

Lesson Plan Title

The Physics of Jackson Pollock's Art

Grade Level

6th Grade

Subject Area

Science

MSCCRS

P.6.6.7 Determine the relationships between the concepts of potential, kinetic, and thermal energy.

Art Form

Visual Art

MSCCR Creative Arts Standards

VA:Re9.1.6 Apply criteria to evaluate artistic work

- a. Develop and apply relevant criteria to evaluate a work of art.

VA:Cr2.1.6 Organize and develop artistic ideas and work.

- a. Demonstrate openness in trying new ideas, materials, methods, and approaches in making works of art and design.

Duration

1 hour

Materials

Projector screen/smart board to show Jackson Pollock paintings and videos

Large cut of bulletin board paper (4+ feet)

Plastic cups for paint

Acrylic paints of various colors that work well together (color harmony)

Optional: multiple tools/methods to apply paint to paper (various types of brushes, baster, bottles, sticks, etc.)

Objectives

Students will analyze and discuss the scientific principles behind Jackson Pollock's methods of painting.

Students will demonstrate potential and kinetic energy (and the conversion of potential to kinetic) by creating a Pollock-esque class painting.

Vocabulary

Science vocabulary:

Potential energy

Kinetic energy

Visual Art vocabulary:

Action painting

Paint viscosity

Color harmony

Lesson Description

1. Preface the lesson by showing students this Jackson Pollock painting:
<https://www.theartist.me/wp-content/uploads/2018/07/jackson-pollock-convergence-famous-paintings-1.jpg>

Ask students these questions:

- Are there any science concepts at work in this piece?
- Does the art look purposeful in any way?
- What might the artist have understood about physics in order to create this artwork?

Explain to students that this is the work of artist Jackson Pollock. (You may use this opportunity to show additional works of his as well; a link is provided in Resources.)

Unlike many canvas-working artists who primarily use brushes, Jackson Pollock's primary technique was to pour paint onto canvas from above, a technique art historians later called "action painting." This leads us into a lesson on potential and kinetic energy, where we will explore the physics principles that allowed Pollock to create his works, and we'll create our own action paintings using these principles as well!

2. Explain to students that potential energy means that energy is stored in the structure or position of an object. There are three different types of potential energy: chemical (such as in a match or food), elastic (such as in a rubber band or spring), and gravitational, which is the type of potential energy we will be working with today.

The higher an object is from the ground, the more gravitational potential energy it has.

That potential energy can be converted into kinetic energy when it is put into motion.*

*Important note: even after the object is released, potential energy still exists for as long as it has potential to fall; however, the amount of potential energy decreases as the object gets closer to the ground.

3. Show this video of the painting techniques of Pollock. https://youtu.be/EncR_T0faKM
You may choose to pause the video at certain points to ask students about the potential energy (as the paint is positioned above the canvas and as it is falling to the canvas) being converted into kinetic energy (as it is flung, dripped, drizzled, etc.). Remind students that potential energy continues to exist (albeit in decreasing amounts) until it hits the canvas on the floor.

4. Now it is time for the class to create their own Jackson Pollock-inspired art by putting their knowledge of potential and kinetic energy into action.
Have the large cut of bulletin board paper set up in a place that a mess won't matter (on a tarp or outside).
Each student should receive a small amount of paint in a plastic cup. Have at least several different colors available. (You may choose to have some paints watered down to make some colors more viscous than others.)
You may also choose for each student to have a unique way of dispersing their paint (different types of brushes, baster, out of a bottle, etc.), or they can just fling, drizzle, or drip it out of the cup.
Have students take turns turning potential energy (holding paint above a canvas) into kinetic energy (flinging, drizzling, dripping, etc. paint onto the canvas). Encourage them to make a distinctive pattern with their motion above the canvas so that each is unique to them.
Have students discuss the colors present in the work. Are the colors warm (reds, yellows, oranges) or cool (greens, blues, purples)? Are they working in harmony, or do they clash with each other (see tips)?
When each student has had a chance to participate, and most of the negative space of the paper is filled with splatters, you now have a unique piece of artwork to commemorate the lesson!

Recommended Resources

Science behind Jackson Pollock's paintings: <https://phys.org/news/2019-10-scientists-reveal-physics-jackson-pollock.html>

Video on Jackson Pollock's techniques:

<https://www.khanacademy.org/humanities/art-1010/post-war-american-art/abex/v/moma-painting-technique-pollock>

Other examples of Jackson Pollock's paintings:

<https://www.theartist.me/art/15-famous-jackson-pollock-paintings/>

Extended Learning Activities

For a more in-depth take on this lesson, include standard P.6.6.5 (Conduct investigations to predict and explain the motion of an object according to its position, direction, speed, and acceleration) in the lesson. Have students deliberately use different motions, speeds, directions, etc. when applying their paint to the paper. Discuss the different patterns created by the various movements.

Sources

N/A

Tips

1. The paint used for this activity does not need to be expensive. Apple Barrel brand will work just fine.
2. For color harmony ideas when choosing paint colors, see this image:
<https://www.sensationalcolor.com/wp-content/uploads/Color-Harmony-Featured-Image.jpg>
3. The class art activity has the potential to be messy! Encourage students to bring an old t-shirt from home. Bring a few extras of your own in case students forget theirs.

Author

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