

STEAMS Cosmetic Products Project-Based Lesson Plan (7-12)

Objective: The primary objective of this lesson plan is to provide students with an interdisciplinary exploration of the science, technology, engineering, arts, mathematics, and social studies (STEAMS) aspects of cosmetic products. By integrating these components, students will gain a holistic understanding of cosmetic products, including their development, production, cultural significance, and impact on society and the environment.

Key Components

Science (S):	Topics: <ul style="list-style-type: none">❖ Investigate the chemistry behind cosmetic products, focusing on the properties and functions of various ingredients used in cosmetics.❖ Explore the biological effects of cosmetic products on human skin and the body, including discussions on dermatology and allergens.
Technology (T):	Topics: <ul style="list-style-type: none">❖ Utilize digital tools and online databases to research the latest innovations in cosmetic technology, including sustainable packaging and product formulation.❖ Examine the role of technology in manufacturing processes, quality control, and the digital marketing of cosmetic products.
Engineering (E):	Topics: <ul style="list-style-type: none">❖ Engage in an engineering challenge to design an efficient production process for a cosmetic product, considering scalability, safety, and quality assurance.

	<ul style="list-style-type: none"> ❖ Analyze the engineering solutions implemented in the design of cosmetic applicators and packaging to improve user experience and reduce environmental impact.
Arts (A):	<p>Topics:</p> <ul style="list-style-type: none"> ❖ Explore the art and aesthetics of cosmetic product design, including packaging, branding, and advertising strategies. ❖ Create original designs for a cosmetic product line, incorporating elements of graphic design, color theory, and market appeal.
Math (M):	<p>Topics:</p> <ul style="list-style-type: none"> ❖ Apply mathematical concepts in the formulation of cosmetic products, calculating concentrations, pH levels, and ingredient ratios. ❖ Use statistics to analyze consumer trends, market research, and product efficacy studies.
Social Studies (SS):	<p>Topics:</p> <ul style="list-style-type: none"> ❖ Delve into the historical development of cosmetics, examining their role in various cultures and societies throughout history. ❖ Discuss the social and ethical implications of cosmetic use, including beauty standards, body image, consumerism, and the impact of cosmetics on the environment.

Project Phases and Timeline:

Day 1: Science	<ul style="list-style-type: none"> ❖ Introduction to the chemistry and
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	biology of cosmetics.
Day 2: Technology	❖ Research on the latest cosmetic technologies and digital marketing.
Day 3: Engineering	❖ Design challenge focusing on production processes and packaging.
Day 4: Arts	❖ Cosmetic product design, including packaging and advertising.
Day 5: Math	❖ Formulation calculations and market analysis.
Day 6: Social Studies	❖ Historical, cultural, and ethical discussions on cosmetics.

Assessment Criteria

Students will be assessed based on their participation in discussions, the creativity and feasibility of their engineering designs, the originality and appeal of their art projects, their accuracy in mathematical formulations, and their understanding and analysis of the social and historical contexts of cosmetics. This comprehensive assessment will ensure students gain a rich understanding of the multifaceted world of cosmetic products through the STEAMS approach.