international CHILDREN'S Theater FESTIVAL

Presented by University Hospitals

Rainbow Babies & Children's Hospital

Pedal Punk

Cirque Mechanics (United States)

The International Children's Theater Festival at Playhouse Square is an opportunity to introduce children to the arts and help them to discover the beauty and diverse cultures of our world. Whichever performances you see or activities you participate in, we hope you leave the festival feeling uplifted and more connected to our community and our world.

This year, the performances in the International Children's Theater Festival come to us from Australia, South Australia, Canada, Scotland and the USA. Learn more about these and other exciting cultures through the following websites:

Around the World
http://www.timeforkids.com/around-the-world

Discovery Kids
http://discoverykids.com/

Explore & More
http://www.exploreandmore.org/world/default.htm

Global Kids
http://www.globalkids.org/#/about-global-kids

Global School Net
http://www.globalschoolnet.org/

Kid Zone
http://www.kidzone.ws/geography/quebec

National Geographic Kids
http://kids.nationalgeographic.com/kids/places/

Start a Snowball
http://startasnowball.com/kids-community-service-projects-supported-grants-start-snowball/

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cuyahoga arts & culture

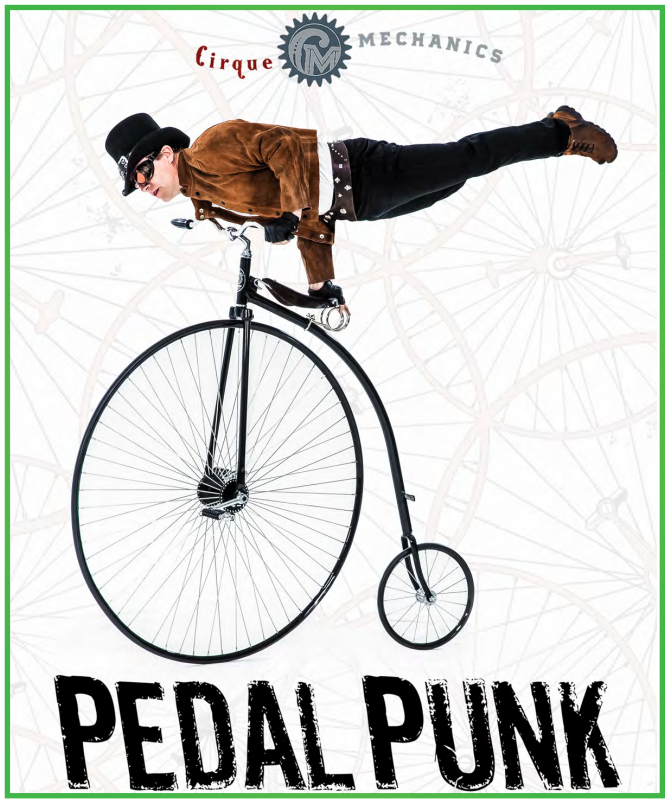
Ohio Arts Council

The Ohio Arts Council helped fund this organization with state tax dollars to encourage economic growth, educational excellence and cultural enrichment for all Ohioans.

Playhouse Square is supported in part by the residents of Cuyahoga County through a public grant from Cuyahoga Arts & Culture.

Teacher Resource Guide:

Pedal Punk



The lessons and activities in this guide are driven by the **Common Core State Standards for English Language Arts & Literacy in History/Social Studies, Science, and Technical Subjects (2010)** which help ensure that all students are college and career ready in literacy no later than the end of high school. The College and Career Readiness (CCR) Standards in Reading, Writing, Speaking and Listening, and Language define general, cross-disciplinary literacy expectations that must be met for students to be prepared to enter college and workforce training programs ready to succeed.

21st century skills of creativity, critical thinking and collaboration are embedded in process of bringing the page to the stage. Seeing live theater encourages students to read, develop critical and creative thinking and to be curious about the world around them.

This Teacher Resource Guide includes background information, questions, and activities that can stand alone or work as building blocks toward the creation of a complete unit of classroom work.

ABOUT THE SHOW

Steampunk + Circus + The (Re)Invention of the Wheel = PEDAL PUNK

In the steam punk-styled *Pedal Punk*, featuring a 20-foot-high, pedal-powered mechanical masterpiece, the powerful performers amaze with heart-pounding pole drop, awesome aerial acts and high-flying tricks (on a trampoline!).

