



Lowell Milken Center for Unsung Heroes

ARTEFFECT



Unsung Heroes and STEAM
Visual Arts Lesson Plan

Unsung Heroes and STEAM

The [Lowell Milken Center for Unsung Heroes \(LMC\)](#) spotlights the stories of individuals from history who took extraordinary actions in service to others and society. Exploring Unsung Heroes who excelled in the areas of Science, Technology, Engineering, the Arts, and Mathematics allows students to make formative connections as future innovators. At the core of a STEAM philosophy in education is promoting experiential learning, developing strong problem-solving skills, and leaning into the creative process for collaborative success.

This lesson plan uses a STEAM lens to bring Unsung Heroes to the forefront of students' lives and provides turn-key resources, strategies, and creative approaches to connect students with these individuals through the visual arts. Students investigate how the human brain works and how logic and creativity (left brain and right brain) overlap. Teachers guide students in becoming acquainted with the Unsung Heroes stories using various research and investigative methods, understanding core concepts around innovation, developing exceptional artworks using the elements of art and principles of design, and collaborative approaches to project critiques. The lesson plan has the potential to be transformative for students' future careers in STEAM fields and amplifies the important role individuals have in fostering community citizenship.

Learning Objectives

1. Understand how science, technology, engineering, arts, and mathematics intersect and complement each other in real-world applications.
2. Participate in hands-on activities requiring the application of scientific principles, technological tools, engineering design, artistic creativity, and mathematical reasoning.
3. Collaborate with peers to solve problems, share ideas, and communicate findings effectively, recognizing the importance of teamwork in STEAM fields.
4. Demonstrate creativity and innovation by developing unique solutions to problems, incorporating design elements into artworks, and practice critical thinking about the integration of various STEAM disciplines.
5. Reflect on their creative process, identifying challenges encountered, artistic decisions made, and the overall impact of their artwork on conveying the Unsung Hero's story.
6. Incorporate symbolism and metaphor in artworks to convey the Unsung Hero's character, values, and actions, fostering a deeper understanding of the heroic contribution and its impact on society.
7. Engage with Unsung Hero coloring book activities to stimulate cognitive development, encourage visual and color perception, and promote mindfulness and attention to detail.
8. Strengthen connections between visual art, science, and history/social studies.

Time Frame

The introductory lesson is intended for one 60-minute class block. The STEAM research brainstorming activity spans two periods. Thumbnail sketches, planning, research should span 3-5 class periods. This greatly depends on how long your class periods are as well as the schedule blocking. This can easily be pushed into a larger or shorter unit (based on previous art knowledge). Project production should be a minimum of 5 class periods.

- **Day 1:** Complete Steps 1-2
- **Day 2-3:** Complete Steps 3
- **Day 4:** Complete Step 4
- **Day 5:** Complete Step 5
- **Day 6:** Complete Step 6
- **Day 7:** Complete Step 7
- **Day 8-14*:** Complete Step 8
- **Day 15*:** Complete Step 9
- **Day 16*:** Complete Step 10

*Project production takes a great deal of time and can vary.

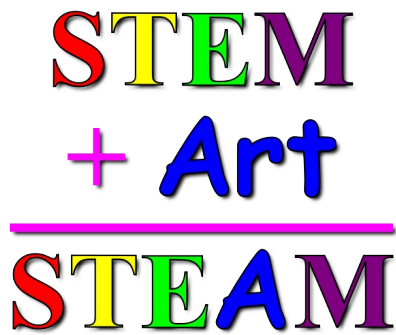
Materials

Pencils, Paper, Canvas, Markers, Colored Pencils, Watercolor, Mixed Media.

Lesson Plan Activities

Step 1: STEM vs. STEAM: Why We Need Art

First, review a brief history of STEM vs. STEAM and why we need art. This will be a short introduction to this larger unit. Block out the timeline for students and project expectations.



Talking Points:

The evolution of STEM (Science, Technology, Engineering, and Mathematics) into STEAM (adding Arts to the mix) is a relatively recent development that gained momentum in the early 21st century. The shift from STEM to STEAM reflects a recognition of the valuable role that the arts and creativity play in fostering innovation and a well-rounded education. The inclusion of the arts emphasizes the importance of creativity, design thinking, and the **human aspect** in the fields traditionally associated with STEM.

