



DOKTOR KABOOM: Live Wire! The Electricity Tour

Applause Series Curriculum Guide
April 11-12, 2016

 **DES MOINES
PERFORMING ARTS**
CIVIC CENTER • STONER THEATER • TEMPLE THEATER • COWLES COMMONS



Dear Teachers,

Thank you for joining us for the Applause Series presentation of *Doktor Kaboom: Live Wire! The Electricity Tour*. The creation of actor David Epley, *Doktor Kaboom* strives to remind audiences of all ages that the foundations of scientific discovery can be joyful tools for a lifetime. *Doktor Kaboom's* zany and spectacular experiments were a huge hit with students and teachers the previous times he was in Des Moines, and we hope that through the performance your students' enthusiasm for science will be reinvigorated and that they will walk away confident in the idea that "science is for everyone." Get ready to be electrified!

We thank you for sharing this very special experience with your students and hope this study guide helps to connect the performance to your in-classroom curriculum in ways that you find valuable. In the following pages, you will find contextual information about the performance and related subjects, as well as a variety of discussion questions and assessment activities. Some pages are appropriate to reproduce for your students; others are designed more specifically with you, their teacher, in mind. As such, we hope that you are able to "pick and choose" material and ideas from the study guide to meet your class's unique needs.



See you at the theater,

Des Moines Performing Arts Education Team

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This study guide was compiled, written and edited by Michelle McDonald and Karoline Myers.

ABOUT DES MOINES PERFORMING ARTS



Des Moines Performing Arts is a private, nonprofit organization and is an important part of central Iowa's cultural community. It is recognized nationally for excellence as a performing arts center and is committed to engaging the Midwest in world-class entertainment, education, and cultural activities.

Des Moines Performing Arts presents professional touring productions, including theater direct from Broadway, world-renowned dance companies, family programming, comedy, and concerts.

Education and Community Engagement programs are core to Des Moines Performing Arts' mission as a nonprofit performing arts center.

Public education programs allow audience members and local artists to make meaningful and personal connections to the art they experience on our stages. Guest lectures and Q&As with company members allow audiences to explore the inner workings of the performance. In addition, master classes, workshops, and summer camps taught by visiting performers give local actors, dancers, and musicians the chance to increase their skills by working directly with those who know what it takes to succeed on the professional stage.

Through its **K-12 School Programs**, Des Moines Performing Arts strives to ensure that central Iowa students have affordable access to high quality arts experiences as part of their education. More than 50,000 students and educators attend curriculum-connected school matinee performances through the Applause Series annually. In addition, Des Moines Performing Arts sends teaching artists into the schools to provide hands-on workshops and residencies in special opportunities that engage students directly in the creative process. And, through its partnership with the John F. Kennedy Center, Des Moines Performing Arts provides teachers with in-depth professional development training on how to use the arts in their classrooms to better impact student learning. The Iowa High School Musical Theater Awards is Des Moines Performing Arts' newest initiative to support the arts in Iowa schools, providing important learning tools and public recognition to celebrate the achievements of students involved in their high school theater programs.

DID YOU KNOW?

More than 300,000 people visit Des Moines Performing Arts venues each year.

Des Moines Performing Arts opened in 1979.

Des Moines Performing Arts has three theater spaces:

- *Civic Center, 2744 seats*
- *Stoner Theater, 200 seats*
- *Temple Theater, 299 seats (located in the Temple for the Performing Arts)*

No seat is more than 155 feet from center stage in the Civic Center.

Cowles Commons, situated just west of the Civic Center, is a community gathering space that is also part of Des Moines Performing Arts. The space features the Crusoe Umbrella sculpture by artist Claes Oldenburg.

As a nonprofit organization, Des Moines Performing Arts depends on donor funding to support facilities, programming, and education programs.

The Applause Series started in 1996. You are joining us for our 20th season of school performances.

GOING TO THE THEATER . . .



