

Black History Month 8-Step Project-Based Lesson Plan (Grades 7-12)

Objective: To inspire and educate students about the contributions and achievements of Black innovators, leaders, and communities, highlighting their impact across Science, Technology, Engineering, Arts, Mathematics, and Social Studies through an interdisciplinary STEAMS approach.

Round Table

- ❖ **Opening Question:** How have Black innovators shaped the world we live in today?
- ❖ **Purpose:** Introduce key figures and events from Black history that have influenced STEAMS disciplines.
- ❖ **Materials:** Articles, videos, and biographies on notable Black figures in STEAMS fields (e.g., Katherine Johnson, George Washington Carver, Mae Jemison, Gladys West).

Reflection Point

- ❖ **Discussion Questions:**
 - What challenges have Black innovators faced, and how did they overcome them?
 - How can their stories inspire us to create change in our communities?
- ❖ **Materials:** Excerpts from speeches, interviews, or writings by Black leaders and innovators.

Knowledge Setting

Science (S): Black Contributions to Science	<ul style="list-style-type: none">❖ Objective: Explore the scientific achievements of Black innovators like George Washington Carver (agriculture) or Dr. Patricia Bath (laser cataract surgery).❖ Activity: Research their discoveries and create a presentation on how they've improved lives globally.
Technology (T): Trailblazers in Technology	<ul style="list-style-type: none">❖ Objective: Investigate the technological contributions of Gladys West (GPS) or Mark Dean (personal computers).❖ Activity: Design a digital timeline highlighting their work and its evolution in modern technology.
Engineering (E): Solving Societal Problems	<ul style="list-style-type: none">❖ Objective: Learn about engineering feats like those by Norma Merrick Sklarek, one of the first Black female architects and Tommie Nellon, inventor of the first solar sun hat.❖ Activity: Create a flowchart including the impact of their work, showing how their engineering solved a societal problem.

Arts (A): Expression Through Creativity	<ul style="list-style-type: none"> ❖ Objective: Analyze how Black artists like Jacob Lawrence or Alma Thomas communicated historical events and cultural identity through art. ❖ Activity: Create an original piece of art inspired by their techniques, telling a story of resilience and innovation.
Mathematics (M): Problem Solving Through Numbers	<ul style="list-style-type: none"> ❖ Objective: Study Katherine Johnson's contributions to NASA's space missions through mathematical calculations. ❖ Activity: Solve trajectory or optimization problems inspired by her work, connecting math to real-world applications.
Social Studies (SS): The Legacy of the Civil Rights Movement	<ul style="list-style-type: none"> ❖ Objective: Examine how the Civil Rights Movement influenced social, legal, and economic systems in the U.S. ❖ Activity: Develop a podcast episode or essay comparing the Civil Rights Movement to other global human rights movements.

Project

Progress Map for Project Delivery

- ❖ **Week 1: Project Proposal**
 - Students create a written proposal outlining the focus of their project and community benefit.
- ❖ **Week 2: Project Approval and Community Engagement Plan**
 - Students submit their proposals and outline how their work will positively impact the community, ensuring alignment with the project's learning objectives and addressing real-world needs.
- ❖ **Week 3: Research Progress Update**
 - Students conduct research and gather data related to their chosen focus area.
- ❖ **Week 4: Draft of Final Project**
 - Students compile their findings into a draft report or presentation.
- ❖ **Week 5: Final Project Refinement and Approval for Implementation**
 - Final feedback is provided, and the projects are presented at a community event involving local leaders and stakeholders.

Science (S): Chemistry of Chocolate	<ul style="list-style-type: none"> ❖ Project Example: Develop an experiment inspired by George Washington Carver's agricultural innovations, such as testing soil quality and plant growth using sustainable practices. Present the findings at a local farmers' market or school event to educate the community on sustainable farming techniques.
Technology (T): Chocolate Manufacturing	<ul style="list-style-type: none"> ❖ Project Example: Design a digital showcase or animation about Gladys West's contributions to GPS technology. Share the project with a local community organization, explaining how GPS impacts everyday life, from navigation to emergency response.
Engineering (E): Designing Chocolate Packaging	<ul style="list-style-type: none"> ❖ Project Example: Create a prototype for a community problem-solving device inspired by the work of Black inventors like Frederick McKinley Jones (refrigeration) or Lonnie Johnson (Super Soaker). Host a demo session at a community center, inviting feedback and ideas for practical applications.
Arts (A): The Art of Chocolate Marketing	<ul style="list-style-type: none"> ❖ Project Example: Create a mural or digital art piece inspired by the work of Jacob Lawrence or Alma Thomas, illustrating key moments in Black history. Collaborate with a local library, museum, or school to display the artwork and host an educational event about the artists' impact.

Mathematics (M): Sweet Statistics	<ul style="list-style-type: none"> ❖ Project Example: Research Katherine Johnson's role in NASA's space missions and create a model demonstrating orbital mechanics. Host a community event at a planetarium or school to educate attendees about her contributions and the science of space travel.
Social Studies (SS): The History of Chocolate	<ul style="list-style-type: none"> ❖ Project Example: Develop an interactive map tracing key events and locations of the Civil Rights Movement, including marches, speeches, and legislative milestones. Partner with a local museum or community center to host a presentation and discussion on how these events shaped modern society.

Community Involvement

- ❖ **Objective:** Partner with local historical societies, museums, or organizations celebrating Black history.
- ❖ **Activity:** Invite community members or leaders to participate in a showcase where students present their projects and discuss their impact.

Assessment

- ❖ **Objective:** Evaluate projects based on creativity, research quality, and interdisciplinary connections.
- ❖ **Methods:** Peer, community and teacher evaluations, including a community showcase of completed projects.

Feedback Loop

- ❖ **Activity:** Reflect on the role of Black innovators and leaders in shaping history and inspiring future generations.
- ❖ **Journal Prompt:** "What did you learn about resilience and creativity from Black history, and how can you apply it to your own life?"

Resume Integration

- ❖ Students can list their project experience under research, teamwork, public speaking, and creative problem-solving, emphasizing their understanding of history and STEAMS disciplines.

For more 8-Step Project-Based Lesson Plans check out our website at www.steamsinitiative.org

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