The term STEAM started gaining popularity in educational and professional circles around the early 2000s, but its roots can be traced back to earlier initiatives that emphasized interdisciplinary approaches to education and innovation. The transition from STEM to STEAM was driven by several factors:

- ❖ **Rise of Innovation and Creativity:** As the global economy shifted towards innovation and creativity, there was a growing acknowledgment that creativity and design play crucial roles in problem-solving and technological advancements.
- ❖ **Advocacy for a Holistic Education:** Educators and advocates argued for a more holistic approach to education that not only focused on technical skills but also incorporated the arts to develop well-rounded individuals with diverse perspectives.
- ❖ **Recognition of the Design Process:** The design process, often associated with the arts, was acknowledged as a key component of innovation in engineering, technology, and other STEM fields.
- ❖ **Cultural and Economic Shifts:** Changing societal needs and the increasing interdependence of STEM fields with arts and humanities in the workforce contributed to the reevaluation of educational priorities.
- ❖ **STEAM Initiatives in Education:** Various educational institutions and organizations started incorporating STEAM programs to emphasize the integration of arts into STEM curricula, fostering creativity and interdisciplinary thinking.
- ❖ **Support from Industry Leaders:** Leaders in industry and technology began recognizing the value of employees who possess not only technical skills but also creative and critical thinking skills.

While there isn't a single moment or event that marks the formal establishment of STEAM, it represents an ongoing movement to enhance educational paradigms and promote a more inclusive and holistic approach to learning and innovation. The integration of arts into STEM is seen as a way to produce well-rounded professionals capable of addressing complex challenges with innovative solutions.

- **More Insights/Resources:** [STEM vs. STEAM: Why One Letter Matters](#)

Step 2: Restructuring Our Brains: Left vs. Right

STEAM leaders think differently! Arguably, Scientists, Technology Experts, Engineers, and Mathematicians rely more on the left hemisphere of the brain. Our left sides are logical. The right side of the brain nourishes creativity, emotional intelligence — and the skills typically associated with the Arts. In today’s lesson you will have students [learn about the brain](#), illustrate their brains and engage in a brain game/challenge called the “Stroop effect.”

A) Students will participate in the [Stroop effect challenge](#): (10 minutes).

- **Resource:** [Neuroscience for Kids](#)

Congruent	Incongruent
RED	RED
GREEN	GREEN
BLUE	BLUE
YELLOW	YELLOW

B) Students will then create their own Stroop effect illustration to share with their peers: (15 minutes).

We will look at modern artist Rajacenna van Dam realistically draw and paint with both hands and feet at the same time in an unbelievable realistic manner.

- **Resource Video:** [Artist draws and paints 8 portraits simultaneously with hands and feet](#)

As a class, discuss the parallels between the incredible talent of artist Rajacenna van Dam (in the video) who states that with art sometimes it’s important to enjoy the process more so than the results. Discuss process over product. Keep this theme in mind while working through the unit. While students may be eager to enter the ARTEFFECT contest, the process is just as (if not arguably more) important than the finished product they are working to create. An important goal is to connect students with the innovation demonstrated by the Unsung Heroes.

- **Additional Resource:** [The Mouth and Foot Painting Association](#) (tagline: Self-Help, not Charity).

Discuss impact/inclusion of resources and connection to ableism (discrimination in favor of able-bodied people) and creativity.



Step 3: Exploring STEAM Unsung Heroes: Speed Meet

Now that the students' brains are warmed up and there’s a base understanding of thinking outside the box, pushing ourselves and leaning into both halves of the brain, lead the class in a brief discussion of what makes someone an “Unsung Hero.”

Using the [Unsung Heroes STEAM Worksheets](#), have students mind-map and brainstorm concepts for each category in “STEAM.” Give the students access to the [LMC approved list of Unsung Heroes](#) and have them sort the list for the STEAM Unsung Heroes. There are more than 30 STEAM individuals on this list!

🌟 Find your STEAM Unsung Hero on the [LMC approved list](#).