In *Pedal Punk,* we experience the excitement, artistry and thrill that occurs when a zany bike shop mechanic interacts with cyclists and bikes and repairs more than broken pieces. With every spin of a sprocket and rattle of a wrench, the quirky cast of characters transform a bevy of bikes into an astounding assortment of acrobatic apparatus in this adrenaline-fueled circus for everyone!

PEDAL PUNK FUN FACTS

Cirque Mechanics, the company behind *Pedal Punk*, was founded in 2005 by Chris Lashua, a BMX rider who's traveled the world performing on his bike with Cirque du Soleil.

- There are approximately 90 wheels on stage in *Pedal Punk*. Can you find 50?
- The aerial Penny Farthing in *Pedal Punk* can also be used to ride on the ground. It is a real bike!
- Many of the bikes in the show were built from parts found in scrap yards – a great way to recycle and repurpose parts.
- The Gantry Bike in *Pedal Punk* is an original Cirque Mechanics apparatus. It weighs 3,000 pounds! By using sprockets and chains is can be pedaled by just 2 people, has a top speed of 5 miles per hour and it steers like a bulldozer.
- It takes 90 minutes for a team of 4 people to build the Gantry Bike but just 1 hour to take it apart.
- The cast of *Pedal Punk* is made up of 10 artists: dancers, trampolinists, aerialists, a BMX rider, a juggler and clown, a rhythmic gymnast, a contortionist and a stilt-walking stuntman.
- It took one year to create *Pedal Punk*.
- The entire show fits in one 26 foot long truck.
- There are over 25 bicycles in *Pedal Punk* including a BMX, an old beach cruiser, a miniature bike, two unicycles and a never seen before bike that climbs when it is pedaled. This bike lifts our aerialists high above the stage. There is even a bike with square wheels. Yes it can be ridden!

THE BICYCLE

Karl von Drais, a German baron, invented a horseless carriage that helped him move around faster. It was a two-wheeled machine without pedals that was propelled by pushing your feet against the ground. The machine was known as the "Draisine" and led to the creation of the modern day bicycle.

Renaissance artist, scientist and inventor Leonardo Da Vinci made sketches (allegedly) of a bicycle prototype. This was almost 400 years before the bicycle was actually invented.

The term bicycle was introduced in the 1860's in France to describe a new kind of two-wheeler with a mechanical drive – "la bicyclette."

The Penny Farthing was invented by Englishman James Starley. This bicycle, with its large front wheel and smaller rear wheel, gave increased speed and a more comfortable ride for the cyclist, plus the larger the front wheel, the father you could go with one rotation of the pedals.

The Unicycle is believed to have evolved as a spin-off of the Penny Farthing. When cyclists stopped abruptly, the rear wheel of the Penny Farthing would rise up off the ground. Some riders began experimenting to see how far they could travel on one wheel and the unicycle was born.

BICYCLE FUN FACTS

- The name Penny Farthing comes from the old British Penny and Farthing coins which represent the large and small wheels.
- The high wheel bicycle cost an average worker six month's pay to purchase.
- The expression "taking a header" came from the common head-first falls of riders of the high wheeled bicycles.
- In 1885 Thomas Stevens was the first man to ride around the globe on his Penny Farthing!
- In 1894 Annie Cohen Kopchovsky was the first woman to cycle around the world.
- The pneumatic (air filled) tire was first applied to the bicycle by an Irish veterinarian who was trying to give his young son a more comfortable ride on his tricycle. This young doctor's name was Dunlop.
- The Tour de France was first held in 1903 and has become the most famous cycling race in the world.
- Orville and Wilbur Wright, the brothers who built the first flying airplane, managed a bike repair shop in Dayton, Ohio. They used their workshop to build the 1903 Wright Flyer.
- Bicycle Moto Cross (BMX) became an Olympic sport in the 2008 Summer Olympic Games in Beijing, China.
- There are over 1 billion bicycles found throughout the world.
- About 100 million bicycles are manufactured each year.
- The energy required to cycle at low to medium speeds is roughly the same as the energy required to walk.

