POCONO MOUNTAIN SCHOOL DISTRICT

COURSE: STEAM	**GRADE(S): 7**
UNIT: Geometry/Art	

NATIONAL ART STANDARDS: VA:Cr1.2.7a Develop criteria to guide making a work of art or design to meet an identified goal. **STATE STANDARDS for ARTS & HUMANITIES:** **9.1** Producing, Performing, and Exhibiting the Arts and Humanities **9.2** Historical and Cultural Contexts **9.3** Critical Response to the Arts and Humanities **9.4** Aesthetic Responses to the Arts and Humanities	**UNIT OBJECTIVES:** Students will be able to use geometry to create artistic designs. Students will be able to plot points on a graph. Students will be able to create a three-dimensional artwork, using only lines
ACTIVITIES: • Line is one of the Elements of Art • Shape, Color, Value, Texture, Form, and Space, are building blocks of art • Line exists in all artwork • Create artwork completely from Lines • Focus on equal parts • "clover" in one quadrant of the work • Create line design **RESOURCES:** Clover worksheet Paper Colored Pencils Ruler Pencil Eraser	**ASSESSMENTS:** Project-Based- Line Artwork Clover Worksheet Line Design **REMEDIATION:** Individual art elements explored over longer time period, modified worksheet and smaller culminating project **ENRICHMENT:** Modify and enhance the culminating project by making them larger, adding color and/or adding texture.

POCONO MOUNTAIN SCHOOL DISTRICT

COURSE: STEAM	**GRADE(S): 7**
UNIT: Technology/Art	

STATE STANDARDS for ARTS & HUMANITIES:	**UNIT OBJECTIVES:**
9.1 Producing, Performing, and Exhibiting the Arts and Humanities **9.2** Historical and Cultural Contexts **9.3** Critical Response to the Arts and Humanities **9.4** Aesthetic Responses to the Arts and Humanities **ART STATE STANDARDS** **9.1.3.K**. Know and use of traditional and contemporary technologies in furthering knowledge and understanding in the humanities.	Students will be able to use technology to create a 3-dimensional object. Students will learn to use the program TinkerCad. Students will explore the scribble tool in Tinkercad. Students will create their own individual 3D design in Tinkercad. Students will become aware of line value and thickness, using the erase tool to manipulate their lines and shapes. Students will be able to design an object in 3 dimensions. Students will learn the steps to creating a 3d print.
ACTIVITIES: • Videos showcasing the possibilities of 3d printing • Explanation of 3d printing • Log into TinkerCad and join the classroom and complete tutorials • Create a keychain • Printed keychain upon completion • Demonstration of all the tools and characters available in the Tinkercad site • Use characters and shapes along with the Scribble tool (free draw) to complete a 3D artwork • Two 3D drawings using shapes, free drawing **RESOURCES:** Computers 3d Printers	**ASSESSMENTS**: Project-Based- Keychain creation 3D drawing **REMEDIATION:** Chunking, smaller printing projects, extended time. **ENRICHMENT:** Create more complex keychains, designs and potential printing projects.

POCONO MOUNTAIN SCHOOL DISTRICT

COURSE: STEAM	**GRADE(S): 7**
UNIT: Design Thinking/Art/technology	

STATE STANDARDS for ARTS & HUMANITIES:	**UNIT OBJECTIVES:**
9.1 Producing, Performing, and Exhibiting the Arts and Humanities **9.2** Historical and Cultural Contexts **9.3** Critical Response to the Arts and Humanities **9.4** Aesthetic Responses to the Arts and Humanities **PA STATE STANDARDS:** **9.1.8.K** Incorporating specific uses of traditional and contemporary technologies in furthering knowledge and understanding in the humanities.	Students will be able to use technology to create a 3-dimensional object. Students will be able to design an object in 3 dimensions. Students will learn the steps to creating a 3D print. Students will work collaboratively to design a logo for a fictional business. Students will render logos in 2D and 3D.
ACTIVITIES: • Partner for a business activity • Roll play client or the artist • Interview each other • Plan out a logo for partner • Design and draw the logo • Prototype logo and reviewed/redesigned based on customer feedback • Use the"scribble" function on Tinkercad to design the log **RESOURCES:** Paper Pencils Colored Pencils Computer 3d Printers	**ASSESSMENTS:** Project-Based- Logo creation Log redesign **REMEDIATION:** Longer time span for logo creation with minimal redesign components. **ENRICHMENT:** Students cab recreate and resize their Logo Design to make a pin.

POCONO MOUNTAIN SCHOOL DISTRICT

COURSE: STEAM	**GRADE(S): 7**
UNIT: Technology/Art/Mathematics	

STATE STANDARDS for ARTS & HUMANITIES:	**UNIT OBJECTIVES:**
9.1.8.K Incorporating specific uses of traditional and contemporary technologies in furthering knowledge and understanding in the humanities. **9.1** Producing, Performing, and Exhibiting the Arts and Humanities **9.2** Historical and Cultural Contexts **9.3** Critical Response to the Arts and Humanities **9.4** Aesthetic Responses to the Arts and Humanities	Students will be able to use technology to create a 3-dimensional object. Students will be able to design an object in 3 dimensions. Students will utilize math to create a symmetrical artwork. Students will learn the steps to creating a 3d print. Students will be able to use the program Code.org. Students will be able to learn the steps of creating a Vector Artwork using Code. Students will be able to convert files from .png to .svg in order to utilize documents for multiple applications.
ACTIVITIES: • Code.org the "Artist" tutorial • Create 3 vector artworks in Code.org • Download the vector designs as .png, and convert to .svg • Import to TinkerCAD, and create wearable objects with their vectors **RESOURCES:** Computer 3D Printer	**ASSESSMENTS:** Project-Based- Vector Artworks Wearble Object Creation **REMEDIATION:** Longer time for tutorial with teacher assistance, fewer vector artworks and one wearable vector. **ENRICHMENT:** More vector artworks and designs, exploration of related code careers.