Unsung Hero

An individual who has created positive change in history by improving the lives of others and is largely unrecognized by society for their contribution. The individual’s impact must have stood the test of time.

“Speed Meet” an Unsung Hero

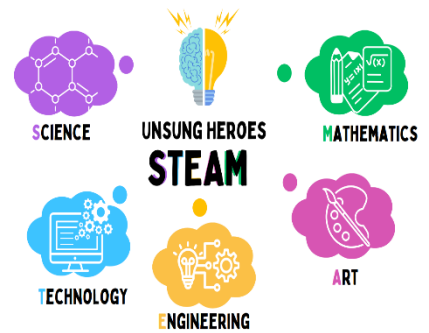
Give students 5 minutes to research 20 of the Unsung Heroes. Put a timer on display. You can find a wide selection online of free [visual timers with music](#) to use in your classroom. Students should take notes on each Unsung Hero in their sketchbooks. This exercise will take **2 class periods** to get through all 20 STEAM Unsung Heroes.

- **Resource:** [Unsung Heroes STEAM Worksheets](#)
- **Modification Resource:** [Unsung Heroes Coloring-Trading Cards](#)

Step 4: Creating Collaborative Connections

Using the [Unsung Heroes STEAM Worksheets](#), have students create their own “Hall of Influence.” This is different than “Hall of Fame” as these Unsung Heroes did not achieve fame in their lifetime but rather had a huge influence on society. Students will select 5 people (one per category)

Give students 20 minutes to look through their notes and place an asterisk next to five heroes. Partner or pod students together in small groups and give them 10 minutes to share who their top five heroes are. See if there’s any overlap.



UNsung HEROES STEAM: HALL OF INFLUENCE

SCIENTIST: WHY:	TECH CHOICE: WHY:	ENGINEER: WHY:	ARTIST: WHY:	MATHEMATICIAN: WHY:

🌟 **Optional:** Create a classroom “Hall of Influence” exhibit with the completed selections.

Step 5: Concept Mapping

Next, ask students to select their top-most influential STEAM Unsung Hero. Give students time to further research this individual and their impact on society. Remind students that they are thinking “outside the box” and can explore innovative and conceptual ways of illustrating and interpreting these individuals and/or their accomplishments.

Students will have to create **3 thumbnail sketches** of their ideas. Materials needed shall be listed within the sketches.

Within the concept map discuss the concepts of **innovation** and **discovery**. Do a deeper dive into these concepts as they relate to creative problem-solving.

Step 6: Plan, Process, Prepare Media

Students will pair, share, and in process critique with their peers to take their best thumbnail sketch and create a rough draft of their project. In this rough draft, students need to label materials needed and make a thorough plan.

Suggested Materials:

Two-dimensional

Dry Media

graphite, charcoal, colored pencil, pastel, etc.

Wet Media

acrylic, oil, watercolor, gouache, ink wash, printmaking, etc.

Mixed Media

photography, graphic design, textile, collage, paper.

Digital Media (must be printed.)

Three-dimensional

sculpture, assemblage, ceramic, wood, etc.



Step 7: Introduce Project Criteria & Evaluation

Visit the LMC website to view ARTEFFECT [student award-winners](#) and [finalists](#) from previous years. Using the [ARTEFFECT Judging Criteria Rubric](#), have students work in teams to assess the example artworks. When finished, have each group share their totals and discuss how they arrived at their scores with their peers. Scoring is weighted as follows:

- 🌟 Creative Interpretation (40%)
- 🌟 Aesthetic Value (40%)
- 🌟 Impact Paper (20%)

Step 8: Let's Create! Full STEAM ahead—let's make your mark!

It helps if educators have a baseline knowledge of their students' skill set and art creating pace. One of the hardest challenges for many art teachers is to pace a long scale assignment and to provide enough time for students to do quality work, while keeping other students who may work faster or slower engaged and not burnt out with long term assignments. This is where I recommend using the **supplemental educational coloring books** as needed for brain breaks with the students.

Students should be actively participating in “in-progress” critiques and collaborate with their peers to create their best work. Students will create based on their best thumbnail sketch and will keep in mind the basic [elements of art](#) and [principles of design](#) while they work and create. Typically these terms are introduced at the beginning of most introductory art courses. If not, I encourage you to explore this resource and branch into a mini- elements /principles of design unit.



