



Auburn School District #408

Jewelry/Metal Sculpture 1 and 2

Course: Jewelry/Small Metal Sculpture 1 and 2		Total Framework Hours up to: 180
CIP Code: 500713	<input checked="" type="checkbox"/> Exploratory <input type="checkbox"/> Preparatory	Date Last Modified: 6/12/2016
Career Cluster: Art, Audio/Video Technology, and Communications		Cluster Pathway: Visual Arts

Unit Outline Hours

Unit 1: Elements of Art and Principles of Design	20
Unit 2: Safety & Tool Usage	20
Unit 3: Sawing and Filing	25
Unit 4: Hot and Cold Connections	20
Unit 5: Metal Finishes and Finishing	25
Unit 6: Casting	30
Unit 7: Leadership	20
Unit 8: Stone Setting	<u>20</u>
Total Hours	<u>180</u>

UNIT 1 ELEMENTS OF ART AND PRINCIPLES OF DESIGN

Performance Assessments: Student will be able to identify and intentionally use the Elements of Art and Principles of Design to appreciate and create a work of metal art. Students will complete written reflections after completing project that demonstrates their understanding of Elements of Art and Principles of Design.

- Lost Wax Casting
- Wire Experiments
- Animal Totem Keychain
- Pierced Cuff Bracelet
- Soldered Band Ring
- Resin Frame Pendant or Keychain
- Prong/Dome Project
- Metal Flower
- Swivel Locket
- Sweat Solder Project
- Bezel Set Pendant or Ring
- Staff Commission Project

Leadership Alignment: Leadership activity embedded in curriculum and instruction. (Examples: CTSO project or activity, locally developed leadership project or activity, embedded 21st Century interdisciplinary theme activity such as global awareness, financial, economic, business & entrepreneurial literacy, civic literacy, health & safety, environmental literacy)

1. A.1 Use a wide range of idea creation techniques (such as brainstorming).
2. A.1 Use various types of reasoning (inductive, deductive, etc.) as appropriate to the situation.
4. B.1 Use information accurately and creatively for the issue or problem at hand.

Students will practice creative thinking, problem solving, and innovation to develop designs that incorporate the Elements of Art and Principles of Design.

Students demonstrate communication skills by listening effectively and following direction. Students will complete a written reflection at the end of assignments where they will evaluate what Elements of Art and Principles of Design have been incorporated into their project.

Standards and Competencies

Standard/Unit: Elements of Art and Principles of Design

Competencies

Total Learning Hours for Unit: 20

- Students can identify, describe, and evaluate the design of a piece of metal art using the Elements of Art and Principles of Design
- Students can design or draw metal art which purposefully shows Elements of Art and Principles of Design
- Students can select, organize, and execute Elements of Art and Principles of Design to create a successful work of metal art

Aligned Washington State Standards

Arts	<p>1.1 Understands and applies visual arts concepts and vocabulary.</p> <p>2.1 Applies a creative process to visual arts. (Identifies, explores, gathers, interprets, uses, implements, reflects, refines, and presents)</p> <p>4.5 Understands how arts knowledge and skills are used in the world of work, including careers in the arts.</p>
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Educational Technology	
Health and Fitness	
Math-Common Core State Standards	
Reading-Common Core State Standards	RST-4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context RL-4 Determine the meaning of words and phrases as they are used in the text, including figurative and connotative meanings; analyze the cumulative impact of specific word choices on meaning and tone
Science	
Social Studies	
Speaking and Listening-Common Core State Standards	
Writing-Common Core State Standards	W 10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

UNIT 2 SAFETY AND TOOL USAGE

Performance Assessments:

Assessments include, but are not limited to:

- Day-to-day teacher observations of safe and correct tool use
- Teacher observation of active vocabulary use
- Written reflections after project completions
- Safety tests
- Lost Wax Casting
- Wire Experiments
- Animal Totem Keychain
- Pierced Cuff Bracelet
- Soldered Band Ring
- Resin Frame Pendant or Keychain
- Prong/Dome Project
- Metal Flower
- Swivel Locket
- Sweat Solder Project
- Bezel Set Pendant or Ring
- Staff Commission Project

