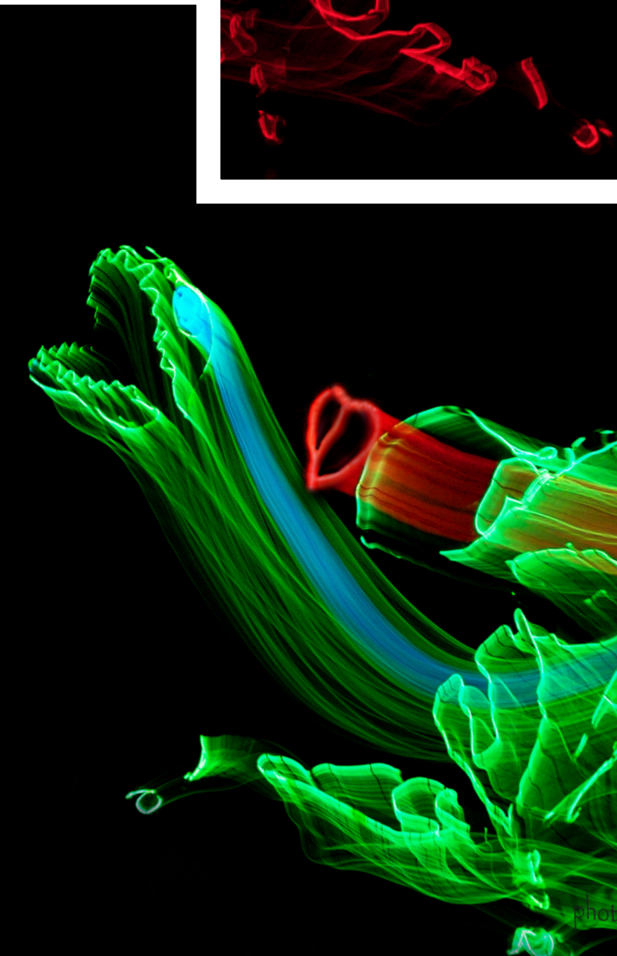
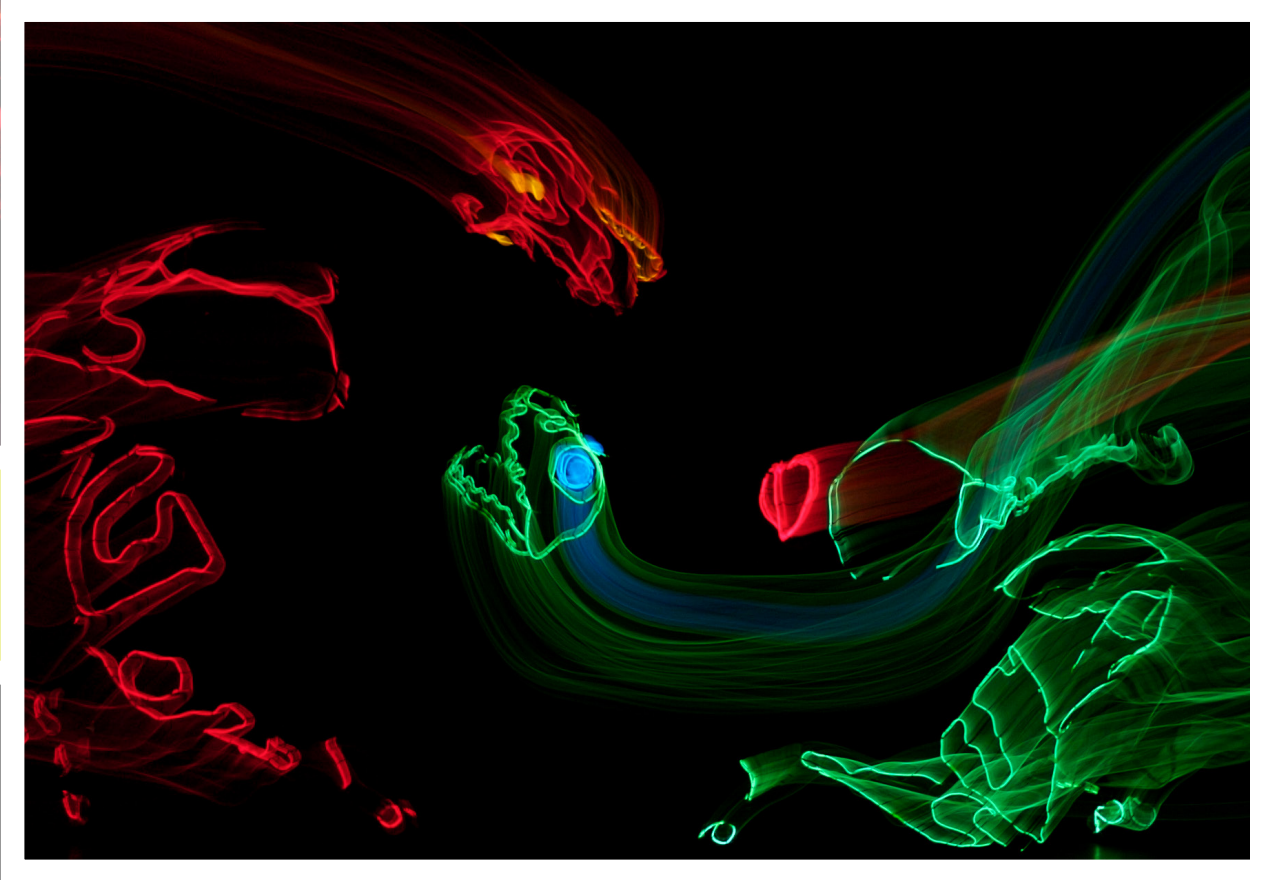
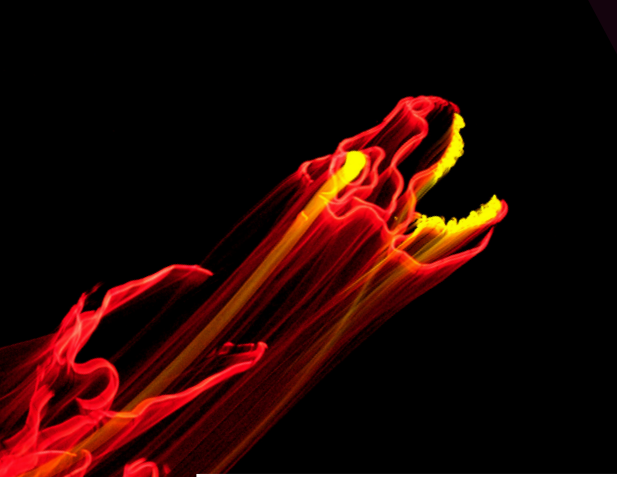