YOUR ROLE AS AN AUDIENCE MEMBER

Attending a live performance is a unique and exciting opportunity. Unlike the passive experience of watching a movie, audience members play an important role in every live performance. As they act, sing, dance, or play instruments, the performers on stage are very aware of the audience's mood and level of engagement. Each performance calls for a different response from audience members. Musicians and dancers may desire the audience to focus silently on the stage and applaud only during natural breaks in the performance. Audience members can often take cues from performers on how to respond to the performance appropriately. For example, performers will often pause or bow for applause at a specific time.

As you experience the performance, consider the following questions:

- * What kind of live performance is this (a play, a dance, a concert, etc.)?
- * What is the mood of the performance? Is the subject matter serious or lighthearted?
- * What is the mood of the performers? Are they happy and smiling or somber and reserved?
- * Are the performers encouraging the audience to clap to the music or move to the beat?
- * Are there natural breaks in the performance where applause seems appropriate?

A SPECIAL EXPERIENCE

Seeing a live performance is a very special experience. Although it is not required, many people enjoy dressing up when they attend the theater.

THEATER ETIQUETTE

Here is a checklist of general guidelines to follow when you visit the Civic Center:

- * Leave all food, drinks, and chewing gum at school or on the bus.
- * Cameras, recording devices, and personal listening devices are not permitted in the theater.
- * Turn off and put away all cell phones, pagers, and other electronic devices before the performance begins.
- * Do not text during the performance.
- * Respect the theater. Remember to keep your feet off of the seats and avoid bouncing up and down.
- * When the house lights dim, the performance is about to begin. Please stop talking at this time.
- * **Talk before and after the performance only.** Remember, the theater is designed to amplify sound. Other audience members and the performers on stage can hear your voice!
- * Use the restroom before the performance or wait until the end. If you must leave the theater during the show, make sure the first set of doors closes before you open the second — this will keep unwanted light from spilling into the theater.
- * Appropriate responses such as laughing and applauding are appreciated. Pay attention to the artists on stage — they will let you know what is appropriate.
- * Open your eyes, ears, mind, and heart to the entire experience. Enjoy yourself!

GOING TO THE THEATER information is adapted from the Ordway Center for the Performing Arts study guide materials.

CIVIC CENTER FIELD TRIP INFORMATION FOR TEACHERS



Thank you for choosing the Applause Series with Des Moines Performing Arts. Below are tips for organizing a safe and successful field trip to the Civic Center.

ORGANIZING YOUR FIELD TRIP

- * Please include all students, teachers, and chaperones in your ticket request.
- * After you submit your ticket request, you will receive a confirmation e-mail within five business days. Your **invoice will be attached to the confirmation e-mail.**
- * Payment policies and options are located at the top of the invoice. **Payment (or a purchase order) for your reservation is due four weeks** prior to the date of the performance.
- * The Civic Center reserves the right to cancel unpaid reservations after the payment due date.
- * Tickets are not printed for Applause Series shows. Your invoice will serve as the reservation confirmation for your group order.
- * Schedule buses to arrive in downtown Des Moines at least 30 minutes prior to the start of the performance. This will allow time to park, walk to the Civic Center, and be seated in the theater.
- * Performances are approximately 60 minutes unless otherwise noted on the website and printed materials.
- * All school groups with reservations to the show will receive an e-mail notification when the study guide is posted online. Please note that study guides are only printed and mailed upon request.

DIRECTIONS AND PARKING

- * Directions: From I-235, take Exit 8A (Downtown Exits) and the ramp toward 3rd Street and 2nd Avenue. Turn onto 3rd Street and head south.
- * Police officers are stationed at the corner of 3rd and Locust Streets and will direct buses to parking areas with hooded meters near the Civic Center. Groups traveling in personal vehicles are responsible for locating their own parking in ramps or metered (non-hooded) spots downtown.
- * Buses will remain parked for the duration of the show. At the conclusion, bus drivers must be available to move their bus if necessary, even if their students are staying at the Civic Center to eat lunch or take a tour.
- * Buses are not generally permitted to drop off or pick up students near the Civic Center. If a bus must return to school during the performance, prior arrangements must be made with Des Moines Performing Arts Education staff.