Leadership Alignment: Leadership activity embedded in curriculum and instruction. (Examples: CTSO project or activity, locally developed leadership project or activity, embedded 21st Century interdisciplinary theme activity such as global awareness, financial, economic, business & entrepreneurial literacy, civic literacy, health & safety, environmental literacy)

11. B.1 Act responsibly with the interests of the larger community in mind.

10. A.2 Prioritize, plan and manage work to achieve the intended result.

Standards and Competencies

Standard/Unit: Safety & Tool Usage

Competencies

Total Learning Hours for Unit: 20

- The student will be able to name the tools used in the classroom
- The students can describe the tool's uses
- The student can use tools in an order which makes sense
- The student can make intelligent decisions of what tool to use in the creation of metal art
- The student can care for tools and identify problems
- The student can use and describe tool safety

Aligned Washington State Standards

Arts	4.5 Understands how arts knowledge and skills are used in the world of work, including careers in the arts.
Educational Technology	1.1 Innovate: Demonstrate creative thinking, construct knowledge and develop innovative products and processes using technology.
Speaking and Listening- Common Core State Standards	Communications 1.1 Uses listening and observation skills and strategies to focus attention and interpret information. 1.2 Understands, analyzes, synthesizes, or evaluates information from a variety of sources.

UNIT 3 SAWING AND FILING

Performance Assessments:

Assessments include but are not limited to:

Perfect circle project-Students must lay out a circle to a specific size and use a jeweler's saw and file to demonstrate precision

Keychain-Students transfer a design to metal and cut a variety of lines including curved straight and angled. Students will also include at least one element of piercing

Lost wax casting- Students will cut out a design in wax and use a variety of files to manipulate the wax into a smooth and multi-leveled piece prior to casting

Sweat solder-Students will show precision in cutting a variety of shapes before assembling their piece using sweat solder

Leadership Alignment: Students use the essential skills of sawing and filing to realize creative designs founded in artistic principles. Students will think creatively to implement innovations, solve problems and manage goals and time to produce a finished product. Students have the opportunity to participate in an annual statewide competition sponsored by the Seattle Metals Guild.

4. B.1 Use information accurately and creatively for the issue or problem at hand.

8. B.1 Monitor defines, prioritize and complete tasks without direct oversight.

Standards and Competencies

Standard/Unit: Sawing and Filing

Competencies

Total Learning Hours for Unit:

- Students will be able to lay out a design on metal
- Students will be able to properly install a sawblade into their frame
- Students will be able to master sawing on various lines, including straight, curved and angled
- Students will be able to safely pierce their metal and neatly saw inside cuts
- Students will be able to saw without breaking an excess of blades

- Students will be able to understand the mechanics of a saw and sawing
- Students will be able to choose the right sawblade for the intended outcome
- Students will be able to file correctly

Aligned Washington State Standards

Arts	1.2 Develops visual arts skills and techniques 2.1 Applies a creative process to visual arts. (Identifies, explores, gathers, interprets, uses, implements, reflects, refines, and presents) 3.1 Uses visual arts to express feelings and present ideas. 3.3 Develops personal aesthetic criteria to communicate artistic choices in visual arts
Educational Technology	
Health and Fitness	
Math-Common Core State Standards	
Reading-Common Core State Standards	
Science	
Social Studies	
Speaking and Listening-Common Core State Standards	
Writing-Common Core State Standards	

UNIT 4 HOT AND COLD CONNECTIONS

Performance Assessments:
Assessments include but are not limited to:

- Soldered Ring
- Sweat Solder Project
- Wire Experiments
- Animal Totem Keychain
- Soldered Band Ring
- Resin Frame Pendant or Keychain
- Prong/Dome Project
- Fabricated Metal Flower
- Swivel Locket
- Bezel Set Pendant or Ring
- Staff Commission Project

Leadership Alignment: Students will make judgments and decisions as to how best solder their pieces. They will reason effectively to solve problems that may arise. Students will adapt to change and be flexible as their design necessitates.

- 2. D.2 Identify and ask significant questions that clarify various points of view and lead to better solutions.
- 8. A.1 Set goals with tangible and intangible success criteria.