Always keep in mind that the student work should have a direct correlation to their Unsung Hero’s story. It is important to revisit the meaning of STEAM. Revisit the history and ideology of the term and how students are focusing on experiential learning. An integral part of STEAM is collaboration and problem-solving. Discuss with students how their Unsung Hero embodies these facets of STEAM.

Visit the LMC website to view ARTEFFECT [student award-winners](#) and [finalists](#) from previous years to further this discussion.

Step 9: Critique and Tweak

Students will engage in a “round robin” musical chairs style critique activity. The art will be stationed around the classroom. Students will travel around the classroom to music. When the music stops, they have to find a seat. Upon sitting, the teacher will ask the class a specific question about the assignment.

There will be ten questions and students will be asked to respond/reflect upon 10 of their peers’ work. After each question/response, students will put their initials. Guidelines for proper respectful critiques will be shared ahead of time. Rounds should be 5 minutes each. You can select from any of these questions below or create your own to use for this musical critique.

- For added influence, you can select folk music inspired by STEAM Unsung Hero [John Avery Lomax](#) as the sound choice for the musical chairs activity.



10 Categories for Critique Questions

Identity and Representation:

- How does the artwork visually represent the Unsung Hero?
- In what ways does the artist convey the identity and personality of the Unsung Hero through their artistic choices?

Symbolism and Metaphor:

- Are there symbolic elements in the artwork that represent the Unsung Hero's actions or qualities?
- How does the artist use metaphorical elements to convey the Unsung Hero's significance?

Narrative and Storytelling:

- Does the artwork tell a story about Unsung Hero, and if so, how is it conveyed visually?
- How does the composition of the artwork contribute to the narrative of the Unsung Hero?

Emotional Impact:

- How does the artwork evoke emotions related to the Unsung Hero and their story?
- In what ways does the artist capture the emotional essence of the Unsung Hero's actions or impact?

Cultural and Historical Context:

- How does the artwork reflect the cultural or historical context of the Unsung Hero's contributions?
- Are there elements in the artwork that provide insights into the Unsung Hero's societal impact?
- How does the artwork weave historical context into the representation of the Unsung Hero's STEAM-related contributions?
- Are there visual cues that connect the Unsung Hero's achievements to the broader historical and cultural context?

Innovation and Technique:

- How does the artist use innovative artistic techniques or materials to represent the intersection of arts and sciences in the Unsung Hero's story?

- Are there unconventional methods that draw attention to the project's STEAM focus?
- How does the choice of medium and style contribute to the overall impact of the artwork?

Audience Engagement:

- How might different audiences interpret or connect with the artwork differently?
- What elements of the artwork could resonate universally, making the Unsung Hero's story accessible to a broad audience?

Comparison and Contrast:

- How does this portrayal of an Unsung Hero compare to more mainstream or celebrated figures in art or history?
- What unique aspects of the Unsung Hero's story are highlighted in this artwork compared to other representations?

Impact and Legacy:

- In what ways does the artwork communicate the lasting impact or legacy of the Unsung Hero?
- How might this representation contribute to a broader recognition of the Unsung Hero's contributions?
- How might the artwork serve as an educational tool to inspire interest in STEAM disciplines and the contributions of the Unsung Hero?
- In what ways does the project promote a broader understanding of the interconnectedness of arts and sciences?

Reflection and Action:

- After experiencing the artwork, what reflections does it inspire about the concept of Unsung Hero in general?
- How might the audience be encouraged to take action or learn more about the Unsung Hero depicted in the artwork?

Step 10: Writing Your Impact Statement

As a class, review the [ARTEFFECT Impact Statement Outline](#). Students write an Impact Statement (500-1000 words) that covers these points:

1. Introduces your LMC Unsung Hero and why you chose this individual.
2. Addresses what is most important about your LMC Unsung Hero. Discuss what you most admire about this individual (e.g., as a role model, character traits, actions, values, their challenge, or cause).
3. Explains your creative interpretation of your Unsung Hero's story, character traits and heroic acts in your artwork.
4. Describes the impact that creating your artwork has had on your outlook on life and how you will share your artwork and your Unsung Hero's story with your community.

