# Valentine's Day 8-Step Project-Based Lesson Plan (Grades 7-12)

**Objective:** To explore the cultural and significance of chocolate, relative to Valentine's Day, through an interdisciplinary STEAMS approach while incorporating creative projects and hands-on activities.

## **Round Table**

- Opening Question: How does chocolate connect science, culture, and art, and why is it a symbol of love on Valentine's Day?
- Purpose: Introduce the history and significance of chocolate in different cultures and its role as a Valentine's Day symbol.
- Materials: Videos or articles on chocolate production, Valentine's Day traditions, and chocolate's cultural significance.

### **Reflection Point**

- Discussion Questions:
  - > How does the process of making chocolate involve STEAMS disciplines?
  - > Why is chocolate considered a symbol of love in many cultures?
- **Materials:** Samples of cacao beans, chocolate products, and cultural artifacts.

# Knowledge Setting

Science (S): The Chemistry of Chocolate	<ul> <li>Objective: Study the chemical compounds in chocolate, like theobromine and antioxidants, and their effects on the brain.</li> <li>Activity: Conduct a taste test and analyze how different percentages of cacao affect flavor and mood.</li> </ul>
Technology (T): Chocolate Manufacturing	<ul> <li>Objective: Investigate the technological advancements in chocolate production, from bean to bar.</li> <li>Activity: Create a flowchart showing the production process and the machines involved.</li> </ul>
Engineering (E): Designing Chocolate Packaging	<ul> <li>Objective: Explore how engineering principles are used to design packaging that preserves chocolate.</li> <li>Activity: Design a creative and functional package for a new chocolate product, incorporating Valentine's themes.</li> </ul>
Arts (A): The Art of Chocolate Marketing	<ul> <li>Objective: Examine how Valentine's Day chocolate is marketed using artistic techniques.</li> <li>Activity: Design a Valentine's Day chocolate ad, using digital or traditional media.</li> </ul>

Mathematics (M): Sweet Statistics	<ul> <li>Objective: Analyze sales data and trends in chocolate consumption during Valentine's Day.</li> <li>Activity: Graph data on chocolate sales and calculate percentages of different types of chocolate sold.</li> </ul>
Social Studies (SS): The History of Chocolate	<ul> <li>Objective: Explore the historical journey of chocolate from the Mayans, Aztecs and Ghana to modern times.</li> <li>Activity: Create a timeline of chocolate's history, focusing on its cultural significance and global trade.</li> </ul>

# Project

Progress Map for Project Delivery	<ul> <li>Week 1: Project Proposal         <ul> <li>Students create a written proposal outlining the focus of their project and community benefit.</li> </ul> </li> <li>Week 2: Project Approval and Community Engagement Plan         <ul> <li>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.</li> </ul> </li> <li>Week 3: Research Progress Update         <ul> <li>Students conduct research and gather data related to their chosen focus area.</li> <li>Week 4: Draft of Final Project                 <ul> <li>Students compile their findings into a draft report or presentation.</li> <li>Final feedback is provided, and the projects are presented at a community event involving local leaders and stakeholders.</li> </ul> </li> </ul> </li> </ul>
Science (S): Chemistry of Chocolate	Project Example: Create an experiment to test how the percentage of cacao affects the melting point of chocolate. Present the findings at a local community center or school science fair, including an educational display about the chemical compounds in chocolate, like theobromine, and their effects on flavor and texture. Offer

	simple recipes or tips to help attendees understand chocolate's properties.
Technology (T): Chocolate Manufacturing	Project Example: Design a mock website or animation showcasing the "bean-to-bar" process of chocolate production. Share the project with a local chocolatier, small business, or nonprofit working in food education to help them explain the chocolate-making process to their customers or community members. Include visuals tailored for public education.
Engineering (E): Designing Chocolate Packaging	Project Example: Create a prototype for a sustainable, Valentine-themed chocolate box that protects the product and appeals to consumers. Partner with a local chocolatier or school fundraiser to present your packaging designs and encourage adoption of sustainable materials. The project could include a workshop or demo to inspire eco-friendly packaging solutions.
Arts (A): The Art of Chocolate Marketing	Project Example: Design an advertising campaign for a new Valentine's Day chocolate product. Partner with a local business or student organization to create posters, digital ads, or social media campaigns promoting their Valentine's Day offerings. Ensure the campaign aligns with the community's interests and traditions.

Mathematics (M): Sweet Statistics	<ul> <li>Project Example: Analyze data on Valentine's Day chocolate sales over the past decade. Use this information to develop an infographic highlighting the trends and economic impact of chocolate on local businesses.</li> <li>Collaborate with local stores or vendors to showcase the infographic in their shops and help educate the community about consumer habits and preferences.</li> </ul>
Social Studies (SS): The History of Chocolate	Project Example: Develop an educational timeline or interactive map tracing chocolate's journey from its origins with the Mayans, Aztecs, and Ghanaians to its role in Valentine's Day traditions. Partner with a local library or museum to host an exhibit or presentation, educating the public about chocolate's cultural significance and historical evolution.

## **Community Involvement**

- Objective: Partner with a local chocolatier or bakery to provide insights into chocolate-making and invite them to the showcase.
- Activity: Host a tasting event where students present their findings and sell their chocolate creations to raise funds for a cause.

## Assessment

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

#### Feedback Loop

- Activity: Reflect on how learning about chocolate connects STEAMS disciplines and enriches our understanding of culture, science and significance.
- Journal Prompt: "What did this project teach you about the connections between science, art, and culture regarding chocolate and Valentine's Day?"

#### **Resume Integration**

 Students can include project experience in research of STEAMS topics, emphasizing teamwork and creative problem-solving.

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

For all inquiries, please email info@steamsinitiative.org

A STEAMS Central, Inc. Program STEAMS Central, Inc. | STEAMS Initiative 8605 Santa Monica Blvd #123617 West Hollywood, CA 90069-4109 info@steamsinitiative.org 833-379-6892