ARRIVAL TO THE CIVIC CENTER

- * When arriving at the Civic Center, please have an **adult lead your group** for identification and check-in purposes. A Des Moines Performing Arts staff member may be stationed outside the building to direct you to a specific entrance.
- * Des Moines Performing Arts staff will usher groups into the building as quickly as possible. Once inside, you will be directed to the check-in area.
- * Applause seating is not ticketed. Ushers will escort groups to their seats; various seating factors including group size, grade levels, arrival time, and special needs seating requests may be used to assign a group's specific location in the hall.
- * We request that an **adult lead the group into the theater and other adults position themselves throughout the group**; we request this arrangement for supervision purposes, especially in the event that a group must be seated in multiple rows.
- * Please allow ushers to seat your entire group before rearranging seat locations and taking groups to the restroom.
- * As a reminder, children under the age of three are not permitted in the theater for Applause performances.

IN THE THEATER

- * In case of a medical emergency, please notify the nearest usher. A medical assistant is on duty for all Civic Center performances.
- * We ask that adults handle any disruptive behavior in their groups. If the behavior persists, an usher may request your group to exit the theater.
- * Following the performance groups may exit the theater and proceed to their bus(es).
- * If an item is lost at the Civic Center, please see an usher or contact us after the performance at 515.246.2355.

QUESTIONS?

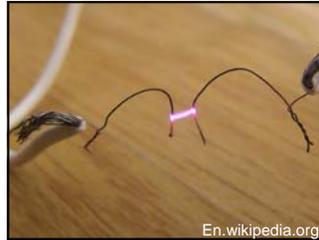
Please contact the Education department at education@desmoinesperformingarts.org or 515.246.2355.

Thank you!

VOCABULARY

amp: a unit for measuring the rate at which electric current flows, short for “ampere”; the number of electrons moving in a circuit.

arc: a brightly glowing electric current that flows across an open space between two points



An electric arc between two strands of wire.

atom: the smallest particle of a substance that can exist by itself or be combined with other atoms to form a molecule.

charge: an amount of electricity.

current: a flow of electricity.

electric discharge: any flow of electric charge through a gas, liquid or solid.

electron: a very small particle of matter that has a negative charge of electricity and that travels around the nucleus of an atom.

frequency: how fast sound of electromagnetic waves travel.



Alternative-energy-tutorials.com

ABOVE: a generator that goes inside of a wind turbine.

grounding: the process of removing an electric charge.

insulator: a material that prevents electric charges from moving easily.



en.wikipedia.org

A power cord with color-coded insulating sheaths.

magnetic pole: either one of the two ends of a magnet, where the magnetic force is strongest.



Two opposite magnetic poles attracting to each other.

neutron: a very small particle of matter that has no electrical charge and that travels around the nucleus of an atom.



Lightning is a type of plasma.
Image courtesy of livescience.com

plasma: a substance similar to a gas, but that can carry and conduct electricity.

proton: a very small particle of matter that is part of an atom and that has a positive electrical charge.

resistance: how much a conductor slows the passage of current.

static electricity: electricity that collects on the surface of something and does not flow as a current; can cause a mild shock if you touch it.



Rubbing a balloon on hair can cause static electricity.
carinadap.wordpress.com

STEM: acronym for Science Technology Education Mathematics.

voltage: the pressure pushing electrons along an electrical current

watt: a unit for measuring electric power.

ABOUT THE PERFORMANCE



Photo: Scott Suchman

Doktor Kaboom strives to empower, excite, educate, and entertain the people of Earth.

Doktor Kaboom is an over-the-top German physicist with a passion for science that knows no bounds. Sporting chrome goggles, orange lab coat, motorcycle boots, and wicked cool hair, Doktor Kaboom travels the world, thrilling adults and children alike with an explosive comedic style that is guaranteed to please every crowd.

