame. We have four types of wax we can use for carving the first is sheet wax. There are a couple of really cool things about working with sheet wax, one, it's kind of see through which means if you want to draw your design out first you can trace it onto your wax to help you get some precision when you carve. The second cool thing is that it's really light. Your wax ring can only weigh up to 1.2 grams any heavier. Keeping it at or under 1.2 grams allows us to have enough silver for everyone and it ensures that your ring is not too heavy to wear. You can also layer pieces and carve into that top layer. You'll grab your dental tool and hold it over the flame to get it hot and then you can carve right into your wax. In order to get two pieces of wax to stick together we come to our second type of wax, sticky wax. Sticky wax comes in these tubes like hot glue sticks and you can think of it like glue for wax. Again you'll hear your dental tool then you use it to scrape the end of your sticky wax. You'll notice that you'll end up with a little bubble of wax on your dental tool and you can apply that to one of your pieces then adhere it to your second piece. What you'll notice now is that you'll end up with a little bubble of wax, you want to heat your tool and kind of smooth that out otherwise you'll have that bubble when it's cast. The casting process picks up an incredible amount of detail which is great for textures; keep that in mind as you're working. The third type of wax is called purple wax, because obviously it's purple. The nice thing	Ideation/ Clarifying and analyzing the meaning of words and phrases	**2 minutes** **17 minutes**

	about purple wax is that you can get some great texture and you can get really creative in your carving. However, keep that 1.2 grams in mind because purple ax gets heavy very quickly. Finally the fourth type of wax is this blue wax that comes in these strips. This wax is great to create the band of your ring, there is one that is shaped like a half circle. This one is very comfortable to wear and most rings that you buy has a band in this shape. This wax can also be woven together to create a really interesting braided band and you can layer it on the sheet wax to create some depth with a pattern or design. You can also use sheet wax as a band although you'll probably want to layer at least two pieces together so that it will be sturdy enough to wear. The rest of class time is yours to work. Clean up. Dismiss.	Studio Habits	**23 minutes** **5 minutes**

Day 4	Welcome back! Today we'll continue working on creating your clay and wax rings but before we start working I wanted to show you another example and talk to you about what's next. (Show images, talk about positive aspects, elements and principles) Once you're done with your wax ring you will bring it to me and I will do the casting process for you. I cast about four rings at a time and I take your rings and I calculate the weight to figure out exactly how much silver I need. Next I attach your rings to a wax tree and what this does is it serves as a path for the silver to get to your ring. Then I place the tree into a coffee can looking tube and pore plaster inside. The plaster will then set around the tree and your rings and I will place the plaster mold into a burn out kiln. The burnout kiln will then fire up to about 3000 degrees and melt all of the wax out leaving an impression where your ring was. Next the plaster mold is placed into a centrifuge which is shaped like a larger circle. I then drank the centrifuge and lock it into place. Then I place the silver into its compartment and heat the silver to its melting point. Once I've done that I release the lock and the centrifuge spins and shoots the silver into the mold creating your ring. Pretty cool process! The rest of the time is yours to work when you're done with your wax model bring it to me and I will prep it for the next step. Clean Up and Dismiss.	Ideation Clarifying and analyzing the meaning of words and phrases Studio Habits	**2 minutes** **12 minutes** **28 minutes** **5 minutes**

Day 5	Welcome back, today we are going to continue working on our silver cast rings. (Two image examples: One good, One bad) Before I release you for work time I wanted to share a quick image with you. I think that this example showcase some of those elements and principles of design that we talk about in order to make a really sculptural and unique piece. This second example is what I don't want you to do, who can guess why? It's plain, boring, looks like something you can buy in a store. Remember that you want this to be unique and special and utilizing those elements and principles can help you do that. Work Time. Clean Up. Dismiss.	Ideation / Clarifying and analyzing the meaning of words and phrases Studio Habits	**5 minutes** **35 minutes** **5 minutes**