MOSS ARTS CENTER



lightwire theater
dino-light
study guide



study guide

lightwire theater
dino-light

School-Day Performance

Monday, September 30, 2024, 10-11 AM

Recommended for students in grades 1-5



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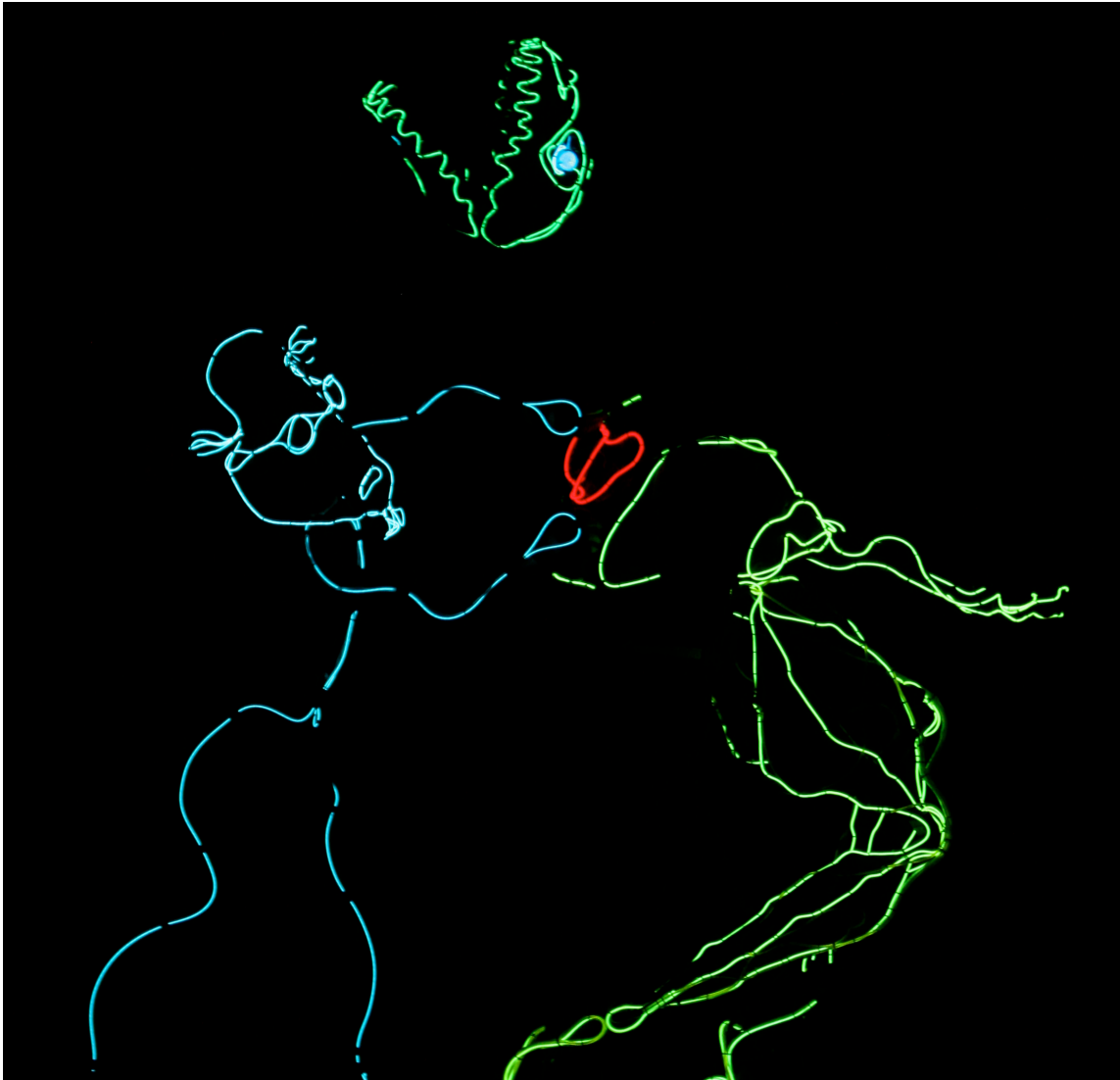


we want everyone to enjoy the show

Please prepare your students for their visit to the Moss Arts Center by practicing audience etiquette before you attend a live performance. The following guidelines will ensure that everyone can enjoy the show:

- Find your seat before the show begins. If you arrive after the show has started, the ushers may need to wait for an appropriate time in the performance to seat you. Always follow the instructions from the ushers.
- Turn off your cell phone and any other device that creates light or could make noise and distract others during the performance.
- Photography, audio, or video recording is not allowed inside the theatre.
- Food, gum, and beverages are not allowed inside the theatre.
- Keep the aisles clear and stay seated so that those behind you can also see the stage. Please keep your shoes off of the seats.
- You can show appreciation and enthusiasm for the performance by paying attention and clapping at the proper time. Save personal conversations and questions for after the show.
- Some performers may invite you to clap, sing along, or even dance in your seat! We want you to have fun, but please make sure you are not ruining the experience for your neighbors. Use your self-management skills to control your voice and body.

about the program



about *dino-light*

Dino-Light, formerly *Darwin the Dinosaur*, received the prestigious Jim Henson Foundation Grant and is the first feature-length theatrical production created and performed by creators Ian Carney and Corbin Popp.

In this original storyline, a famous scientist with magic powers brings a friendly dinosaur to life. When the dinosaur wanders away from home, he discovers a wonderful world full of creatures that light up the darkness and help him find the true meaning of love.

This glow-in-the-dark adventure is visually amazing and has been praised for its cutting-edge blend of puppetry, technology, and dance by audiences all over the world.

about lightwire theater

Lightwire Theater is a unique entertainment experience that utilizes light, technology, and music to tell captivating stories. The company's shows are designed to bring audiences of all ages into a fantastical world of imagination.

