BLOOMING

Inclusion and Diversity in STEAM

Lesson Plan

Exploring STEAM Through Visual Arts and Design

Grade Level: Middle to High School (Grades 8-10)

Subject Areas: Visual Arts, Technology, Science, Engineering, Mathematics (STEAM)

Duration: 3 Class Periods (45 minutes each)

Objectives:

Students will understand the intersection between visual arts and science through STEAM.

Students will explore how design and illustration can be used to represent scientific concepts.

Students will apply creative and technical skills to design a visually engaging scientific illustration or infographic.

Students will develop critical thinking, problem-solving, and teamwork skills.

Materials:

Drawing paper or sketchbooks

Colored pencils, markers, or digital drawing tablets (if available)

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Laptops or computers with graphic design software (optional)
Rulers, protractors for measuring
Access to scientific textbooks or websites for research
Projector and computer for presentation
Total Time: 3 Class Periods (135 Minutes)
Period 1 (45 Minutes): Introduction to STEAM and Visual Arts

Warm-up (10 minutes):

Begin with a discussion about how visual arts can intersect with science, technology, and engineering.
Show examples of scientific illustrations, infographics, and design in STEM fields (e.g., illustrations of anatomy, architectural designs, environmental graphics).
Introduce Artemis Provou's career as a designer and illustrator in STEAM fields(Blooming Interview Ques…). Discuss how she blends visual arts and science in her work.
Activity 1 (20 minutes):

Brainstorming Session:
Divide students into small groups and have them brainstorm ideas for a project that combines science with visual arts. Examples could include illustrating a biological process, designing a scientific poster, or creating an infographic on environmental issues.

Each group should pick a scientific concept (e.g., climate change, anatomy, physics laws) and plan how to represent it visually.

Activity 2 (15 minutes):

Sketching Initial Ideas:

Have students individually or in their groups sketch out their initial ideas. They should focus on how to convey scientific concepts clearly and engagingly through visual art.

Encourage students to think about design elements like color, shape, balance, and scale in their artwork.

Period 2 (45 Minutes): Designing Scientific Illustrations

Warm-up (5 minutes):

Review the previous day's brainstorming session and discuss how visuals can help communicate complex information in an accessible way.

Activity 1 (20 minutes):

Research and Refine:

Students will spend time researching the scientific topic they chose. They can use textbooks, online resources, or scientific journals to gather accurate information.

As they research, students will refine their sketches and designs, focusing on incorporating scientific accuracy into their visual work.

Activity 2 (20 minutes):

Begin Final Illustration or Infographic:

Using their sketches as a guide, students will begin creating their final illustrations or infographics on paper or digitally, if computers and software are available.

Encourage students to incorporate artistic elements such as perspective, symmetry, and contrast to make the visual both scientifically informative and aesthetically appealing.

Period 3 (45 Minutes): Presenting and Reflecting on STEAM Visual Projects

Warm-up (5 minutes):

Recap the importance of combining art and science, and how this interdisciplinary approach can improve communication and understanding of complex topics.

Activity 1 (25 minutes):

Finalizing and Presenting Projects:

Students will finalize their illustrations or infographics, adding any finishing touches or additional research-based elements.

After completing their work, students will present their visual projects to the class, explaining the scientific concept they chose and how they represented it through visual design.

Activity 2 (10 minutes):

Group Discussion:

After the presentations, facilitate a class discussion on the different approaches taken by each group.

Ask students: How did the visual design help in understanding the scientific concept? What challenges did they face in blending art and science?

Closure (5 minutes):

Summarize the key takeaways from the lesson, emphasizing the importance of creativity in science and how visual arts can enhance scientific communication.

Ask students to reflect on how they might use visual arts in their future academic or professional work.

Assessment:

Participation in group discussions and activities.

Quality and creativity of the final illustration or infographic.

Ability to explain the scientific concept clearly and how it was represented through visual design.

Extension Activity:

Encourage students to create a digital portfolio of their STEAM illustrations and infographics.

Plan a gallery walk or online showcase where students can display their work to the school community.

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Invite a guest speaker, such as a scientific illustrator or a STEAM professional, to discuss the role of visual arts in science.

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