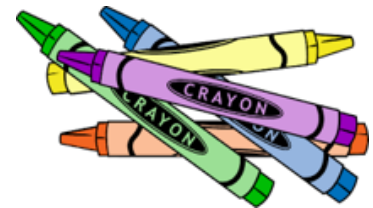


- ✨ Students are encouraged to create rough drafts for their Impact Statements and share with their peers.

Modifications/Extensions Activity

1. Reference the educational coloring books, [Color Unsung Heroes](#), available through LMC to help students stay motivated when they need a 'brain break.' Students can color and learn about Unsung Heroes while they are mid-work. The books can also be used as ice breakers for students to select Unsung Heroes to research for quick illustrations/inspiration.
2. **For Step 3 of this lesson plan**, these coloring books are excellent resource to introduce Unsung Heroes to elementary aged students. This gets exposure to the topic of Unsung Heroes to a broader audience with less pressure compared to the full competition. Distribute the [Unsung Heroes Coloring-Trading Cards](#).
3. Read more about the [brain benefits of coloring books](#).

Unsung Hero Trading Cards



Vocabulary

Discovery is the process of finding information, a place, or an object, especially for the first time, or the thing that is found.

Elements of art/design are stylistic features that are included within an art piece to help the artist communicate. The seven most common elements include line, shape, texture, form, space, color and value, with the additions of mark making, and materiality. When analyzing these intentionally utilized elements, the viewer is guided towards a deeper understanding of the work.

Experiential Learning is an educational approach that emphasizes the acquisition of knowledge and skills through direct hands-on experiences. In this learning model, individuals engage in real-world activities, scenarios, or tasks to deepen their understanding of a subject and develop practical skills.

Innovation is the practical implementation of ideas that result in the introduction of new goods or services or improvement in offering goods or services.

Invention is a device, contrivance, or process originated after study and experiment.

Principles of art represent how the artist uses the elements of art to create an effect and to help convey the artist's intent. The principles of art and design are balance, contrast, emphasis, movement, pattern, rhythm, and unity/variety. The use of these principles can help determine whether a painting is successful, and whether or not the painting is finished.

STEAM curriculum stands for Science, Technology, Engineering, Arts, and Mathematics.

Stroop effect is the delay in reaction time between congruent and incongruent stimuli.

Technology methods, systems, and devices which are the result of scientific knowledge being used for practical purposes.

Thumbnails are small sketches used for idea development created prior to the production of an artwork to help organize the composition of the final piece.

Resources

Pre-reading. Gunn, J. (2018, Nov. 7). [The Art of Inquiry in STEAM Education](#). ResilientEducator.com

Braverman, Jennifer. [Color Unsung Heroes](#).

[Elements and Principles of Art](#)
[Elements of Art](#)
[The 7 Principles of Art and Design](#).

Santogrosso, A. (2022, June 30). [3 Reasons Adult Coloring Can Actually Relax Your Brain](#). LightlySketched.com.

[STEM vs. STEAM: Why One Letter Matter](#). (2018, May 4). American University, School of Education.

[Stroop effect challenge](#). Neuroscience for Kids.

[Take the Right Brain vs. Left Brain Test](#). MentalUp.co

ARTEFFECT Competition Resources

The ARTEFFECT competition is open to middle and high school students and accepts submissions on artworks about the LMC Unsung Heroes from November 1, 2023-May 1, 2024.

[ARTEFFECT Introduction Video](#)
[ARTEFFECT Competition](#)
[ARTEFFECT Preapproved Unsung Heroes](#)
[ARTEFFECT Judging Rubric](#)
[ARTEFFECT Impact Statement Outline](#)
[Student FAQs](#)

Curriculum Connections / Standards

Common Core Standards for Science

- **CCSS.ELA-LITERACY.RST.11-12.3**
Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.
- **CCSS.ELA-LITERACY.RST.11-12.7**
Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.