Doktor Kaboom, whose real name is David Epley, is a comedian with a love of science. When he performs, he plays the role of a scientist from Germany. To show that you agree with Doktor Kaboom, remember to say “ja” (pronounced “yah”), which is German for “yes.”

Using interactive, character-driven comedy, Doktor Kaboom improves students’ understanding and retention of basic scientific principals, while demonstrating that all science is for everyone.

Although this may be a “one-man show,” Doktor Kaboom will ask for your help in this fun and funny exploration of electricity. For many of his experiments and demonstrations, Doktor Kaboom invites members of the audience onto the stage to assist him!

IMPROVISATION

David Epley performs “improvisational comedy,” which means that he “improvises” or changes his jokes depending on what happens during the show. No two shows are ever the same and the audience never knows what he’ll say next!

EXPERIMENTS AND DEMONSTRATIONS

THOSE CRAZY ELECTRONS

Watch as Doktor Kaboom and audience volunteers talk about electrons and test the idea that opposites attract.

ON THE MOVE

Doktor Kaboom will give a hair-raising demonstration of static electricity. He will also invite friends on stage to turn riding a bike into a power-full experience, much like a wind turbine.

IT’S A GAS!

Doktor Kaboom will try a device that will use electric discharge to make an arc of plasma in the air.

ELECTRO-MAGNET-IFICENT!

Watch how Doktor Kaboom lights a lamp without touching it, using electromagnetics.



ABOUT THE ARTIST, DAVID EPLEY

Doktor Kaboom is the creation of Actor/Comedian David Epley. During the show, David plays the role of the German physicist Doktor Kaboom. Learn more about David before seeing the performance.

TWO PASSIONS

David has been fortunate to discover two passions in his life. David grew up expecting to be a research physicist. Then a biomedical engineer. Then a mathematician, an astrophysicist, a chemical engineer, a marine biologist. Science, his first passion, led him to study at the North Carolina School of Science and Mathematics. His second passion, performing, became his career when he ultimately decided to be an actor.

PERFORMANCES

For almost 30 years David has written, directed, and performed original comedy shows throughout the US, and around the world. Outdoor festivals and street performance were his primary venues of choice, with an occasional stage show thrown in for good measure. In 2006 David decided to bring science, his first passion, back into his life. Blending science and theatre has been a dream come true, opened multiple doors, and led to the most fulfilling work of his life.

Teaching, inspiring, and empowering the minds of our youth, and reminding their parents to be an active part of the equation. How could someone's work be any more rewarding?

PERSONAL LIFE

David Epley calls Seattle home, where he lives with his wife and their two wonderful daughters. He is a veteran of the US Army, and a former Firefighter and EMT.

"It's easy to get people excited about science in the moment, but what I want is for kids to learn that it's not just for those who are naturally gifted in that direction. Science is an important part of everybody's life."

-David Epley



Photo: Scott Suchman

DOKTOR KABOOM'S CORE VALUES



CORE VALUE #1: **SCIENCE IS FOR EVERYONE**

Doktor Kaboom believes it is important to remember that science is not just for people in lab coats or the science fair winners. He believes that science is for everyone, and encourages young people to never lose their love and interest for science.

What do you think?

- * How is science an important part of everyone's life?
- * Why do you think we sometimes lose interest in science as we grow older? What can we do to help ourselves remember that science is fun?

CORE VALUE #2: **SCIENCE TAKES EFFORT**

One of the things Doktor Kaboom believes is "Science is not hard, but it does take effort. That's not hard, that's just work, and that's just life."

What do you think?

- * Why do you think science takes a lot of effort?
- * Can you think of a time you couldn't figure something out? Did you give up? How did you solve the problem?

CORE VALUE #3: **EVERY CHILD IS VALUABLE**

Doktor Kaboom believes every child is intelligent, creative, valuable, and should know that about themselves.

What do you think?

- * What does it mean to you to be intelligent?
- * How can creativity help you in science?
- * When do you feel valued? What are you capable of when you are confident in yourself?