POCONO MOUNTAIN SCHOOL DISTRICT

COURSE: STEAM	**GRADE(S): 7**
UNIT: Engineering/Math	

STATE STANDARDS for ARTS & HUMANITIES:	**UNIT OBJECTIVES:**
9.1 Producing, Performing, and Exhibiting the Arts and Humanities **9.2** Historical and Cultural Contexts **9.3** Critical Response to the Arts and Humanities **9.4** Aesthetic Responses to the Arts and Humanities	Students will be able to use problem solving to solve an engineering problem. Students will be able to work within a group to design and build a bridge. Students will be able to create a 3-dimensional construction, utilizing a variety of materials. Students will create the various parts of a bridge in 3D.
ACTIVITIES: • Design a bridge • Design and build decking and superstructure • Design and construct supports and substructure • Built bridge in pieces • Put bridge together and test for strength **RESOURCES:** Popsicle sticks Glue Masking tape	**ASSESSMENTS:** Project-Based Bridge Creation Bridge Build **REMEDIATION:** Smaller structure built with more time provided and less weight baring. **ENRICHMENT:** Larger bridge structure built with fewer people that holds a large weight capacity.

POCONO MOUNTAIN SCHOOL DISTRICT

COURSE: STEAM	**GRADE(S): 7**
UNIT: Science/Engineering	

STATE STANDARDS for ARTS & HUMANITIES:	**UNIT OBJECTIVES:**
9.1 Producing, Performing, and Exhibiting the Arts and Humanities **9.2** Historical and Cultural Contexts **9.3** Critical Response to the Arts and Humanities **9.4** Aesthetic Responses to the Arts and Humanities	Students will be able to use problem solving to solve an engineering problem. Students will be able to work within a group or individually to design and build a lander for an egg. Students will be able to create a 3-dimensional structure, using a variety of materials. Students will understand the science behind mass, acceleration, and energy. Students will learn Newton's Three Laws of Motion, along with the vocabulary words within the unit, (rest, motion, force, unbalanced force, mass, acceleration action and reaction). Students will investigate Newton's third law by designing, testing and developing solutions to construct rocket races that meet the design requirements. Students will be given three chances to redesign their racers to improve the distance traveled.
ACTIVITIES: • Design something that can withstand force of a high-altitude • Design cushion for egg drop • Video of the Mars Rover landing • Test egg drop for survival • Review Newton's Laws of Motion • Rocket Races Handout to build a racer • Build and modify racer **RESOURCES:** Straws Balloons Egg cartons Plastic bags String Cotton Packing material	**ASSESSMENTS:** Project-Based Eggcellent Adventure Activity Rocket Race **REMEDIATION:** Teacher assistance and possible partner/group for egg drop and racer activity. **ENRICHMENT:** More stringent criteria for both egg drop and racer activity and less/different materials used.

POCONO MOUNTAIN SCHOOL DISTRICT

COURSE: STEAM	**GRADE(S): 7**
UNIT: Science/Art	**TITLE: Microscopic Worlds**
National Art Standard: **VA:Cr1.2.7a** Develop criteria to guide making a work or design to meet an identified goal. **STATE STANDARDS for ARTS & HUMANITIES:** **9.1** Producing, Performing, and Exhibiting the Arts and Humanities **9.2** Historical and Cultural Contexts **9.3** Critical Response to the Arts and Humanities **9.4** Aesthetic Responses to the Arts and Humanities	**UNIT OBJECTIVES:** Students will be able to Identify the root, stem, and flower of plant life under a microscope. Students will be able to identify DNA under a microscope. Students will be able to identify other viruses, bacteria and the Covid19 virus from a visual slide presentation. Students will create a unified artwork, using composition and color, combining any and all of the Microscopic world. Students will learn important skills such as blending colors to create illusions of 3D forms. Students will understand through a different lens how the microscopic world touches our lives. (Now more than ever through the pandemic) Students will understand the concepts such as differentiating an abstract piece from a nonobjective work of art, where important qualities are the structure and feelings conveyed.
ACTIVITIES: • Explore organisms, viruses, and plant life under the microscope • Discuss the difference between objective/ nonobjective and abstract / realistic art • Create sketches with multiple images, using repetition and patterns • Analyze images noting how color will play a part in making a unified composition **RESOURCES:** Microscopes with slides Oil pastels color pencils colored paper 12x18	**ASSESSMENTS**: Project-Based Microscope Artwork **REMEDIATION:** View fewer examples and work on smaller version of artwork. **ENRICHMENT:** View many images and create a culmination of images in a piece of artwork.