Standards and Competencies

Standard/Unit: Hot and Cold Connections

Competencies

Total Learning Hours for Unit: 20

- Students will be able to prepare metal to be soldered.
- Students will be able to safely handle a torch and tools.
- Students will be able to apply heat properly to achieve desired result.
- Students will be able to observe capillary action when flowing solder.
- Students will be able to clean oxidation and flux from their projects.
- Students will be able to create a tube rivet to hold parts together.
- Students will be able to create wire rivets to connect metals or as decoration.
- Students will be able to make and use jump rings to connect parts together.
- Students will be able to connect parts using industry adhesives.
- Students will show precision in cutting a variety of shapes before assembling their piece using the sweat solder process.
- Students will demonstrate competency in flowing solder in a simple butt joint.
- Students will become proficient in estimating the appropriate amount of solder needed.
- Students will use a variety of soldering techniques including pick soldering, tinning, and utilizing capillary action to create a fabricated metal flower.
- Students will also use tube rivets to attach the metal petals to a fabricated stem.

Aligned Washington State Standards

Arts	1.2 Develops visual arts skills and techniques 2.1 Applies a creative process to visual arts. (Identifies, explores, gathers, interprets, uses, implements, reflects, refines, and presents) 3.1 Uses visual arts to express feelings and present ideas. 3.3 Develops personal aesthetic criteria to communicate artistic choices in visual arts
Educational Technology	
Health and Fitness	
Math-Common Core State Standards	
Reading-Common Core State Standards	Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem.
Science	
Social Studies	
Speaking and Listening-Common Core State Standards	Communication: 1.1. Uses listening and observation skills and strategies to focus attention and interpret information. Communication: 1.2. Understands, analyzes, synthesizes, or evaluates information from a variety of sources.
Writing-Common Core State Standards	

UNIT 5 METAL FINISHES AND FINISHING

Performance Assessments: Students identify and use stone setting techniques to enhance a finished piece of jewelry or sculpture. Student assessments include but are not limited to:
- Lost Wax Casting

- Wire Experiments
- Animal Totem Keychain
- Pierced Cuff Bracelet
- Soldered Band Ring
- Resin Frame Pendant or Keychain
- Prong/Dome Project
- Metal Flower
- Swivel Locket
- Sweat Solder Project
- Bezel Set Pendant or Ring
- Staff Commission Project

Leadership Alignment: Leadership activity embedded in curriculum and instruction. (Examples: CTSO project or activity, locally developed leadership project or activity, embedded 21st Century interdisciplinary theme activity such as global awareness, financial, economic, business & entrepreneurial literacy, civic literacy, health & safety, environmental literacy)

Students practice accountability and productivity to prioritize, manage, and complete projects on time. Students show initiative and self-direction by completing projects after listening to instruction. Students use information and manage time efficiently for the metal finishing technique at hand.

8. C.3 Demonstrate commitment to learning as a lifelong process.

9. A.1 Know when it is appropriate to listen and when to speak.

Standards and Competencies

Standard/Unit: Metal Finishes and Finishing

Competencies

Total Learning Hours for Unit: 25

- Demonstration and practice of: Sanding, polishing, annealing, stamping, stippling, roller printing, etching, applying patinas, enameling, applying colored resin to metal.
- Students participate in questioning about vocabulary and techniques.
- Written reflection describing what techniques were used and how they were used to enhance metal's surface.
- Student's view other students work and identify what metal surface enhancing techniques were used.
- Sand out scratches to prepare metal for a professional finish.
- Polish metal to high shine.
- Anneal metal to soften it.
- Imprint metal by hammering, stamping, and roller printing.
- Texture metal using the flex shaft and various bits.
- Etch metal using resist and etchants.
- Patina metal using flame and patinas.
- Enamel metal using enamels and the kiln.
- Mix epoxy resin and apply color to metal.

Aligned Washington State Standards

Arts

- 1.1 Understands and applies visual arts concepts and vocabulary.
- 1.2 Develops visual arts skills and techniques.
- 2.1 Applies a creative process to visual arts. (Identifies, explores, gathers, interprets, uses, implements, reflects, refines, and presents)
- 2.3 Applies a responding process to a presentation/exhibit of visual arts. (Engages, describes, analyzes, interprets, and evaluates)

