MACHINE DE CIRQUE

STUDY GUIDE

MOSS ARTS CENTER

STUDY GUIDE

Machine de Cirque
La Galerie

School-Day Performance
Friday, January 27, 2023, 10-11 AM

Recommended for students in grades 5-8

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The following guide was adapted from content originally developed by Machine de Cirque. The Moss Arts Center would like to thank the company for permitting the creation of this educational resource.

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:

- 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 at all times and stay seated so that those behind you can also see the stage.
- You can show appreciation and enthusiasm for the performance by paying attention and laughing or clapping at the proper time. Participate if invited to do so by the performers, but save personal conversations for after the show.

ABOUT "LA GALERIE"

Seven zany acrobats and an eccentric musician take in a monochrome exhibit. With a creative spark, they set off an explosion of color. In mocking defiance of convention, these wacky and endearing characters eagerly explore an exhibition from the inside out. Dizzying feats, astonishing discoveries, poetic liberties, and a serious dose of some silly good fun come together to fuel this ode to creativity.

MACHINE DE CIRQUE

Founded in 2013 under the initiative of Vincent Dubé, Raphaël Dubé, Yohann Trépanier, Ugo Dario, Maxim Laurin, and Frédéric Lebrasseur, Machine de Cirque launched its very first production — the company's namesake show — in May 2015 to rave reviews by both audiences and critics alike. This maiden production, including its cabaret version, has been performed more than 700 times in Europe, Asia, and North America. More than 300,000 spectators have attended this show and this number continues to grow.

Since then four more shows have been added to Machine de Cirque's roster of productions. In 2018, a traveling show titled *Truck Stop: The Great Journey* told the story of a group of zany campers as they embarked on a wild adventure across the North American continent. Then, in 2019, Machine de Cirque created a third production titled *La Galerie*, in which spectators were taken on a trip to the outer boundaries of art by means of a totally out-of-this-world exhibit where movements from white to color and shifting sets created the most unexpected scenes. In summer 2020, despite the pandemic, the company presented a walk-through circus show titled *Fleuve at the Baie de Beauport (Québec)*. Most recently, in 2020, *Ghost Light: Between Fall and Flight* made its world debut at the prestigious Festival du Cirque Actuel CIRCA in Auch (France).

New productions are also currently on the drawing board. They are all based on the company's artistic signature, which skillfully blends the highest levels of contemporary circus with musical and theatrical performances, propelled by the collaborative spirit that drives Machine de Cirque.

Machine de Cirque is a Québec City-based circus company that packs high doses of dizzying feats, powerful emotions, poetry, intelligence, and humor into its innovative and original circus shows. The company's ingenious and deeply human creations skillfully blend the highest levels of contemporary circus with musical and theatrical performances. Driven by this unifying vision, Machine de Cirque's unique approach to the circus arts produces shows that dazzle the mind, touch the heart, and move the spirit.

Creators, Cast, and Crew

Stage Director and Author: Olivier Lépine
Artistic Director and Co-Writer: Vincent Dubé
Cast: Adam Strom, Antoine Morin, Connor Houlihan, Gaël Della-Valle, Lyne Goulet, Pauline Bonanni, David Trappes, and Marie-Michèle Pharand
Music: Marie-Hélène Blay
Artistic Advisors: Frédéric Lebrasseur, Lyne Goulet, Maxim Laurin, Raphaël Dubé, and Ugo Dario
Scenographer: Julie Lévesque
Lighting Designer: Bruno Matte
Costumes: Émilie Potvin
Production Director: Geneviève Ouellet-Fortin
Technical Director: Mathieu Hudon
Other Collaborations: Gilles Bernard and Carl D. Jardins

ACTIVITIES: SCIENCE

Newton's Laws of Motion

The acrobatic feats performed by Machine de Cirque are great examples of the science of motion. In addition to extraordinary athleticism, the performers must have a good understanding of how objects move when acted on by forces. Our understanding of physics comes from Sir Isaac Newton's theories about motion and energy developed in the 17th century. His discoveries, presented in the *Mathematical Principles of Natural Philosophy*, revolutionized science.