Coming to the Theater

Playhouse Square is an exciting field trip destination! As the country's largest performing arts center outside of New York, the not-for-profit Playhouse Square attracts more than one million guests to 1,000+ performances and events each year. Playhouse Square thus acts as a catalyst for economic growth and vitality within the region. When you visit, be sure to note the GE Chandelier, the world's largest outdoor chandelier, and the retro Playhouse Square sign with its 9-foot-tall letters!

As audience members, you and your students play a vital role in the success of the performances. You are part of a community that creates the theater experience. For many students, this may be their first time viewing a live theater production. We encourage teachers to discuss some of the differences between coming to the theater and watching a television show, attending a sporting event or viewing a movie at the cinema. Here are a few points to start the discussion:

- Students are led into the theater and seated by an usher.
- Theaters are built to magnify sound. Even the slightest whisper can be heard throughout the theater. Remember that not only can those around you hear you; the performers can too.
- Appropriate responses such as laughing or applauding are appreciated. Pay attention to the artists on stage; they will let you know what is appropriate.
- There is no food, drink or gum permitted in the theater.
- Photography and videotaping of performances is not permitted.
- When the houselights dim, the performance is about to begin. Please turn your attention toward the stage.
- After the performance, you will be dismissed by bus number. Check around your seat to make sure you have all of your personal belongings.

An exciting destination for field trips and more!

THE CIRCUS

A Brief History

We have horses and one man to thank for the invention of the circus. Phillip Astley (1742-1814), an English cavalry Sergeant-Major, was a talented horse-breaker and trainer. In 1768 Astley opened a riding school in London. Astley's building had a circular arena he called the circle or circus, that later became known as the ring.

By the 1770s, Astley began hiring acrobats and jugglers. He also borrowed a character from Elizabethan theater, the clown, to fill in the gaps between acts with juggling, tumbling, rope-dancing, and trick riding.

English equestrian John Bill Ricketts opened the first circus in the United States in 1793.

In 1871 Phineas Taylor Barnum (aka PT Barnum) (1810-1891), a museum promotor, and William Cameron Coup (1837-1895), a circus entrepreneur, launched P.T. Barnum's Museum, Menagerie & Circus together. A traveling show, whose museum was an exhibition of exotic animals and human oddities, later became known as the Sideshow.

In 1907 the Ringlings purchased the Barnum & Bailey Greatest Show on Earth. By 1919 Ringling Bros. Circus and Barnum & Bailey Greatest Show on Earth are combined into one giant circus. The new circus was called "The Big Show". This show eventually moved into arenas and had three performance rings.

The circus remained virtually unchanged for many decades. In 1927 the Moscow Circus School was established and in the 1950s the Moscow Circus emerged with Russian performers with original artistry and high-level technique. It wasn't until the 1970s when circus has a renaissance.

In the mid-1970s in San Francisco, Larry Pizoni and Peggy Snyder founded the Pickle Family Circus. In Australia the New Circus and the Soapbox Circus merged to become Circus Oz. The Big Apple Circus in New York re-introduced the classical one ring circus to America and Cirque du Soleil re-invented the idea of circus with innovative practices and theatricality.

Links about the Circus

http://www.circopedia.org/Links

http://www.circushistory.org/

http://www.circusworldbaraboo.org/

http://www.history.com/this-day-in-history/first-modern-circus-is-staged

http://www.history-magazine.com/circuses.html

http://www.jugglenow.com/circus-history.html

http://www.kenyoung.net/circus.html

Video Links

The Greatest Show On Earth: A Circus Documentary
https://www.youtube.com/watch?v=B-7uPEtI7RM

Ringling Bros: How To Be A Clown
https://www.youtube.com/watch?v=KbSn5mKFWps

Ringling Bros.Barnum & Bailey Kings of the Circus
https://www.youtube.com/watch?v=0JfY38HRPow

When the Circus Comes to Town
https://www.youtube.com/watch?v=DQHLw_xOhyg

CIRCUS FUN FACTS

The word circus comes from the Latin word circus, meaning ring or circle. Traditional circuses usually have shows in a round tent or circular "ring" or stage. The standard size of a circus ring is forty-two feet in diameter.