	3.2 Uses visual arts to communicate for a specific purpose. 3.3 Develops personal aesthetic criteria to communicate artistic choices in visual arts. 4.5 Understands how arts knowledge and skills are used in the world of work, including careers in the arts.
Educational Technology	
Health and Fitness	
Math-Common Core State Standards	
Reading-Common Core State Standards	RST-4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context
Science	
Social Studies	
Speaking and Listening-Common Core State Standards	Communication: 1.1. Uses listening and observation skills and strategies to focus attention and interpret information. 1.2. Understands, analyzes, synthesizes, or evaluates information from a variety of sources.
Writing-Common Core State Standards	W 10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

UNIT 6 CASTING

Performance Assessments:
Assessments include but are not limited to:

- Cast Pendant
- Cast Ring

Leadership Alignment: Students may choose to use this production technique to develop their designs. They will think creatively to solve problems and communicate their ideas to a diverse audience. Students will then have their pieces evaluated by peers for possible entry into a statewide competition, “Passing the Torch”, sponsored by the nationally recognized Seattle Metals Guild.

- 7. A.2 Work effectively in a climate of ambiguity and changing priorities.
- 10.B.1 Demonstrate additional attributes associated with producing high quality products including the abilities to:
- 10. B.1d Participate actively, as well as be reliable and punctual.

Standards and Competencies

Standard/Unit: Metal Finishes and Finishing

Competencies

Total Learning Hours for Unit: 30

- Students will be able to create a wax model that has multiple levels (three-dimensional) and includes at least one intentional texture/finish.
- Students will be able to differentiate between casting and fabrication.
- Students will be able to articulate the lost wax process.
- Students will be able to attach sprues, invest, burn out, cast, and clean up.
- Students will be able to calculate specific gravity.
- Students will understand other casting techniques including, sand casting, cuttlefish bone casting, nature and plastic burn outs.

<i>Aligned Washington State Standards</i>	
Arts	1.2 Develops visual arts skills and techniques 2.1 Applies a creative process to visual arts. (Identifies, explores, gathers, interprets, uses, implements, reflects, refines, and presents) 3.1 Uses visual arts to express feelings and present ideas. 3.3 Develops personal aesthetic criteria to communicate artistic choices in visual arts
Educational Technology	
Health and Fitness	
Math-Common Core State Standards	Reason quantitatively and use units to solve problems
Reading-Common Core State Standards	Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem.
Science	
Social Studies	
Speaking and Listening-Common Core State Standards	Communication: 1.1. Uses listening and observation skills and strategies to focus attention and interpret information. Communication: 1.2. Understands, analyzes, synthesizes, or evaluates information from a variety of sources.
Writing-Common Core State Standards	

UNIT 7 LEADERSHIP
<p>Performance Assessments: Assessments include, but are not limited to:</p> <ul style="list-style-type: none"> - Lost Wax Casting - Wire Experiments - Animal Totem Keychain - Pierced Cuff Bracelet - Soldered Band Ring - Resin Frame Pendant or Keychain - Prong/Dome Project - Metal Flower - Swivel Locket - Sweat Solder Project - Bezel Set Pendant or Ring - Staff Commission Project
<p>Leadership Alignment: Leadership qualities are desirable in both acquiring workplace skills and advancing in the workplace. The Jewelry/Metals lab should always be a reflection of the workplace.</p> <ul style="list-style-type: none"> 2. C.5 Reflect critically on learning experiences and processes. 3. A.4 Utilize multiple media and technologies, and know how to judge their effectiveness a priori as well as assess their impact. 8. A.2 Balance tactical (short-term) and strategic (long-term) goals.

Standards and Competencies

Standard/Unit: Leadership

Competencies

Total Learning Hours for Unit: 20

- The student will be able to be proactive
- The student will be able to show a commitment to producing quality work
- The student will be able to display strong work habits, including no cell phone use
- The student will be able to hand in finished, wearable, functional work.
- Students will provide summaries of the qualifying activities they have participated in.
- Students can demonstrate leadership by showing a commitment to producing quality work.