PRACTICING SAFE SCIENCE

As Doktor Kaboom says, "Science can hurt you, especially if I'm the one doing the science." In working with electricity, he has to watch out for sparks, burns, and fires. Even an expert experimenter can face unexpected dangers, so Doktor Kaboom suits up even if there's only the tiniest chance it will be necessary.

Goggles: Much as they do for swimmers, goggles protect scientists' eyes.

Lab Coat: Long sleeves cover Doktor Kaboom's clothing and his skin.

Gloves: Gloves protect Doktor Kaboom's hands.



PRE-SHOW EXPLORATION



1) IMPROVISATION GAME: WHAT ARE YOU DOING?

Goal: To explore and develop improvisation skills.

Explanation: David Epley, the creator of *Doktor Kaboom*, is both a scientist and an improvisational comedian. Students will practice improvisational skills by playing the game 'What Are You Doing?,' a game where you say one thing but do another.

Activity:

1. With students standing in a circle, have the first person pretend to do an action like brushing their teeth or planting a garden.
2. The person next to them then asks, "What are you doing?"
3. The person who is pretending to do an action must respond by saying an action that is different than what they are showing. For example, they might say "I'm playing the trombone."
4. Then the person who asked must pretend to do the action that was just said (playing the trombone).
5. The next person then asks what that person is doing and he or she will reply with another action.
6. The game continues around the circle.
7. Once everyone has grasped the game, you may implement the rule that once you make a mistake you are out. To keep everyone thinking quickly, no actions can be repeated. Keep it going as fast as you can!

Follow-up questions:

1. Did you find this challenge easy or hard? Why?
2. What was the most difficult part?

2) IMPROVISATION GAME: PASS THE BALL

Goal: To explore and develop improvisation skills.

Explanation: David Epley, the creator of *Doktor Kaboom*, is both a scientist and an improvisational comedian. To improvise, one must be creative and able to think quickly on one's feet. Students will practice these skills by playing the game 'Pass the Ball,' in which participants pantomime throwing a ball.

Activity:

1. Have students stand in a circle and ask the players to pass a mimed ball to others (one ball at a time). To show who you are 'passing' the ball to, students should make eye contact with one another.
2. While the ball is passed between two students, the other students should be sure to watch it.
3. As students become comfortable, give suggestions about the nature of the ball. For example, it becomes heavier and heavier until it weighs a ton, or extremely light, extremely big, or extremely small.
4. The actors must convey the ball's characteristics in the way it gets passed.

Follow-up questions:

1. What sort of teamwork was needed to play this game?
2. How did you show that the ball was _____?
3. Do you think actor David Epley uses his body and the way he moves to portray the character of Doktor Kaboom in a certain way? Do all actors use their bodies? Why?

POST-SHOW ASSESSMENT ACTIVITIES



Photos: Scott Suchman

1) BONZO BALLOONS

Goal: To explore static electricity.

Explanation: Use balloons to explore static electricity, much like Doktor Kaboom's 'hair-raising' demonstration.

Materials:

- * A dry, cold day
- * Two balloons
- * Two long pieces of string
- * Piece of fur or wool clothing

Procedure:

1. Blow up and tie closed one balloon.
2. Press the balloon against the wall. Did it stick?
3. Now quickly rub the balloon back and forth against the fur or wool.
4. Press the balloon against the wall again. What happened?
5. Next, blow up and tie closed a second balloon.
6. Tie a piece of long string to each balloon.
7. Rub both balloons on the fur or wool as you did before.
8. Holding each balloon by the string, try bringing them together.

Follow-up Questions:

1. Why did/did not the balloon stick to the wall the first time? What happened differently the second time? Why?
2. What happens when you tried to bring the balloons with string together? Why?

2) HEADS UP FOR ELECTRICITY

Goal: To be more aware of our daily use of electricity.

Explanation: Think about and discuss ways we use electricity every day.