Lightwire Theater has been featured as a semi-finalist on NBC's *America's Got Talent*, winner of Tru TV's *Fake Off*, and finalists on My TF1's *The Best Le Meilleur Artiste in Paris*. The group combines theatre and technology to bring stories to life in complete darkness and is internationally recognized for its signature brand of electroluminescent artistry.

Based in New Orleans, Lightwire Theater continues to create and deliver innovative theatrical experiences to audiences worldwide, including Hong Kong, Estonia, Canada, Belarus, China, and Abu Dhabi.

about the technology

The process of building Lightwire Theater's electroluminescent characters starts with the creators and the cast. They build everything from the ground up, utilizing recyclable materials such as aluminum rods, election signs, skateboard wheels, dryer ducting, plumbing supplies, PVC pipes, fishing poles, duct tape, zip ties, and back packs to help define peaks and angles.

These common household items help create durable and pliable sculptures that can withstand the movement of the dancers for multiple performances. Black fabric is added to the sculpture for dimension and then lined with electroluminescent wire known as EL wire. Unlike blacklights, EL wire can be powered by batteries, requires no theatrical lighting and gives 360-degrees of glowing light. The result... anything your inner-child can dream of, including 16-foot-tall birds, dinosaurs, ducks, soldiers, swords, and more!



about the creators

Corbin Popp And Ian Carney

Ian and Eleanor Carney were both born and raised in New Orleans and met through ballet class at age 13. Their successful dancing careers took them to New York, and it was on Broadway when Ian met co-creator Corbin Popp while dancing in Twyla Tharp's *Movin' Out*. An immediate connection was made between the kindred spirits as they discovered their mutual love of art, theatre, and technology. After coming across a product called EL wire, the lights turned on and the possibilities seemed endless. Together with their wives, Eleanor and Whitney, they began to experiment with shapes and designs to develop puppetry-based neon creatures that quickly came to life.

After years of engineering and development, they initially founded CORBIAN Visual Arts and Dance. Although New York offered many opportunities, Ian and Eleanor wanted to return to New Orleans shortly after Hurricane Katrina hit their hometown. With the hopes of helping to rebuild their city, they were joined by Corbin and Whitney Popp and eventually founded Lightwire Theater.

Since then, they have become internationally recognized for their signature brand of electroluminescent artistry, poignant storytelling, and music scores designed to evoke imagery. Lightwire Theater continues to create and deliver innovative theatrical experiences to audiences worldwide.



learning activities

science

Dinosaur Spotlights

1. Students are assigned (or you may have them choose) a dinosaur to research and then teach to their peers. This may be done individually or with a partner using the Natural History Museum's Dino Directory or other sources you may already reference in your class about dinosaurs.
2. Students create a one-pager that includes a picture of their assigned dinosaur with its key physical traits labeled, as well as information about its habitat, food sources, predators and prey, and any other significant facts they learned.
3. Next, provide students with the dinosaur characteristics chart. Give students a short amount of time to find a peer or pair to meet with. You may use a fun prompt like, "find someone with the same color shoes" or "find someone with a birthday in the same month." Students present their assigned dinosaur in one minute, then they switch roles. Students listening to the presentations record the information they learn about that dinosaur on their chart. Continue this process until students have learned about most, if not all, of the dinosaurs assigned to the class.
4. Next, in small groups of two to four, prompt students to group dinosaurs together based on shared characteristics (meat/plant-eaters, 2/4-legged, small/large, can/cannot fly). You may choose to provide pictures of the dinosaurs for students to cut out and glue onto a large sheet of paper in the groups they designate.
5. Finally, have small groups present how they grouped the dinosaurs and discuss as a class what was different from group to group.