Newton's First Law of Motion (Inertia)	An object at rest remains at rest, and an object in motion remains in motion at constant speed and in a straight line unless acted on by an unbalanced force.
Newton's Second Law of Motion (Force)	The acceleration of an object depends on the mass of the object and the amount of force applied.
Newton's Third Law of Motion (Action and Reaction)	Whenever one object exerts a force on another object, the second object exerts an equal and opposite force on the first.

First Law

Objects don't move by themselves. Objects at rest tend to stay at rest, and objects in motion tend to stay in motion, unless acted upon by an outside force. This tendency for objects to keep doing what they are doing is called inertia. You can feel the effects of inertia when you are riding in a car that stops suddenly. Because you are moving forward, when the car suddenly stops your body wants to continue moving forward. The resistance from your seatbelt will stop your body from continuing to move forward.

Gravity and friction are two forces that act on objects in motion to make them slow down and eventually stop moving. In *La Galerie*, we see gravity at work when the juggling clubs begin falling after being thrown. Friction is evident when performers land after a jump or flip. The friction between the shoes and the ground is what prevents them from slipping.

Second Law

Force can also be described as a push or a pull. Objects with more mass will require more force to stop or move them. If you throw a baseball and a watermelon as hard as you can, the baseball will travel faster and further because it has less mass than the watermelon. You can see this law in action on stage when the cast moves set pieces around. Some platforms are easy for one person to move, but some require two people to move.

Be careful not to confuse mass and weight. Mass measures the amount of material in an object. Weight measures the gravitational force acting on an object. On the moon, your body would have the same amount of mass but your weight would be greatly reduced because of the weaker gravitational pull.

SCIENCE, continued

Third Law

For every action (force) there is an equal and opposite reaction (force). Imagine hitting a soccer ball with your foot. Your foot exerts a force on the ball and sends it forward; the ball exerts a force on your foot. The harder you kick the ball, the more you feel the ball pushing back!

> Machine de Cirque uses a Russian bar in this performance. A Russian bar is made of flexible fiberglass poles and looks similar to a balancing beam. Two performers hold the bar on their shoulders and one performer, called the flyer, stands on the beam. When the flyer applies force to the flexible bar with her legs, it pushes back and propels her into the air.

Virginia Science Standards of Learning: 5.1, 5.2, 5.3, PS.1, PS.8

Physics on the Playground

Using some simple materials and playground equipment, help your learners put their scientific and engineering practices to work while having fun!

Allow students to work in pairs or small groups to conduct the following experiments. They should develop a hypothesis before each experiment, collect and interpret the data during each activity, and write scientific conclusions or explanations after each experiment is complete.

Experiments to Demonstrate Inertia

Mark a straight line on the ground behind two swings, parallel to the seats. Have two members of the team sit on the two adjacent swings and walk the swing back until they are standing on the marked line. At the same time, they will lift their feet and drop into the swing, keeping their legs extended straight ahead. Time how long each child continues to swing. Why did one person slow down faster than the other? If an object in motion remains in motion unless it is acted on by an outside force, what are the outside forces that caused the swings to slow down? What modifications could be made to the experiment to increase the amount of swinging time?

One member of the pair or group will sit in the swing and start pumping. When they have reached a good height, they will try to jump off the swing and land solidly, standing still. Why is it hard to land in one spot and remain standing still? What can be done to make landing easier?

Experiments to Demonstrate Force

Have students record the diameter and weight of a beach ball, baseball, soccer ball, and marble before beginning this activity. On a flat pad of concrete, use sidewalk chalk to draw two parallel lines, about six feet apart. Place each ball on one line, and push each one just hard enough that it will stop on or near the second line. Which ball required the most amount of force to reach the second line? Which ball required the least amount of force? What determines the amount of force required?