Day 6	Good morning everyone! Since today is a block day and we have a nice big chunk of time together we're going to do a few things. First, I want to give you a quick preview into our next and final project. I know it's crazy but the school year is wrapping up quickly so it's time to start thinking about it. Our final project is called the 'Creative Cuff' project. For this project you will be creating a bracelet that shows off all the skills you've learned so far. This project is wide open, you can sauder, create a stone inlay, etc. To get us thinking about the next project we're going to do a quick reflection. Look at the different cuffs on the board and think about what makes these cuff untraditional. A cuff is a type of bracelet that is one solid piece usually open on one side so that you can put it on. If you were to see one of these in the store how does the ones in this picture differ from the one of the shelf? (Writing time for reflection) (Powerpoint) What did you guys think? What made these nontraditional? Special? Unique? In each of these cuffs they are utilizing found objects. In this example we can see paper being inlay, in another they are utilizing dental floss, etc. Utilizing these other objects adds more interest to the piece and makes them unique. Now as you are getting your cast rings back let's talk about what you'll do to professionally finish them. The first thing is that you'll use the tools in your box to file down any rough, sharp or harsh edges. Next you'll go over the the polishing machine and use both sides to get a nice smooth shiny finish. When you're done you'll probably find that there are little tin areas that you can't get to with the polishing machine and we have another machine for that called a flex shaft. Now the flex shaft will not work if you try to polish your whole piece with it, it really is designed to hit just those tiny areas. When you come over to the flex shaft you'll notice the pedal on the floor which is used to turn the machine on, however there are a few things you need to do before that. First you'll make sure that the switch on the main box says forward, you don't want it spinning backwards. Then you'll make sure you have the right size bit. All the bits are here next to the machine in	Ideation Clarifying and analyzing the meaning of words and phrases Developing insight into artist practice	**3 minutes** **7 minutes** **3 minutes** **10 minutes**

	the blue holders. To change the bit you'll grab this little wrench which is here with the bit and you'll line it up to the handle. Once you've lined it up you'll turn it horizontally to open the front and you can insert and new bit and turn the wrench back horizontally. When you're ready to start polishing you'll push the pedal all the way to the floor because it works best going at full speed. So let's take a little break from me talking and get some work time in. Let's say 10 minutes and I'll show you the last thing I have for you. Alright, if I can grab your attention for another few minutes I'm going to show you the last step that you can use to finish your project. Let's gather at this table. This is called Liver of sulfur and its a chemical component that reacts when it comes into contact with silver. When using the casting process sometimes you'll get little areas where there are imperfections and the liver of sulfur allows you to cover those areas by making them darker. You can also create contrast and allow some areas to stand out by making areas around them darker. Before you begin you'll want to wash your piece really well with hot water and soap. You want your piece to be clean so that the liver of sulfur can make direct contact with the silver and you'll get the right reaction. Then you'll want to get a cup of hot water and a soft brush. First you want to dip your brush in the water and apply it to the areas where you want it to be darker. Then you'll get your liver of sulfur, you only need a little, usually I'll just use what's in the lid and apply it on top of your hot water. The hot water activates the liver of sulfer and it also helps to dry properly. Depending on how many layers you apply your piece will range in color, the first layer can look a little like a golden purple and with more layers it changes to a deep deep black. After you apply your first layer and wait a few minutes for it to dry before you apply another layer. Once this is applied it is difficult to get off, you'd really have to scrape it to get it off however if you make a mistake we can polish to get it off. That's all I have for you so the rest of class is work time. Enjoy.	Studio Habits Developing insight into artist practice Evaluating and analyzing actions.	**10 minutes** **2 minutes** **8 minutes** **22 minutes** **5 minutes**

