

STEAMS Albert Einstein Project-Based Lesson Plan (K-12)

Objective: The primary objective of this lesson plan is to immerse students in an interdisciplinary exploration of Albert Einstein's life and his contributions to physics and scientific understanding, fostering curiosity, critical thinking skills, and an appreciation for the wonders of the universe. By integrating STEAMS components, students will delve into various aspects of Albert Einstein's story, including science, technology, engineering, arts, mathematics, and social studies.

Key Components

Science (S):	Topics: <ul style="list-style-type: none">❖ Investigate the scientific principles behind Einstein's theories of relativity, including special and general relativity.❖ Explore the implications of Einstein's discoveries on our understanding of time, space, and the nature of the universe.
Technology (T):	Topics: <ul style="list-style-type: none">❖ Utilize digital tools to research Albert Einstein's biography, his scientific papers, and the technological advancements that enabled his groundbreaking research.❖ Create digital presentations or multimedia projects to showcase key aspects of Albert Einstein's life and his contributions to physics.
Engineering (E):	Topics: <ul style="list-style-type: none">❖ Engage in an engineering design challenge inspired by Einstein's thought experiments and theoretical concepts.

	<ul style="list-style-type: none"> ❖ Design and build models or prototypes illustrating principles of relativity, such as time dilation or the curvature of spacetime.
Arts (A):	<p>Topics:</p> <ul style="list-style-type: none"> ❖ Explore the artistic representations of Einstein's theories through literature, music, and visual arts. ❖ Create original artwork inspired by Einstein's ideas, using various artistic mediums to convey abstract concepts such as the bending of light or the fabric of spacetime.
Math (M):	<p>Topics:</p> <ul style="list-style-type: none"> ❖ Apply mathematical concepts to understand Einstein's equations and their mathematical underpinnings. ❖ Explore mathematical puzzles or challenges inspired by Einstein's work, such as calculating relativistic effects or solving thought experiments.
Social Studies (SS):	<p>Topics:</p> <ul style="list-style-type: none"> ❖ Delve into the social and historical context of Einstein's life and his impact on science and society. ❖ Discuss Einstein's advocacy for peace, social justice, and scientific collaboration, and the ethical implications of his scientific discoveries.

Project Phases and Timeline:

Day 1: Science	<ul style="list-style-type: none"> ❖ Introduction to Albert Einstein and the
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	scientific principles of relativity.
Day 2: Technology	<ul style="list-style-type: none"> ❖ Research Albert Einstein's biography and the technological advancements of his time.
Day 3: Engineering	<ul style="list-style-type: none"> ❖ Engage in an engineering design challenge related to Einstein's theories of relativity.
Day 4: Arts	<ul style="list-style-type: none"> ❖ Explore artistic representations of Einstein's ideas and create original artwork inspired by his theories.
Day 5: Math	<ul style="list-style-type: none"> ❖ Apply mathematical concepts to solve problems related to relativity and Einstein's equations.
Day 6: Social Studies	<ul style="list-style-type: none"> ❖ Discuss the social and historical context of Einstein's life and his impact on science and society.

Assessment Criteria

Students will be assessed based on their participation in discussions, completion of assignments and projects, creativity in design challenges and artwork, and understanding of Albert Einstein's life and his contributions to physics and scientific understanding.