- Early trick-riders developed the circus idea. They figured out that riding in circles in a ring made it possible, through the generation of centrifugal force, for riders to keep their balance while standing on the back of galloping horses.
- The word clown is believed to come from the Icelandic word klunni, meaning a clumsy person. The earliest record of the word clown dates from around 1560.
- The word cirque is the French word for circus.
- Circuses in Europe had always been performed inside wooden buildings. In 1825 Joshuah Purdy Brown replaced the traditional wooden construction with a portable canvas tent, this tent later become known as the Big Top.

- In 1882 Jumbo the elephant was brought to the U.S. by the Barnum and London Show. The word "jumbo" came to be used as a synonym for large.
- Clowns go to college! In 1968, Ringling Bros. and Barnum & Bailey open Clown College, but women were not admitted until 1970.
- The International Circus Festival of Monte Carlo, started by Prince Rainier of Monaco, and the Festival Mondial du Cirque de Demain (World Festival of the Circus of tomorrow) showcase international talent and give coveted awards to circus artists of all disciplines.

STEAMPUNK

Steampunk is a genre of science fiction that typically features steam-powered machinery rather than advanced technology. Steampunk is a made-up, fantasy period of history (or the future). Steampunk imagines what it would be like if the Victorians has used steam power and clockwork to make gadgets like we have today. Steampunk also imagines a unique style in dress and attitude. In *Pedal Punk*, the steam is human power!

Steampunk is an inspired movement of creativity and imagination. With a backdrop of either Victorian England or America's Wild West at hand, modern technologies are re-imagined and realized as elaborate works of art, fashion, and mechanics. If Jules Verne or H.G. Wells were writing their science fiction today, it would be considered "steampunk."

One of the most prevalent Steampunk character types is the Mad Scientists or, if the scientist is a good character, the Quirky Inventor. In *Pedal Punk* the bike mechanic is like a Quirky Inventor.

Steampunk does not get its "punk" from its gritty edge. The "punk" in "Steampunk" comes from going against convention. In Steampunk, creativity and the declaration of individuality through style, gadgets, or attitude, is what sets one apart.

The designers of the machines in *Pedal Punk* were inspired by the Steampunk animated movie: *The Mysterious Geographic Explorations of Jasper Morello* by Anthony Lucas.

Pre-Show Activities

PHYSICS OF CIRCUS (Science)

What is the science of Circus? Explore the physics behind the tricks with your students as part of a science unit! We recommend using the activities in this section and in the post-show section.

SIMPLE MACHINES OF THE SHOW

Simple machines are tools that make work easier. They have a few or no moving parts. These machines use energy to work. There are five simple machines that can be spotted while watching *Pedal Punk*.

Pulley: This simple machine is made up of a wheel and a rope. The rope fits on the groove of the wheel. One part of the rope is attached to the load. When you pull on the side of the pulley, the wheel turns and the load will move. Pulleys let you move loads up, down, or sideways. In *Pedal Punk* we use pulleys to lift and lower aerialists.

Wheel and Axle: The wheel and axle is another simple machine. The axle is a rod that goes through the wheel. This lets the wheel turn. It is easy to move things from place to place with wheels and axles. The Gantry Bike is pedaled around the stage on two large spoked wheels.

Inclined Plane: An inclined plane is a simple machine with a flat surface that is higher on one end. You can use this machine to move an object to a lower or higher place. Inclined planes make the work of moving things easier. You would need less energy and force to move objects with an inclined plane.

Wedge: A wedge is a simple machine used to push two objects apart. A wedge is made up of two inclined planes. These planes meet and form a sharp edge which can split things apart. Although they are hard to spot in *Pedal Punk*, wedges are used to keep the Gantry Bike and Spin Cycle from rolling away.

Screw: A screw is a simple machine that is made from another simple machine. It is actually an inclined plane that winds around itself. A screw has ridges and is not smooth like a nail. Some screws are used to lower and raise things. They are also used to hold objects together. Although not visible, there are hundreds of screws that hold the machines and props together.

You Spin Me Right 'Round

Use this activity to get your students thinking about acrobatics and wheeling together in the spirit of *Pedal Punk*!

