

Creative Dance Lesson Plan on Static Electricity

Grade: 5th

Length: 45 minutes

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Student Learning Outcome: The students will exhibit understanding of the three ways that static electricity can be identified through the creation of a sequence demonstrating all three.

Equipment Needed: Hand Drum; CD player; creative dance music; streamers in two colors; two balloons and string; negative and positive labels; one chopstick for every student; rhythm sticks (if none are available, you can substitute chopsticks).

Utah Core – Science

Standard 4: Students will understand features of static and current electricity.

Objective 1: Describe the behavior of static electricity as observed in nature and everyday occurrences.

- c. Describe the behavior of objects charged with static electricity in attracting or repelling without touching.

Utah Fine Arts Core -- Dance

Standard 4: The student will understand and demonstrate dance in relation to its historical, cultural, and personal origins.

Objective 3: Make connections between dance and other disciplines.

- c. Create a dance project through science.

Behavioral Expectations: (3 minutes)

We have two rules for class today:

1. Always keep space around yourself. Never touch anyone else, the walls, or the steps unless I ask you to.
 2. When the music or the drumming stops, you must freeze!
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Experience/Identify: (7 minutes)

Balloon Experiment

Hang two inflated balloons from the ceiling about one foot apart from each other. Rub one of the balloons on the head of a student volunteer. Release the balloon, and the two balloons should come together. This is a result of the balloon taking electrons from the student's hair, giving the balloon a negative charge and the hair a positive charge. What will happen if I rub the other balloon on someone's hair? Rub the second balloon on another student's head. When you release the balloon, the two balloons should repel each other.

Nucleus and Electron

On the count of three, be standing knee to knee with a partner. Decide who will have a positive charge and who will have a negative charge. Give a streamer to the student who has the positive charge. The nucleus of an atom has a positive charge, and the electron has a negative charge. Students should be dancing in close proximity to each other for this activity, so establish

appropriate boundaries. When the nucleus moves the streamer, electrons respond to that movement using their bodies.

Explore/Investigate: (15 minutes)

Chopsticks with Charge

Each student will receive a sticker with either a "+" or a "-". Find a new partner with the opposite charge from you. Each partnership gets two chopsticks. They hold the chopsticks between their hands and move, making sure that the chopsticks do not fall. Give students movement challenges (i.e. turn around, move down low, move quickly, jump, vibrate). If the chopsticks fall, the "electron" must take one chopstick and move to another "proton." Protons that lose their electrons must sit down where they are. Moving electrons cause static electricity. Just like with the balloons, an electron that moves away from its proton is causing positive and negative charges and static electricity.

How to Know Static Electricity is Present

There are three ways to know if static electricity is present:

1. A crackling sound may be heard.
2. A spark can be seen and can shock you.
3. Items cling together with static cling.

"A Crackling Sound May be Heard"

Using rhythm sticks or chopsticks, one partner will play a four count rhythm on the sticks. The other partner will move that rhythm with his or her body. Try several times, then switch roles.

"A Spark Can be Seen"

The first partner will move in a quick and sharp way for three counts, then freeze in a shape on count four. Then his or her partner will try to repeat what the first partner did. Keep practicing until you can exactly replicate what your partner did after seeing it only once. Switch roles.

"Items Cling Together With Static Cling"

One partner stand still; the other partner begin to mould your partner into a shape. You can mould them into any shape you like, but you always have to be connected to your partner in some way; it could be fingers, toes, elbows, foreheads, etc. Once you have finished your sculpture, change roles.

Create/Perform: (15 minutes)

By the count of four, be in groups of four people. In your group create a dance with a beginning and ending shape that includes all three ways that you can identify static electricity: hearing, seeing, and clinging. Make sure that others will be able to identify those three things in your dance. You have ten minutes.

Have one or two groups perform at a time, depending on time constraints. Ask students to pick a group to watch and identify all three methods of identifying static electricity. At the end of the performance, ask observers what order the groups chose to show each method.

Connect/Analyze: (5 minutes)

How can you tell static electricity is present? What part of the atom moves to create static electricity? What two charges cling together? What charges repel each other?