► **Virginia Science SOLS:** 3.1f, 3.4, 4.1f, 4.3, 5.1f, 5.8

learning activities, cont.

light reflection and refraction

Lesson Timeframe: Two or three 45-minute class periods

Materials for each student:

- Small mirror to be used during the Engage phase of the lesson
- Properties of Light lab sheet (see page 14)
- Light Benders lab sheet (see page 18)

Materials for the class:

- Station 1: Flashlight and a collection of at least 12 different materials to test (wax paper, cloth, aluminum foil, paper, cardboard, plastic water bottle, glass, aluminum can, etc.)
- Station 2: Clear cup, pencil, and water
- Station 3: Flashlight, cardboard, and prism
- Station 4: Mirror and flashlight

Materials for each group:

- Maze materials as chosen by each group (aluminum foil, duct tape, glue, plastic or paper cups, cardboard tubes and boxes, small mirrors, flashlight, protractor, scissors, and rulers or meter sticks)

Before the Lesson: Students should have an understanding that light does not need a medium through which to travel, travels in straight lines called transverse waves, and that the waves have a frequency and wavelength.

Engage:

1. Show the class several pictures of rainbows. Ask students to identify patterns in the photos.
2. Give each student a mirror and challenge them to write their name so that their name appears correctly in the mirror. Then have the students share what they noticed about trying to write their names.

learning activities, cont.

Light Properties Lab Preparation:

1. In small groups, students will rotate through four stations. You will need enough materials to set up multiples of each station, depending on the size of your class, so that there aren't multiple groups waiting for a station.
2. Assign each group one station about which they will share their observations. Allow each group to share what observations they made. Provide time to discuss any differences in observations made by other groups. Discuss any differences found and clarify any confusion.

Light Properties Lab:

1. After the group(s) assigned to present about Station 1 have shared their findings with the class, introduce the terms **opaque**, **translucent**, and **transparent** and have students add these labels in the appropriate columns on their Properties of Light sheet.
2. After the group(s) assigned to present about Station 2 have shared their findings, introduce the term **refraction** to students.
3. After the group(s) assigned to present about Station 3 have shared their findings, ask students if they observe a pattern in the way the colors come out of the prism. Recall the pattern discovered during the Engage phase (the red color is bent a little, while blue and violet are bent more). Explain to students that the prism refracts different colors at different angles because of each color's energy. Red light has a lower energy (lower frequency) than blue light (higher frequency). Relate the energy and frequency to what students have previously explored and learned about sound or the previous lesson on frequency of waves (more tapping on the water requires more energy and results in higher frequency and shorter wavelengths).

Return to Engage:

1. Remind students of the activity in the Engage phase with the mirror. Ask, "Why it is it hard to write something when looking in a mirror? Explain your response with evidence from the lesson today and use the words reflection and refraction in your explanation."
2. Have students to respond to the lesson's essential question, "How does light behave?" Have several students share their ideas. Students should be able to:
 - Explain **refraction** and give examples.
 - Differentiate between **reflection** and **refraction**.
 - Explain the ROYGBIV sequence of a rainbow.
 - Identify objects that are **opaque**, **translucent**, and **transparent**.

Light Benders Lab Preparation:

1. Arrange students into groups and give each student a Light Benders sheet.
2. Review the maze design challenge and potential materials from which groups may choose.

Light Benders Lab:

1. Give groups time to design, build, test, and redesign their mazes.
2. Once projects are complete, students will participate in a gallery walk in which they try each group's project.
3. Facilitate a class discussion about which designs worked/did not work and why.

▶ **Virginia Science SOLS:** 5.1, 5.6

Station 2:

Put a pencil into a cup of water so that it is leaning. Turn the glass around and observe what you see. Draw two observations below.

Station 3:

Shine a flashlight through the slit of the piece of cardboard so that a shaft of light shines through. Hold a prism in front of the cardboard so that the light passes through it. With your other hand or the help of a classmate, hold a sheet of white paper so that the light passing through the prism shines onto the paper.

Draw a picture to show the pattern of colors.

What happened when the light went through the prism? Draw a picture to show the pattern of colors.

Station 4:

Investigate how light bounces off a mirror. Place a mirror on the line below. Then, shine a flashlight onto the mirror and draw what happened to the light as it bounces off the mirror. Move the flashlight at different angles. What do you observe?

Draw your observations below.

Light Benders Lab

Name: _____

Background:

Light is a form of energy and is transmitted outward from its source. During your study of light, you learned that light travels in straight paths, called rays. You learned that light can change direction when reflected by mirrors.