1. Inform your students that they will work together to make a moving wheel as a class. It will be a simple wheel, but one that will take a lot of focus to build and make work smoothly.
2. Divide your students into partners.
3. Ask partners to stand facing each other toe to toe.
4. Model with a student or fellow teacher how partners should hold each other's wrists in a catcher's lock. Hold your partner's wrists to create a strong lock between the pair. This signals an agreement to keep each other safe. A catcher's lock is also known as a "circus grip." The grip is stronger than simply holding someone's hands. It keeps everyone safe during balance acts.

Catchers Lock Tip:
Hold your partner's wrist to create a strong lock between the pair. This signals an agreement to keep each other safe.

5. Instruct students to keep their bodies stiff as a board. Both partners should lean back until their elbows are completely straight. Make sure they are still standing toe to toe as they lean back.
6. Ask students to slowly take small side steps to their left in order to moves as a wheel together, i.e., spinning in a circle while leaning back. Make sure they continue to keep their elbows straight and their bodies stiff.
7. Highlight one student pair that is successful in this activity. Have them demonstrate their balance and spin to the class.
8. Slowly add one student at a time to this pair. Each time you add a student, make sure that each student creates a catcher's lock with the classmates to their left and right. Then have all students lean back with their toes in the middle of the circle, making sure their elbows are straight and their bodies are stiff. Next have students slowly side step to their left to create the rotation. See how many students you can safely add to this balance and rotation.
9. Repeat this activity using different students as a starting pair and adding new students to the spin circle.

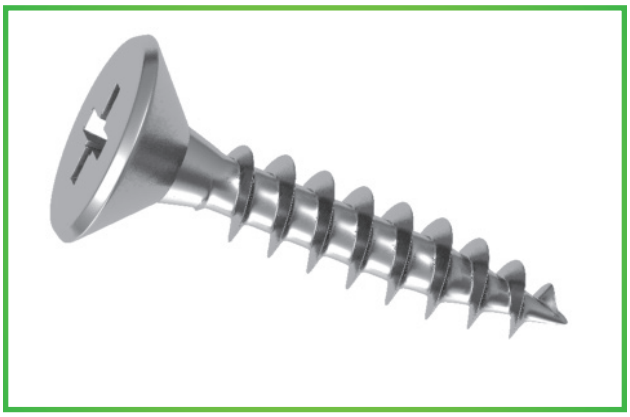
Reflection Questions

- What made you successful in this activity?
- What were some of the challenges you encountered?
- How did you all make sure you were able to keep your balance while spinning in the circle?
- What did this activity teach you about wheels?
- What are some of the important properties of a wheel?

Simple Machines, Amazing Circus!

In *Pedal Punk*, the performers play with simple machines. Choose one simple machine to design your own circus act!

- Which simple machine would you like to incorporate into a circus act?
- How have you seen this simple machine used before in real life?