Aligned Washington State Standards

Arts	4.1 Demonstrates and analyzes the connections among the arts (dance, music, theatre, and visual arts). 4.3 Understands how the arts impact and reflect personal choices throughout life. 4.4 Understands how the arts influence and reflect cultures/civilization, place, and time.
Educational Technology	
Health and Fitness	
Math-Common Core State Standards	
Reading-Common Core State Standards	
Science	
Social Studies	
Speaking and Listening-Common Core State Standards	
Writing-Common Core State Standards	W 10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

UNIT 8 STONE SETTING

Performance Assessments: Students identify and use stone setting techniques to enhance a finished piece of jewelry or sculpture. Student assessments include but are not limited to:

- Bezel Setting
- Prong Setting

Leadership Alignment: Leadership activity embedded in curriculum and instruction. (Examples: CTSO project or activity, locally developed leadership project or activity, embedded 21st Century interdisciplinary theme activity such as global awareness, financial, economic, business & entrepreneurial literacy, civic literacy, health & safety, environmental literacy).

Students will use creative problem solving and systems thinking to design a piece of jewelry or sculpture that incorporates stone setting and can competently execute stone setting. Students will learn the order of steps needed to complete a proper stone setting. Students show initiative and self-direction when managing tangible

goals and time to complete a finished product with a stone setting. Students practice leadership and responsibility when participating in an annual High school metals competition hosted by the Seattle Metals Guild.

Work Independently

8. B.1 Monitor defines, prioritize and complete tasks without direct oversight.

8. C.3 Demonstrate commitment to learning as a lifelong process.

Standards and Competencies

Standard/Unit: Stone Setting

Competencies

Total Learning Hours for Unit: 20

- Students can successfully secure and set a stone in jewelry or small metal sculpture.
- Problem solving and understanding the order of steps to a complete stone setting.
- Understanding different types of gemstones and their hardness or softness.
- Written reflection describing what techniques were used and how they were used to enhance a finished piece of jewelry or sculpture.
- Identify the two general types of gemstone cuts: cabochon and faceted stones.
- Prep metal for specific stone setting technique.
- Demonstrate how to proficiently set cabochon and faceted stones.
- Decide how tall the bezel wire, tubing, or prongs should be for the chosen gem.
- Identify what tools are used for specific stone setting.

Aligned Washington State Standards

Arts	<p>1.1 Understands and applies visual arts concepts and vocabulary.</p> <p>1.2 Develops visual arts skills and techniques.</p> <p>2.1 Applies a creative process to visual arts. (Identifies, explores, gathers, interprets, uses, implements, reflects, refines, and presents)</p> <p>2.3 Applies a responding process to a presentation/exhibit of visual arts. (Engages, describes, analyzes, interprets, and evaluates)</p> <p>3.2 Uses visual arts to communicate for a specific purpose.</p> <p>3.3 Develops personal aesthetic criteria to communicate artistic choices in visual arts.</p> <p>4.4 Understands how the arts influence and reflect cultures/civilization, place, and time.</p> <p>4.5 Understands how arts knowledge and skills are used in the world of work, including careers in the arts.</p>
Educational Technology	
Health and Fitness	
Math-Common Core State Standards	
Reading-Common Core State Standards	RST-4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context
Science	
Social Studies	
Speaking and Listening-Common Core State Standards	<p>Communication:</p> <p>1.1. Uses listening and observation skills and strategies to focus attention and interpret information.</p> <p>1.2. Understands, analyzes, synthesizes, or evaluates information from a variety of sources.</p>
Writing-Common Core State Standards	W 10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

21st Century Skills

Check those that students will demonstrate in this course

LEARNING & INNOVATION

Creativity and Innovation

- Think Creatively
- Work Creatively with Others
- Implement Innovations

Critical Thinking and Problem Solving

- Reason Effectively
- Use Systems Thinking
- Make Judgments and Decisions
- Solve Problems

Communication and Collaboration

- Communicate Clearly
- Collaborate with Others

INFORMATION, MEDIA & TECHNOLOGY SKILLS

Information Literacy

- Access and /evaluate Information
- Use and Manage Information

Media Literacy

- Analyze Media
- Create Media Products

Information, Communications and Technology (ICT Literacy)

- Apply Technology Effectively

LIFE & CAREER SKILLS

Flexibility and Adaptability

- Adapt to Change
- Be Flexible

Initiative and Self-Direction

- Manage Goals and Time
- Work Independently
- Be Self-Directed Learners

Social and Cross-Cultural

- Interact Effectively with Others
- Work Effectively in Diverse Teams

Productivity and Accountability

- Manage Projects
- Produce Results

Leadership and Responsibility

- Guide and Lead Others
- Be Responsible to Others