Design Challenge:

Design and build a maze through which light can travel to a designated target straight ahead of the light source to demonstrate the concept of light reflection.

Criteria:

- The path of light in your maze must include at least three mirrors.
- Your maze must be at least one square foot in size.
- Your light source can be handheld, but it must remain motionless.
- You must write a paragraph explaining the path of light in your maze.
- Materials and tools may include aluminum foil, duct tape, glue, plastic or paper cups, cardboard tubes and boxes, small mirrors, flashlight, protractor, scissors, and rulers or meter sticks.

Draw your design below:

learning activities, cont.

theater

Dino Moves

1. Ask students what dinosaurs they know. As they name different dinosaurs, ask them about the dinosaurs' physical traits, food source(s), habitats, and predators.
2. Prompt students to picture any dinosaur in their head.
3. Then, ask students to start to move like that dinosaur. Remind students to be aware of their bodies in space and to make sure not to touch their peers as they move.
4. As students get comfortable moving around the room as their dinosaurs, give them additional prompts to respond to. "You found water! How would your dinosaur drink?" "There's your next meal!" "Oh, no! A comet is crashing towards the earth!"
5. After giving a few of these prompts, pause and ask students to share what they noticed throughout the activity.
6. Consider asking a student to take over the prompts and allow students to change to a different kind of dinosaur for the next round.

► **Virginia Theater SOLS:** 1.3, 2.13, 3.13, 4.13, 5.13

learning activities, cont.

Prequel or Sequel

1. After attending the performance of Dino-Light, ask students to summarize the story. Try to get students to remember as many specific details as possible.
2. Then, divide students into small groups and ask them to tell what happened before the story began OR to tell the story of what happened after the story ended.
3. Give students a short amount of time to brainstorm the story (seven-10 minutes). You may either give students additional time (three-five minutes) to practice acting out the story they came up with or ask groups to present their story using their improvisation skills, without rehearsing first.
4. Have each small group present to the class. Implement a form of group affirmation like “two claps and a snap!” to transition quickly between groups.
5. Ask students to reflect on what helped their group function well. How did they come up with the story? How did they support one another’s acting choices? What were the challenges that came up?

▶ **Virginia Theater SOLS:** 1.1, 1.2, 1.5, 2.1, 2.2, 2.5, 3.1, 3.2, 3.5, 4.1, 4.5, 5.1, 5.5

language arts

Making a Myth

1. Ask students what a fairytale is. What makes something a fairytale? Explain that people in all places have used stories to teach lessons.
2. Introduce students to the term **myth**. Explain that myths are fictional stories that people all over the world tell to explain the world around them. Explain that myths get passed down from generation to generation and they change as they are retold. You may consider playing a few rounds of telephone to demonstrate how this happens.
3. Choose a children's book based on an African myth to read aloud. There are suggestions in the Additional Resources section of this guide.
4. Before reading, ask students to identify the continent of Africa on the map. Then have them identify the specific country from which the myth originated. Ask students what kinds of animals live in that country, what the climate and landscape are like, and anything else that may be relevant to the folktale.
5. After reading, ask students what question the myth is trying to answer. Then, have students brainstorm a list of questions they have about their own world. It is easiest to focus on the natural world — the natural elements, plants, animals, landforms, etc. Keep a class list of these questions.
6. Model how to map a myth on a storyboard. Have students summarize how the story began, what the problem was, how the character(s) responded, and how the story was resolved. Draw these key moments on the storyboard (next page).
7. Finally, divide students into groups of two to four. They will choose one of the questions from the class brainstorm as the inspiration to create their own myth! Have students title their myth first (e.g., how the fox got its tail, how the fish got its fins, how the mountain got so tall, etc.). This will help them understand what the focus of their story should be.
8. Provide a storyboard for each group to draw the events in their story. Give students 10 minutes to brainstorm and draw. Check in with each group to determine if they need more time.

learning activities, cont.

9. Finally, have each group present their myth to the class as a short play. Have students create masks and props and act out their story for the class. Note: if working in a writing unit, you may choose to instead have students work individually to write and illustrate their myth as their own children's books!