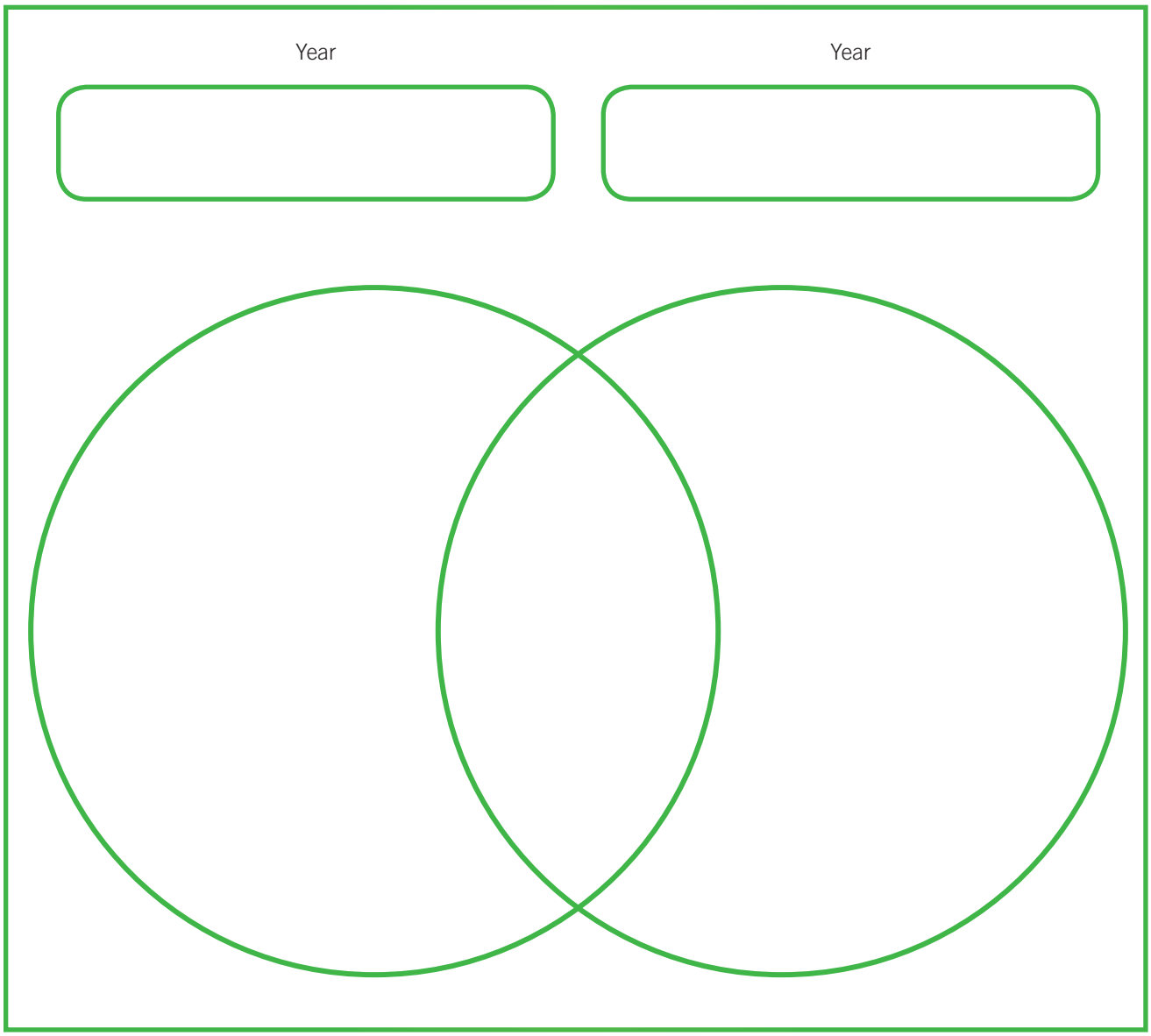
In the space below, draw or describe how you would use this simple machine in a circus act!

Two Worlds = One

Steampunk combines 19th century Industrial Revolution design and innovations with theories of what the future would look like! Choose two drastically different, specific years in the world's history or future. Using the prompts as your guide, describe these two different worlds in the Venn diagram below. Then, describe what it would look like if these two time periods combined.

Things to consider: What are people wearing? What are people doing for entertainment? How do people get from one place to the next? How do people get energy? What do people's homes look like?

Describe a world in which these two years meet:



Post-Show Activities

Big Wheels Keep on Turning!

Materials:
Found objects in your classroom and from students' homes. We also suggest collecting paper plates, pieces of cardboard and glue for basic materials.

1. Divide students into groups of four. Tell them that they will be experimenting today with ramps and friction.
2. Distribute random materials to each group. Inform them that with these materials, they will explore how to create a ramp and experiment with how various objects roll down the ramp. Give students a few minutes of additional time to collect their bags and other materials from around the classroom (ones that you have given them permission to use) to create the ramp and explore how the objects move.
3. Give your students 10 minutes to create their ramps in their groups.
4. Next, have each student choose four objects that they wish to roll down the ramp. These objects should vary in size and weight. Have your students time the objects as they roll down (from start to finish) and write down their observations about how the objects move down their ramp.
5. Have students share out loud what they learned about their ramps and different rolling objects.
6. Ask your students how friction came into play in *Pedal Punk*. Did they learn or develop any further questions about the show after completing their experiment today?