Hold two balls that are roughly the same size but different weights at the same height over sand or another impressionable surface and then drop them at the same time. Which ball hits the ground first? Which ball leaves a deeper impression in the sand? Why?

SCIENCE, continued

Experiments to Demonstrate Action and Reaction

Line up five marbles or balls of the same type on a flat surface, each one touching the next. Starting at one end, pull back and roll the first marble into the second marble. What happens to each of the marbles?

Have one child hold a basketball and sit in a rolling chair on a smooth surface. Using two hands, make a very hard pass straight forward. What direction does the chair move and why?

Virginia Science Standards of Learning: 5.1, 5.2, 5.3, PS.1, PS.8

Are Newton's Laws Different in Space?

How does Newton's third law of motion impact movement in space? Watch this video about Gene Cernan, the first American astronaut to work in zero gravity, and the challenges he faced in 1966 trying to assemble a rocket-powered backpack while on a spacewalk. Pause the video at 3:15 to allow students to brainstorm some solutions for working in weightlessness.

Balloon Car Challenge

Students can see a demonstration of the relationship between mass, force, and acceleration in this experiment conducted on the International Space Station. After watching the video, ask students to summarize what they know about all the forces that can impact motion and acceleration.

Challenge your students to design a balloon-powered car. The Peterson Automotive Museum provides an excellent simple tutorial online. Encourage students to make design choices for their car by choosing different types and sizes of bottles and caps. They will also be able to adjust the placement of each component on their car. After completing their builds, host a few test runs. Put students into small groups to discuss challenges or unexpected results, and then allow them to modify their design, if needed.

When all cars are complete, take them to a clear space and race them! Record the winning times of each round and draw conclusions about the design choices that allowed the winning cars to accelerate the fastest.

Virginia Science Standards of Learning: 5.1, 5.2, 5.3, PS.1, PS.8

ACTIVITIES: VISUAL ARTS

Have you ever encountered art in a museum or gallery that looks similar to the canvases created on stage in *La Galerie*? If so, it could have been a painting from the Abstract Expressionist movement.

Abstract Expressionism and Joan Mitchell

In the 1940s and 1950s, a new form of abstract painting was developed by American artists in New York City. This style, characterized by gestural brush strokes and a feeling of spontaneity, was inspired by Surrealism and the belief that art should pour out of the unconscious mind. Led by Jackson Pollock and Willem de Kooning, the New York School painters were not interested in showing recognizable things. Instead, they painted to express their emotions. The finished works often emphasize the physical act of making art, with paint dribbled, splashed, smeared, flung, and squeezed onto the surface.

Joan Mitchell (1925-1992) was an abstract expressionist known for her large-scale paintings and drawings. She was one of only a few women in that era to find critical acclaim and public success as an artist. Despite being stylistically rooted in the New York School, by 1959 Mitchell was living and working full time in France. She found international success while there, and was often included in exhibitions throughout Europe and the Americas.

Mitchell's work was inspired by landscapes, poetry, and music. She didn't try to capture those things in images directly, but painted the "remembered feelings of them, which of course become transformed." Her paintings are energetic, full of color, and often expansive. Her work can be seen online at the Joan Mitchell Foundation's website.

Virginia Visual Arts Standards of Learning: 5.6, 6.6, 7.6, 8.6

Exploring Meaning in Mark-Making

This collaborative exercise is fun and can get messy, so it is recommended to have ample space available.

After introducing students to the work of Joan Mitchell, ask them to brainstorm words that describe emotions, moods, or feelings. After that is complete, challenge them to replace simple emotion words, like "sad," with more precise and sophisticated words, such as "melancholy." When they have completed their updated list, ask them to pick three of those words and write them on individual index cards.

Divide students into groups of six to eight and give each group a very large painting surface. Each group should also have access to a wide variety of mark-making tools and media. Each group will shuffle their emotion cards and place them beside their painting surface. Taking turns, each student will draw an emotion card and interpret it with their own abstract marks on the shared surface. They can use any media or color, but should think about how they are sharing the space and reacting to the marks made previously. Only abstract marks can be made, and no recognizable images should be created. The group must decide unanimously when their painting is complete.