▶ **Virginia English SOLS:** 1.1, 1.2, 1.9, 2.1, 2.2, 2.7, 3.1, 3.2, 3.5, 4.1, 4.2, 4.5, 5.1, 5.2, 5.5

Myth Storyboard

Beginning

Problem

Character's Response

Resolution

learning activities, cont.

Dinosaurs and Root Words

Materials:

- Dinosaur Root Words chart
- Dinosaur Root Word character sheet
- Dino-Story sheet

Introduction:

1. Hand out copies of the Dinosaur Root Words chart. Ask students what “dinosaur” means.
2. Next, project images of dinosaurs that students are likely to know (brontosaurus, stegosaurus, triceratops, etc.). Ask them to use their chart to determine what the name means and ask why scientists chose those names.
3. Ask students the names of other dinosaurs they know. Have them use their chart to determine the meaning of the dinosaur’s name. If there are some names with roots that aren’t included on the chart, write those on the whiteboard as something to further investigate.

Application:

1. On the Dinosaur Root Words worksheet, students create their own, imaginary dinosaur, using two to four Greek or Latin root words. For example, they might create the “Thermoaquasaurus,” which is a dinosaur that can breathe fire under water. The sillier the dinosaur, the better! We’re not concerned about scientific accuracy. You may reference the Greek and Latin root words link in the Additional Resources section.
2. On their Dinosaur Root Word character sheet, students draw their dinosaur in a way that reflects the root words in its name (Thermoaquasaurus would be breathing fire under water). Surrounding their drawing, students add other words that contain the same roots to the boxes provided. (The “Thermoaquasaurus” could be surrounded by the words “thermometer, thermostat, thermal, aquatic, aquarium,” etc.)
3. Next, students write a Dino-Story about their dinosaur using at least three words that contain the roots they included in their dinosaur’s name.

Presentation:

1. Have students share their dinosaurs, the root word(s) and meaning(s), and read aloud or summarize their stories for one or two peers.
2. Finally, ask for student volunteers to share their stories with the class. Spend time adding roots to a class root word chart and/or in individual student root word packets.

▶ **Virginia English SOLS:** 3.1, 3.4b, 3.4c, 3.8, 3.9, 4.1, 4.2, 4.4b, 4.4d, 5.1, 5.2, 5.4c

learning activities, cont.

Dinosaur Root Word Chart

Root	Meaning
allo	strange
apato	deceptive
bronto	thunder
cerat	horned
comps	pretty
deinos dino	terrible
echino	spiked
elasma	plated
mega	huge
micro	small
nodo	lumpy
ops	face
ornitho	bird
raptor	robber
rex	king
saur saurus	lizard
stego	roof
tri	three
tyranno	tyrant

Dinosaur Root Word Chart

Draw your dinosaur below and add its related words on the lines provided:

Dinosaur name: _____

Root word: _____ Meaning: _____

Root word: _____ Meaning: _____

Root word: _____ Meaning: _____

Root word: _____ Meaning: _____

physical education

Glow-in-the-Dark Dance!

Materials:

Glow sticks and tape to secure glowsticks

Instructions:

1. Show students a video of a glow-in-the-dark dance using glowsticks. Video examples are linked in the Additional Resources section of this guide. Ask students which dance moves worked well in the dance and which were difficult to see. For example, spinning around in a circle won't show up since the glow sticks will only be on the front of students.
2. Tell students they will be creating their own glow dance.
3. Divide students into small groups and have them choose a song to dance to. Consider providing a list of songs for them to choose from so that this portion doesn't take too long.
4. Have students practice the dance without any glow sticks many times.
5. Finally, small groups present their dance to the class. Be sure to review expectations for student behavior when the lights are turned off before starting the presentations.

► **Virginia Physical Education SOLS:** 1.1, 1.4, 2.1, 2.4, 3.1, 3.4, 4.1, 4.4, 5.1, 5.4

learning activities, cont.

Dino-Tag

Materials: Clothespins (enough for each student to have three) and other materials for the fossil zone

Set Up:

1. Clip three “dinosaur spikes” (clothespins) to the back of each student’s shirt.
2. Create a “fossil site” zone away from the space where Dino-tag is being played where the extinct dinosaurs do a series of physical activities while the game of Dino-tag continues.