Reflection Questions

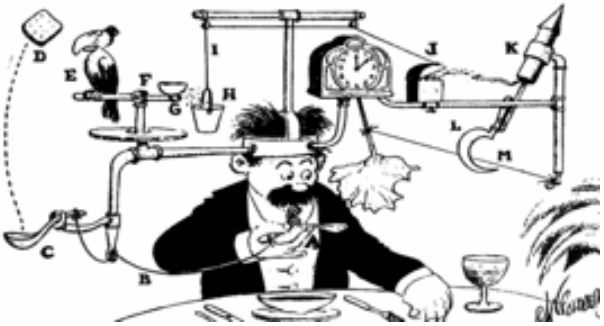
- What was successful about this experiment?
- What were your greatest challenges?
- What did this activity teach you about how objects move in our everyday lives?
- What kinds of wheels did they use in *Pedal Punk*? Knowing what you know now about friction, does any act feel even more spectacular?

Design a Rube Goldberg Machine!

Who was Rube Goldberg?

Do some preliminary research and look at the style of the machines he made! In the space below, design your own Rube Goldberg Machine! The first step of your machine is a *Pedal Punk* performer holding a ball. Design a series of actions, Rube Goldberg style, between the performer and the bike that will ultimately make the bike move!

To learn more: https://www.rubegoldberg.com



Critical Response Questions

Students develop their comprehension when they reflect upon what they wondered, noticed and felt. Ignite a classroom discussion with the following critical response questions:

1. What did you enjoy most about the show?
2. Did any moment make you gasp? Which ones?
3. What is one thing you would have changed in the show?
4. What surprised you most about the show?
5. Which act did you enjoy most in *Pedal Punk*? Why?
6. If you were to perform any of the acts you saw on stage, which one would you want to perform? What kinds of training do you think you would need?
7. If we were to create a circus in our classroom, what sorts of acts could we have? What are some talents and skills in this room?
8. If you could ask any of the performer's one questions, what would it be?

TEACHER RESOURCES

Books (Age or Grade Levels Included)

Bicycles of the Past (Reading Power: Transportation Through the Ages) by Mark Beyer. PowerKids Press (2002). Grade Levels: 3 thru 6.

Bicycle: The History by David V. Herlihy, Yale University Press (August 16, 2006)

Fifty Bicycles that Changed The World (Design Museum Fifty) by Alex Newson (Author) and Design Museum (Contributor). Conran Publishing, (2013).

The Greatest Shows on Earth: A History of the Circus by Linda Simon. Reaktion Books Publishing (2014).

Gymnastics: Webster's Timeline History, 500 B.C.–2007 by Icon Group International. Icon Group International Publishing (2010).

The History of Cycling in Fifty Bikes: From the Velocipede to the Pinarello: The Bicycles that Have Shaped by Tom Ambrose. Rodale Books Publishing, (2013).

The Mechanical Horse: How the Bicycle Reshaped American Life (Discovering America) by Margaret Guroff. University of Texas Press, (2016).

Rube Goldberg: Inventions! By Maynard Frank Wolfe. Simon & Schuster Publishing, (2011).

Sandy's Circus: A Story About Alexander Calder by Tanya Lee Stone (Author), Boris Kulikov (Illustrator). Viking Books for Young Readers Publishing (2008). Grade Level: 1-3.

Steampunk Gear, Gadgets and Gizmos: A Maker's Guide to Creating Modern Artifacts by Thomas Willeford. McGraw-Hill Education TAB, (2011).

The Steampunk User's Manuel: An Illustrated Practical and Whimsical Guide to Creating Retro-futurists Dreams by Jeff VanderMeer (Author) and Desirina Boskovich (Author). Harry N. Abrams; III edition (2014).

Websites

http://dictionary.reference.com/browse/acrobatics

http://www.thefreedictionary.com/acrobatics

http://www.ibike.org/library/history-timeline.htm

http://www.lasvegas.com/planning-tools/vegas-basics/fun-facts/

http://www.movoto.com/las-vegas-nv/las-vegas-facts/

http://www.livestrong.com/article/183335-how-to-begin-flatland-tricks-for-bmx-biking/

http://www.merriam-webster.com/dictionary/acrobat

http://www.ministryofpeculiaroccurrences.com/what-is-steampunk/

https://www.pinterest.com/explore/acro-dance/

http://www.steampunkmagazine.com/

http://steampunkworldsfair.com/

Video of Pedal Punk

https://www.youtube.com/watch?v=LIYqCt_pteY

https://www.youtube.com/watch?v=NER1l0XVBA4

https://www.youtube.com/watch?v=4kU-xOe5OS4

http://www.cirquemechanics.com/pedal-punk