STEAMS Ada Lovelace Project-Based Lesson Plan (K-12)

Objective: The primary objective of this lesson plan is to immerse students in an interdisciplinary exploration of Ada Lovelace's life and her pioneering contributions to computing and mathematics. By integrating STEAMS components, students will delve into various aspects of Ada Lovelace's story, fostering curiosity, critical thinking skills, and an appreciation for her role in the early development of computer science.

Key Components

Science (S):	Topics: ❖ Investigate the foundational principles of computing and early conceptions of algorithms that were influenced by Lovelace's work. ❖ Explore the implications of Lovelace's contributions on modern computing and the development of technology.
Technology (T):	Topics: ❖ Utilize digital tools to research Ada Lovelace's biography, her collaborations with Charles Babbage, and her work on the Analytical Engine. ❖ Create digital presentations or multimedia projects to showcase key aspects of Lovelace's contributions to the development of computing.
Engineering (E):	Topics: ❖ Engage in an engineering design challenge that mimics the thought processes Lovelace might have used when theorizing the Analytical Engine's capabilities. ❖ Design and build models or prototypes that represent early computing machines or illustrate

	computing principles inspired by Lovelace's notes.
Arts (A):	Topics: ❖ Explore the intersection of arts and sciences in Lovelace's work, particularly her view of mathematics as a creative and imaginative pursuit. ❖ Create original artwork inspired by Lovelace's ideas, using various artistic mediums to depict the blend of creativity and logic in computing.
Math (M):	Topics: ❖ Apply mathematical concepts to understand Lovelace's contributions to algorithms and early programming. ❖ Explore mathematical puzzles or challenges that reflect Lovelace's work, such as creating simple algorithms or understanding the logic behind early computers.
Social Studies (SS):	Topics: ❖ Delve into the historical context of Lovelace's life, including the societal attitudes towards women in science and mathematics during her time. ❖ Discuss Lovelace's legacy as a pioneering woman in technology and her impact on later generations of women in STEAMS fields.

Project Phases and Timeline:

Day 1: Science	❖ Introduction to Ada Lovelace and the foundational principles of computing.

Day 2: Technology	❖ Research Lovelace's biography and her significant contributions to the development of computing.
Day 3: Engineering	❖ Engage in a design challenge inspired by the Analytical Engine and Lovelace's theoretical work.
Day 4: Arts	❖ Explore and create artwork that reflects the creative aspects of Lovelace's approach to mathematics and computing.
Day 5: Math	❖ Apply mathematical concepts to understand and create simple algorithms inspired by Lovelace's work.
Day 6: Social Studies	❖ Examine the historical context of Lovelace's life and discuss her enduring impact on the field of computing and on women in STEAMS.

Assessment Criteria
Students will be assessed based on their participation in discussions, completion of assignments and projects, creativity in design challenges and artwork, and their understanding of Ada Lovelace's life and her contributions to computing and mathematics. This comprehensive approach will allow students to appreciate the interdisciplinary nature of Lovelace's work and its lasting influence on the digital world.