Game Play:

1. Students play a version of tag where they are dinosaurs. Students try to steal the spikes off of the other dinosaurs. Remind students they may not push their peers, tug on their clothing, or engage in any other activity that is unsafe.
2. When students steal a spike off a dinosaur’s back, they pin it to the front of their shirt. Spikes may only be stolen from the back of a dinosaur; not from the front. Once a dinosaur loses all their spikes, they are extinct and must go to the fossil site. If students complete all the activities in the fossil zone, they may rest as a fossil until the round ends.
3. The round ends either when all dinosaurs are extinct except one, or after a designated amount of time. If you choose to end the round after a designated amount of time, the dinosaur with the most spikes (front and back) at the end is the Apex Predator!

► **Virginia Physical Education SOLS:** 1.1, 1.4, 2.1, 2.4, 3.1, 3.4, 4.1, 4.4, 5.1, 5.4

additional resources

Teacher Resources

[American Museum of Natural History Dinosaur Activities and Lesson Plans](#)

[American Museum of Natural History Resources for Educators: Dinosaurs Among Us](#)

[Children's Book World African Folktales](#)

[New York Public Library: 10 American and African American Folktales for Children](#)

[Press Books: Tiny Tales from Africa](#)

[Tinga Tales YouTube channel](#)

[Root Words from Reading Rockets](#)

[Talent Show Third Grade Boys: Glow-in-the-Dark Dance](#)

Bibliography

[Light Reflection and Refraction from GoOpenVa.org](#)

[Dinosaur Naming Activity from American Museum of Natural History](#)

[Dinosaur Tag from Fit Kids Healthy Kids](#)



what to know before you go

Changing your reservation

If you cannot attend or your party turns out to be smaller than the number of tickets you have reserved, please inform the Moss Arts Center as soon as possible by contacting Margaret Lawrence at margaretlawrence@vt.edu so that Moss staff can release your tickets to those on the waiting list.

Accessibility

The Moss Arts Center is committed to being accessible to all of our patrons. Patrons with disabilities and their companions are accommodated through wheelchair seating, parking, and other special requests throughout the center at all levels. Assisted listening devices are available. Service animals are permitted. Sign interpretations and large-print programs are available with advance notification. If you or your students have questions regarding accessibility or would like assistance, please contact Jamie Wiggert at wiggertj@vt.edu.

Drop Off

The bus drop-off location is on the Alumni Mall side of the Moss Arts Center, located at 190 Alumni Mall on the Virginia Tech campus. Drivers may pull their buses into the driveway loop directly in front of the center. Staff will be on site to assist. Recommended arrival time is 15-30 minutes before the start time of the performance.

Parking for Cars and Vans

Those driving cars and vans may park in the North End Center Garage (300 Turner Street NW), which is one block from the Moss Arts Center's Turner Street entrance. A valid university parking permit, a validation from one of the retail tenants, or payment of the daily fee is required to park in the North End Center Garage.

Parking for Buses

Bus staging is located in the upper section of the Chicken Hill lot (Football Lot 5) on the Virginia Tech campus. The lot entrance is on Southgate Drive, opposite Sterrett Drive. Parking passes will not be required for buses. For more information about parking at Virginia Tech, please visit parking.vt.edu. Please note that buses are not permitted to park adjacent to the Moss Arts Center's Turner Street entrance.

what to know, cont.

Checking In

When you arrive at the center, please check in with Moss Arts Center staff to confirm that your party has arrived. Staff will be on site to assist seating your group, directing you to restrooms, and answering any questions you may have.

Pick Up

It is recommended that buses arrive back at the Moss Arts Center 15 minutes before the end of the performance. Following the performance, please remain in your seats; school groups will be dismissed by Moss Arts Center staff to ensure a smooth and speedy departure for all. Staff and volunteers will assist school groups in meeting their buses in the center's Alumni Mall driveway.

Feedback

Following the performance, you may receive an email requesting feedback on your group's experience. Please make time to respond, as doing so could significantly improve the Moss Arts Center's PK-12 programs for you and future visitors.

For More Information About Moss Arts Center Programs

Please subscribe to the [Moss Arts Center's email list](#) and join the list for school-day performances and PK-12 programs.