	Clean Up and Dismiss.	Studio Habits	

Day 7	Welcome back, today we are going to continue working on our silver cast rings. (Several image examples of finishing) Before I release you for work time I wanted to share some images with you. (Discussion) Remember that you want this to be unique and special and utilizing those elements and principles can help you do that. Work Time. Clean Up. Dismiss.	Ideation Studio Habits	**5 minutes** **37 minutes** **5 minutes**

Day 8	Welcome back, today we are going to continue working on our silver cast rings. (Several image examples) Before we start working we're going to do a quick reflection. On the board I have several pictures of silver cast rings. I want you to choose one, identify which element and/or principle of design is most prominent. At least one aspect that is successful and unsuccessful. And why you chose that piece. Once your done the rest of the day is work time. Be sure to have your artist statement ready to turn in with your work next class. I have the prompts for the artist statement on the board. Remember these are not a bullet list for you to answer I'm expecting a well written paragraph; you can choose to use my prompts or not. Remember that today is your last full day to finish and tomorrow we'll have critique. Work Time. Clean Up. Dismiss.	**Ideation** Clarifying and analyzing the meaning of words and phrases Studio Habits	**2 minutes** **4 minutes** **35 minutes** **5 minutes**

Day 9	Welcome back everyone! Your pieces are looking wonderful and I'm excited to hear our discussion. Let's take the first 10 minutes to get ready to start critique. If you have any finishing touches, use this time for that. Also go ahead and grab a nice black piece of paper to place your piece on top of and grab a slip from the jar to decide the order in which we'll go around the room. Place the number next to your piece. Alright let's go ahead and get started. First up is number 1 everyone go ahead and get a look at number one and then whoever has number two will go ahead and give some feedback. Start off my saying one thing you think they could have done differently or changed that would have made their piece better and then say one thing you really enjoy. Then we'll open it up for people to agree or disagree. The artist will wait till we're all done and then they can say a few words. We only have 2 minutes for each person so be quick. Critique. Clean Up and dismiss.	**Ideation** Clarifying and analyzing the meaning of words and phrases Evaluating and analyzing actions Developing insight into artist practice Studio Habits	**2 minutes** **3 minutes** **36 minutes** **5 minutes**

Student reflective/inquiry activity: Sample questions and activities (i.e. games, gallery walk, artist statement, interview) intended to promote deeper thinking, reflection and refined understandings precisely related to the grade level expectations. How will students reflect on their learning? A participatory activity that includes students in finding meaning, inquiring about materials and techniques and reflecting about their experience as it relates to objectives, standards and grade level expectations of the lesson.)
Critique: Go ahead and grab a nice black piece of paper to place your piece on top of and grab a slip from the jar to decide the order in which we'll go around the room. Place the number next to your piece. Alright let's go ahead and get started. First up is number 1 everyone go ahead and get a look at number one and then whoever has number two will go ahead and give some feedback. Start off my saying one thing you think they could have done differently or changed that would have made their piece better and then say one thing you really enjoy. Then we'll open it up for people to agree or disagree. The artist will wait till we're all done and then they can say a few words. We only have 2 minutes for each person so be quick.

Post-Assessment (teacher-centered/objectives as questions): Have students achieved the objectives and grade level expectations specified in your lesson plan?	**Post-Assessment Instrument:** How well have students achieved the objectives and grade level expectations specified in your lesson plan? Include your rubric, checklist, rating scale, etc.
Using art materials, SWBAT build and create their own lost wax casting utilizing 3 of the elements and principles of art and design. Using art materials, SWBAT refine and professionally finish their silver cast ring utilizing appropriate tools/technology. Given class discussion, students will be able to analyze fellow student artwork and defend their reasoning through a class critique/discussion. Given a prompt, SWBAT talk about their artwork utilizing age appropriate vocabulary. Given oil clay, SWBAT create 3 idea examples that demonstrate deep thinking by utilizing class examples, techniques and the elements and principles of design.	

Appendix: Include all handouts, prompts, written materials, rubrics, etc. that will be given to students.