

GRADE
4
SCIENCE • DANCE

Energy Dance



Essential Question

What influences choice-making in choreography?

VOCABULARY

energy
collision
effective
develop

Materials List

- marbles
- string to make a circle or chalk to draw a circle

Pacing

2-3 sessions

Assessment

SUMMATIVE

Students will develop a dance study.

Elements of
DANCE

- MOVEMENT
- SPACE
- ENERGY

CONTENT Standard

NGSS 4-PS3-1

Use evidence to construct an explanation relating the speed of an object to the energy of that object.

Additional Standards Addressed:
CCSS.ELA-LITERACY.W.4.2

ARTS Standard

DA:Cr2.1.4b

Develop a dance study that expresses and communicates a main idea. Discuss the reasons and effectiveness of the movement choices.

Additional Standards Addressed:
MU:Re7.1.4

21st Century Skills

- Creative Thinking
- Initiative
- Critical Thinking

Lesson Objective

Students will develop a dance study to express understanding of the concepts of speed and energy of objects.

Lesson Overview

Speed and energy are directly related as we see in so many different ways, dance included. In fact, energy is a key element of dance. Looking at dance through this lens allows students the opportunity to apply their understanding of the concept. Students will have the opportunity to create a dance study which uses the concept of speed, energy and movement.



Artful Thinking Routine

Connect / Extend / Challenge routine

Have students look at the artwork [Moon Dancer](#), by Judith Watkins.

- How is the artwork or object connected to something you know about?
- What new ideas or impressions do you have that extended your thinking in new directions?
- What is challenging or confusing? What do you wonder about?

Artful Thinking by Project Zero is licensed under a Creative Commons AttributionNonCommercial 4.0 International License. Routine found here: <http://pzartfulthinking.org/>

STEP
1

Introduction

Ask students to walk in place. Be sure to reinforce the concept of “in place” or this will quickly get out of control! As they are walking, carry on a conversation with them - which should be no problem. They should not be moving so fast that they are out of breath.

Gradually increase the pace, until students are running in place quite fast. Continue trying to carry on the conversation with them, which will be more difficult as they are trying to catch their breath.

Tell students to stop. Ask them to think about why carrying on a conversation was possible while walking and not so much while running. (They were exerting more energy with the increased speed.)

STEP
2

Speed and Energy

Allow students to play a game of marbles with each other. This works best in pairs. (Here is a [video refresher](#) of how to play marbles.) The more students play the game, the more they will discover strategies that use speed and energy. (Like how much force they use to flick the shooter marble).

After some time playing, discuss their strategies and what they had to think about while playing. This should relate directly back to your study of speed, energy and the motion of objects. Ensure that through playing the game, students have an understanding that the more speed that an object uses, the higher its energy level, and vice versa.

STEP
3

Dance Energy

Students have already seen speed and energy at work in the game of marbles, and while running or walking in place. Now turn their attention to how the two are related in dance.

Ask students to watch a portion of [Alvin Ailey's Revelations](#). Play it a few times, each viewing through a different lens:

- Lens 1: for pleasure and taking in the whole thing.
- Lens 2: looking for high speed/high energy
- Lens 3: looking for low speed / low energy
- Lens 4: looking for outliers - are there moments where low speed likely exhibits high energy (such as when a difficult position is held for a long period of time)

What are the qualities/styles/physicalities of movement that students notice through each lens? Make a master chart that students can refer to during the main activity.

STEP
4

Main Activity

Display the statement: *Motion can indicate the energy of an object.* Tell students that they are going to create a small dance study that communicates this idea.

They can choose to work with a partner, two partners, or alone. If they choose to work alone, they will also need to use some props (such as a handkerchief or a baton) to help show motion and energy. In their dance study, they must show movements with high motion/high energy and low motion/low energy.

Students will also need to choose a short piece of music. Some students may choose the music first and based on its dynamics create the dance, or vice versa. They will want to choose music that allows them to show multiple kinds of motion in a way that makes sense.

*** For an added layer of meaning, this dance study could be reflective of a literary character or a historical figure.*

Estimated Time: 1-2 sessions

CLOSURE

Ask students to construct a written artist/choreography statement that includes an explanation for the choices they made in movement.

While students certainly could share their dance studies, some may feel unsure about that. Invite some to share, and encourage participation from all by asking for a demonstration of a certain movement from this that are more hesitant.

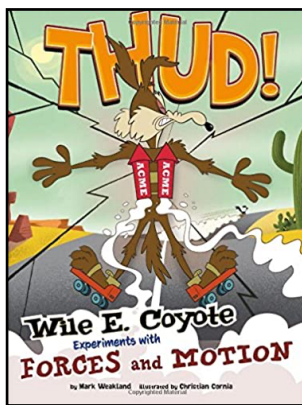
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[A Crash Course in Forces and Motion with Max Axiom, Super Scientist](#)

Emily Beth Sohn

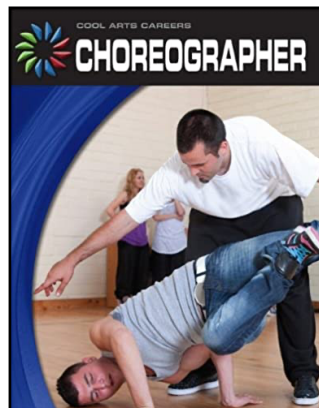
A graphic novel is always an engaging way to learn and this one does not disappoint! Max Axiom encounters speed, friction, gravity and more to learn about all the forces in our world.



[Thud! Wile E Coyote Experiments with Force and Motion](#)

Mark Andrew Weakland

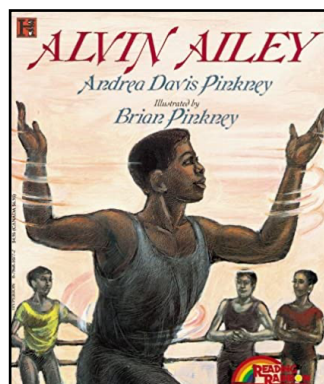
Will Wile E Coyote finally catch the Road Runner if he successfully uses force and motion? Or like usual, will he get it wrong and have his experiments work against him?



[Choreographer \(Cool Arts Careers\)](#)

Katie Marsico

Find out what it takes to make a career in the arts as a choreographer through real stories and photographs of working choreographers.



[Alvin Ailey](#)

Andrea Pinkney

A closer look at the life of choreographer Alvin Ailey and the imprint he has made on American dance. Beautiful engraved illustrations help to expose students to this master of dance.

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Energy Dance

Student: _____

Excelled (what areas were exceptional work for the student)	Proficient	Basic (what areas could the student show improvement in)
	<p>The student is able to use evidence to construct an explanation relating the speed of an object to the energy of that object.</p>	
	<p>The student is able to develop a dance study that expresses and communicates a main idea. Discuss the reasons and effectiveness of the movement choices.</p>	

NOTE: Consider the planning and process shown by the student