When each group has finished, take a gallery walk as a class. Allow the groups to explain how they approached the words they were interpreting, what it felt like to work on a shared surface, and how they concluded that their piece was finished.

Virginia Visual Arts Standards of Learning: 5.1, 5.2, 5.5, 5.6, 5.12, 5.15, 5.17, 6.1, 6.2, 6.4, 6.5, 6.12, 6.14, 6.17, 7.1, 7.2, 7.4, 7.5, 7.12, 7.14, 7.17, 8.1, 8.4, 8.5, 8.12, 8.17

VISUAL ARTS, continued

Painting Without Brushes

You may not want your young artists to be quite as exuberant with paint as the characters in *La Galerie*, but exploring paint in a different way can be good practice for students. Using non-traditional painting methods allows students to explore painterly mark-making techniques while improving their ability to create compositions and depth.

Working from simple still life items, ask students to quickly arrange a few items into a composition and make a light contour line sketch of their composition on a large piece of paper. Prepare a palette of white and black tempera paint for each student. Assemble a variety of objects that can be used to apply paint instead of a brush. Items such as scraps of cardboard, small sponges, rubber spatulas, rags, and palette knives work well. Give students a time limit to complete their painting. The time limit should be short enough to be a challenge, but not so short that students are frustrated. Allow learners to use their fingers and any tools available to complete their still life painting, encouraging them to focus on creating form with value and interesting marks. Conclude with a gallery walk and class critique focused on composition, value, and expression.

Virginia Visual Arts Standards of Learning: 5.1, 5.2, 5.12, 5.13, 5.15, 5.17, 6.2, 6.12, 6.13, 6.14, 6.15, 6.17, 7.2, 7.12, 7.13, 7.14, 7.15, 7.17, 8.2, 8.12, 8.13, 8.15, 8.17

PHYSICAL EDUCATION AND SOCIAL EMOTIONAL LEARNING

Circus troupes like Machine de Cirque rely on trust and communication to perform dazzling stunts at such a high level. Physical games and challenges that require students to communicate and cooperate with each other can help to develop a positive classroom culture. These fun activities build empathy, self-confidence, teamwork, and problem-solving skills.

Before beginning these activities, review safety guidelines and establish a signal that will be used to immediately freeze the activity if needed.

Runway

Runway is a trust-building exercise that requires collaboration. The difficulty is easy to scale up or down based on the age and experience of your learners.

Tape off a path that is about six feet wide down the center of the gym. This path is the runway, and it should include several obstacles, which can be created with cones, hoops, bean bags, and other static equipment.

Divide the class in half and line up students on both sides of the runway. The first person in the line on the left steps to the center of the end of the runway. They are the air traffic controller. The first person on the opposite end of the line on the right steps to the center of the runway facing the air traffic controller and closes their eyes. They are the pilot.

The air traffic controller must guide the pilot safely down the runway without touching any of the obstacles or students on either side. If the pilot "crashes" into an obstacle, their turn ends and the next pair of students begin. When each pair is finished, the two students switch sides and join the end of the opposite line.

Debrief the activity with some reflection questions such as:

- How did it feel to be the pilot?
- What did you learn about communicating as the air traffic controller?
- Can you think of any real-life situations that require careful communication?

Virginia Social Emotional Learning Standards: ReS2: 5-6a, ReS2: 5-6c, ReS2: 5-6d, ReS2:7-8a, ReS2: 7-8d

Virginia Physical Education Standards of Learning: 5.4a, 5.4f, 6.1f, 6.2a, 6.4a, 6.4e, 6.4f, 7.4a, 7.4c, 7.4e, 7.4h, 8.4b, 8.4c, 8.4e

PHYSICAL EDUCATION AND SOCIAL EMOTIONAL LEARNING, continued

Amoeba

This activity is easy to set up and a fun way to encourage teamwork and positive communication.