Common Core Standards for Literacy in History/Social Studies

- **CCSS.ELA-LITERACY.RH.11-12.1**
Cite specific textual evidence to support analysis of primary and secondary sources, connecting insights gained from specific details to an understanding of the text as a whole..
- **CCSS.ELA-LITERACY.RH.11-12.3**
Evaluate various explanations for actions or events and determine which explanation best accords with textual evidence, acknowledging where the text leaves matters uncertain.
- **CCSS.ELA-LITERACY.RH.11-12.7**
Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, as well as in words) in order to address a question or solve a problem.

National Visual Art Standards

- **VA:Cr1.1.IIIa**
Visualize and hypothesize to generate plans for ideas and directions for creating art and design that can affect social change.
- **VA:Cr1.2.IIIa**
Choose from a range of materials and methods of traditional and contemporary artistic practices, following or breaking established conventions, to plan the making of multiple works of art and design based on a theme, idea, or concept.
- **VA:Cr2.1.IIIa**
Experiment, plan, and make multiple works of art and design that explore a personally meaningful theme, idea, or concept.
- **VA:Cr2.2.IIIa**
Demonstrate understanding of the importance of balancing freedom and responsibility in the use of images, materials, tools, and equipment in the creation and circulation of creative work.
- **VA:Cr2.3.IIIa**
Demonstrate in works of art or design how visual and material culture defines, shapes, enhances, inhibits, and/or empowers people’s lives.
- **VA:Cr3.1.IIIa**
Reflect on, reengage, revise, and refine works of art or design considering relevant traditional and contemporary criteria as well as personal artistic vision.
- **VA:Cn10.1.IIIa**
Synthesize knowledge of social, cultural, historical, and personal life with art-making approaches to create meaningful works of art or design.
- **VA:Cn11.1.IIIa** Appraise the impact of an artist or a group of artists on the beliefs, values, and behaviors of a society.

Lowell Milken Center for Unsung Heroes

ARTEFFECT



[The Lowell Milken Center for Unsung Heroes \(LMC\)](#) celebrates individuals who created positive change in history by improving the lives of others through their extraordinary actions in service to others and society. By sharing the stories of these individuals who did extraordinary things, LMC seeks to inspire the hero within everyone.

Expanding LMC's mission, **ARTEFFECT** invites educators and their students to explore the diverse stories of LMC Unsung Heroes and their invaluable lessons as role-models from history through the visual arts. It includes an annual competition, professional development, and exhibitions. The ARTEFFECT lesson plans support teaching and learning to generate unique, creative interpretations of these stories in an array of artistic mediums. Students are encouraged to showcase their artworks beyond the classroom to explore the potential of their art to create positive community impact and inspire social action.

The ARTEFFECT competition invites U.S. and international middle and high school students to submit exceptional artworks that creatively interpret an LMC Unsung Hero's story in a unique and compelling way accompanied by an Impact Statement. Since 2016, over 2,000 students have participated in the competition. The annual competition accepts submissions from November-May and awards top prizes to students and recognition to their teachers. [Learn more](#) about the competition, previous winners, the prize categories, and the full guidelines.

Lesson plan created by Jennifer Braverman. Jennifer Braverman is an activist who combines education and visual art and actively engages her audience in contemporary issues. She is passionate about teaching and making the classroom a place for all students to thrive. Currently, she teaches AP Studio Art, Digital Mixed Media, and other courses to grades 7-12 at Maple Shade High School in NJ. Her art has been featured in solo and group exhibitions locally and nationally. She is an author and illustrator of four educational coloring books. She has been an adjunct in the Women's, Gender, and Sexuality Studies department at The College of New Jersey since 2013, teaching Gender, Pop Culture, and LGBTQ Issues in K-12 Education. She has supervised over 50 independent projects in which students focus on social justice and education. Ms. Braverman was 2013 Burlington County Outstanding Woman of the Year in the Arts, and a member of the 2014 Inaugural Class of 40 under 40 for community leadership. She was also the 2016 Burlington County Teacher of the Year, the 2017 Moorestown-Masonic Lodge Teacher of the Year, and is a Certified Welcoming Schools National Facilitator for the Human Rights Campaign. In 2021, she was an LMC Fellow. To learn more, please visit: www.jenniferbraverman.com.

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