Procedure:

1. Make a list of all the electricity you use in one day of your life. This might take awhile! Be sure to include things around your home and school like lights (and don't forget to include things that run on batteries!)
2. Now make sure you have included in your list things outside your house, like traffic lights.
3. Have students get into groups and share their lists. Many lists will probably be similar. See if they can find any differences in their lists and have them share any unique use of electricity with the entire class.

Follow-up Questions:

1. What would life be like if electricity hadn't been discovered?
2. Are there things you do that use electricity during your day that you could cut back on, and therefore use less electricity? What are other ways we can reduce the use of electricity?
3. What did you learn about electricity during the performance that you didn't know before?

Demonstrations adapted from John F. Kennedy Center's "Doktor Kaboom! Cuesheet Performance Guide"

POST-SHOW ASSESSMENT ACTIVITIES, pg. 2



Photo: Scott Suchman

3) WRITE A REVIEW

Ask students to imagine that they are a critic for the school newspaper. They are going to write a review of *Doktor Kaboom: Live Wire!* to inform others about what they experienced. They should describe with detail: what they saw; what they heard; how the performance made them feel; what the performance reminded them of; and what their favorite part was and why. Remind students that they must paint a picture of the experience with their words so that others who did not see the performance can imagine it.

Follow-up Questions:

1. What did you include in your review? Why did you want to share that particular idea?

4) WRITE TO THE ARTIST

Once you have seen the performance and you and your students have had a chance to discuss what you saw and heard, write to David Epley, a.k.a. Doktor Kaboom.

Letters may be sent to:

Education Department
Des Moines Performing Arts
221 Walnut Street
Des Moines, IA 50309

Follow-up Questions:

1. What did you include in your letter? Why did you want to share that particular idea?

5) CREATING CHARACTERS

David Epley created his own “Doktor Kaboom” character and developed it over the years. Can you think of other people that have created characters or personalities for themselves? Have students discuss their ideas in groups and make a classroom list of the characters. Next, students will move freely about the room. Call out a character’s name from the list, and have students freeze in a position that embodies that character.

Follow-up Questions:

1. How does each character look/sound? What was difficult about this activity?

6) WRITE A THANK YOU

Invite students to write a letter to Des Moines Performing Arts donors about their theater experience.

Example letter starter:

Dear Des Moines Performing Arts Donors,

Thank you for helping my class go to the Civic Center to see *Doktor Kaboom: Live Wire!* My favorite part of the show was... While watching the show I felt... because ... I have drawn a picture of the scene when... This experience was special because ...

Mail the letters to:

Des Moines Performing Arts
Attn: Education Department
221 Walnut Street
Des Moines, IA 50309

RESOURCES AND SOURCES

CLASSROOM RESOURCES

Print Resources:

Gibilisco, Stan. Electricity Demystified, Second Edition. McGraw-Hill Education, 2012.

Spolin, Viola. Theater Games for the Classroom: A Teacher's Handbook. Evanston, IL: Northwestern University Press, 1986.

Web Resources:

"Doktor Kaboom: Live Wire!"

<https://www.youtube.com/watch?v=vAS8aTOOXcg>

Video clip of Doktor Kaboom and David Epley talking with kids his show, Live Wire!

"Electricity for Kids"

<http://www.sciencekids.co.nz/electricity.html>

Great ideas for a range of fun science projects for kids.

"Electrical safety for Kids"

<http://www.switchedonkids.org.uk/>

Learn about electricity and how to use it safely; find lesson plans for teachers.

"Josh and Sarah's Electric Adventure"

<http://www.kidsenergyzone.com/images/activities/0009.pdf>

Online story about two children's adventure as they learn about electricity.

"KidsZone Website"

<http://www.enwin.com/kids/electricity/>

Online resource with important information about electrical safety, conservation, games and activities.



STUDY GUIDE SOURCES

Doktor Kaboom!

<http://shawentertainment.com/doktor-kaboom/>

Doktor Kaboom! Official Website.

www.doktorkaboom.com

John F. Kennedy Center's "*Doktor Kaboom: Live Wire!* Cuesheet Performance Guide"