Using rope, make a circle on the ground that is large enough for all students to stand within. Tape or knot the ends of the rope so it is a closed loop. The tighter the circle, the more difficult this activity will be. After all students have stepped inside the circle, ask them to pick up the rope and hold it at waist height.

Give the group a destination with some obstacles to navigate around, through, over, or under. The entire group must work together to reach the destination without anyone dropping the rope, leaving the loop, or falling.

Group members will have to work at a pace appropriate for everyone and communicate the strategy for navigating challenges. You can debrief the activity with the questions:

- How did it feel to work as one unit?
- Did anyone notice a teammate encouraging and looking out for others? What did they say or do? How did it make you feel?
- What did you learn about communication during this activity?

Virginia Social Emotional Learning Standards: ReS2: 5-6a, ReS2: 5-6c, ReS2: 5-6d, ReS2:7-8a, ReS2: 7-8d

Virginia Physical Education Standards of Learning: 5.4a, 5.4f, 6.1f, 6.2a, 6.4a, 6.4e, 6.4f, 7.4a, 7.4c, 7.4e, 7.4h, 8.4b, 8.4c, 8.4e

All Aboard

This game is all about problem solving and creative thinking.

Place one large tarp on the ground and ask every student to put both feet on the tarp. After they are all on the tarp, ask them to step off. Fold the tarp in half. Keep repeating the procedure as long as possible. The game ends when the group can no longer fit everyone's feet on the tarp.

The instructions to "put both feet on the tarp" do not prevent students from sitting in a circle around the tarp and placing just their feet on it. Someone will eventually figure that out, but there are often other creative solutions explored as the tarp continues to shrink.

Debrief the activity with a conversation about creative problem-solving and how sometimes the rules we put on ourselves can limit our ability to see multiple solutions to challenges we face in life.

Virginia Social Emotional Learning Standards: ReS2: 5-6a, ReS2: 5-6c, ReS2: 5-6d, DeM1: 5-6a, ReS2:7-8a, ReS2: 7-8d, DeM1: 7-8a, DeM1: 7-8b

Virginia Physical Education Standards of Learning: 5.4a, 5.4f, 6.1f, 6.2a, 6.4a, 6.4e, 6.4f, 7.4a, 7.4c, 7.4e, 7.4h, 8.4b, 8.4c, 8.4e

RESOURCES

Machine de Cirque

- Website
- Vimeo

Newton's Laws of Motion

- Mass vs. Weight: Accelerating Mass Experiment on the International Space Station
- Christa's Lost Lessons: Newton's Laws for Grades 6-8
- Make a Balloon Car with the Peterson Automotive Museum

Abstract Expressionism

- Tate Modern
- Joan Mitchell Foundation

Bibliography

Nye, Bill, and Gregory Mone. *Bill Nye's Great Big World of Science*. Harry N. Abrams Inc., 2020.

"Christa's Lost Lessons: Challenger Center for Space Science Education." National Aeronautics and Space Administration. Accessed November 18, 2022. challenger.org/wp-content/uploads/2015/07/Christas_Lost_Lessons_Newtons_Laws.pdf

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 Shara Appanaitis at sappanaitis@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.

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.

HEALTH AND WELLNESS

In accordance with guidance from Virginia Tech, masks are no longer required in indoor public spaces, but remain recommended. The Moss Arts Center adheres to the guidelines of the Virginia Department of Health and Virginia Tech in its operations, including protocols for face coverings and cleaning and sanitation. Find more information about the university's policies here.

We ask patrons to do their part in keeping our community healthy. If you feel unwell, please stay home.

WHAT TO KNOW BEFORE YOU GO, continued

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 pre-K to grade 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 K-12 programs.

VIRGINIA TECH

MOSS ARTS CENTER

PERFORMANCES | EXHIBTIONS | EXPERIENCES
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