

Lesson Plan Title

Creative Thinking with Art Bots

Grade Level

4th Grade

Subject Area

Science

MSCCRS

P.4.6A.3 - Develop models demonstrating how heat and electrical energy can be transformed into other forms of energy (e.g., motion, sound, heat, or light).

- P.4.6A.4 - Develop models that demonstrate the path of an electric current in a complete, simple circuit (e.g., lighting a light bulb or making a sound).
- P.4.6A.5 - Use informational text and technology resources to communicate technological breakthroughs made by historical figures in electricity (e.g., Alessandro Volta, Michael Faraday, Nicola Tesla, Thomas Edison, incandescent light bulbs, batteries, light-emitting diodes).

Art Form

Visual arts

MSCCR Creative Arts Standards

VA: Cr1.1.4 Generate and conceptualize artistic ideas and work.

a. Brainstorm multiple approaches to a creative art or design problem.

VA: Cr1.2.4 Generate and conceptualize artistic ideas and work.

a. Collaboratively set goals and create artwork that is meaningful and has a purpose to the makers.

VA: Cr2.1.4 Organize and develop artistic ideas and work.

a. Explore and invent art-making techniques and approaches.

VA: Cr2.2.4

VA: Cr3.1.4 Refine, reflect, complete

Duration

30-45 minutes

Materials

- Pool noodles, cut into 6-8" pieces
- Dollar store battery-operated toothbrushes
- Extra AA Batteries
- Thin water-based markers, at least 3 or 4 per student
- Rubber bands

- Masking tape
- Assorted craft supplies to decorate Art Bots: wiggle eyes, pipe cleaners, feathers, pom-poms, etc.
- Tacky glue or hot glue
- Wide roll of paper to cover tables/desks
- Canoodle pool noodle cutters

Objectives

To practice 21st Century Skills, students need hands-on experience. During this lesson, students will use a variety of these skills: critical thinking, problem-solving, and creativity to create their robot and an original piece of artwork. Students will create a robot with balanced or symmetrical features.

Vocabulary

electricity, electric current, conductor, insulator, circuit, robot

Art vocabulary

artistic, conceptualize, creative, art-making, sculpture, 3-dimensional art

Lesson Description

Step 1: Start this lesson with students brainstorming ideas about how they would create a drawing machine. (sculpture) Then show students the short video of a robot that draws listed in resources below..

Step 2: Share with students that they will use a pool noodle piece for their bot's body, a toothbrush motor, and other supplies. Show how to use a Canoodle.

Step 3: Encourage students to get their Art Bot moving and drawing FIRST before decorating it. Students will solve problems along the way. Have students share their discoveries with each other if the class needs more direction.

Step 4: Once most of the students have their Art Bots moving, gather students to see if there are any inventors who can show how they changed the drawing path of their bot. Have those students demonstrate for the class.

Recommended Resources

<https://www.youtube.com/watch?v=Dw1vx1gxEks>

Extended Learning Activities

Diagnostic Assessment: Students will reflect on their creation of their Art Bot and draw a sketch of it. They will also show how their Art Bot drew its path(s) and share problem-solving strategies used.

Have students use technology resources to communicate technological breakthroughs made by historical figures in electricity.

Sources

<https://educationcloset.com/2018/11/01/steam-up-creative-thinking-with-art-bots/>

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