Pittsburgh CLO
Gallery Of Heroes
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in partnership with

Senator John Heinz
History Center
In Association with the Smithsonian Institution
heinzhistorycenter.org

Teacher Guide

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SENATOR JOHN HEINZ
HISTORY CENTER
IN ASSOCIATION WITH THE SMITHSONIAN INSTITUTION

SCHOOL PROGRAMS and TOURS

The Senator John Heinz History Center provides a range of exciting learning opportunities, from guided tours to hands-on sessions in the archives and dramatic visits with historic characters. Please visit the History Center website at www.heinzhistorycenter.org/education to learn more about these experiences.

EDUCATION PROGRAMS

Engage students with the scope of American history through experiences of Western Pennsylvanians over the past 250 years. Students will explore topics through investigative questioning and hands-on discovery. Programs designed for elementary audiences are described below.

INNOVATION AND INVENTION

In this history and STEAM program, students will follow the steps of innovation through the *Discovery Place* exhibit, using the hands-on, interactive stations to learn about local inventors and their contributions to the world. Using the idea of the "innovator mindset," students will also explore the personal characteristics that innovators have and visit exhibits about local inventions in *Pittsburgh: A Tradition of Innovation*. The program culminates with a rapid prototyping activity inspired by the innovations and inventions featured in the museum.

GATHER A STORY:
An Interdisciplinary Literacy Program

The ***Special Collections Gallery*** and ***Visible Storage*** allow students to view many artifacts that would normally be held in storage. These objects range from cars to clothing and ethnic collections to historic toys. This game-style exploration will encourage students to form unique stories about these objects and the stories behind them by gathering a setting, characters, and plot elements inspired by the museum displays. This program can be adapted for a range of ability levels.

A BETTER WORLD:
Improving the Quality of Lives Through Innovation

Learn about the work of important Pittsburghers as they made change and positively impacted our world. Students will follow in the footsteps of Rachel Carson and become citizen scientists, experiment with food science like H.J. Heinz in pursuit of pure foods, and re ct on the impact of Fred Rogers on childhood media as they create their own response to his work.

GUIDED TOURS

The History Center offers multi-disciplinary and interactive guided tours for students of all ages that are both educational and fun. Guided tours follow thematic routes through the History Cente e rs of dynamic exhibits, showcasing the region's history in a way that supports standards-aligned learning.

Tours generally include a visit to three exhibits (30 minutes per exhibit) that share a common theme. Teachers should choose one of the following themes to focus their tour through Western Pennsylvania history.

- Beyond Adversity: African American History in Pittsburgh
- Many Faces, One City
- Placing Innovation
- Leadership and Legacy
- Pittsburgh's Pastimes

SELF-GUIDED TOURS

Self-guided tours are for teachers who facilitate their own museum experience. We encourage teachers to tour our building in preparation for their visit. Worksheets or scavenger hunts designed by the teacher are highly recommended. Self-guided tours are for a maximum of 150 students, pre-kindergarten students through 12th grade. They are one to two hours in length, plus a half hour for lunch. These tours feature a museum overview and introduction by a museum educator and include a map of the History Center and exhibit directory.

For more information or to schedule a school visit, go to www.heinzhistorycenter.org/education/program-request or contact the History Center's Group Tour Coordinator at 412-454-6304 or reservations@heinzhistorycenter.org.

Student Activity:
Alcoa and the Lunar Module

Aluminum made by the Alcoa Corporation, headquartered in Pittsburgh, was used for many components of the Saturn V rocket and the Apollo 11 spacecraft. The legs of the Lunar Module were a particularly innovative use of aluminum and were designed by Alcoa engineers for the Apollo program.

In the song "Along the Right Track," Maya discovers that mistakes and failures are an important part of learning and that "history is full of people who did great things, just not on st try!" This activity will help students to understand the importance of prototyping, testing and modifying as part of the design process.

Resources and instruction sheets for this activity are available by searching for the "How Pittsburgh Helped Us Get to the Moon: Alcoa and the Lunar Module" Learning Lab collection at www.learninglab.si.edu.

Materials Required:

- Lunar lander packs (one for each team)
  - 3 3x5 index cards
  - 3 rubber bands
  - 4 paper straws
  - 1 approx. 4x5 cardboard piece
- Paper cups with 2 large marshmallows and 8 mini marshmallows (one cup for each team)
- Rolls of tape (1 for each team)
- Scissors (1 for each team)
- Instruction sheets (1 for each team)
- Photos of lunar module and Alcoa honeycomb pieces (1 set per table)
- Each team, ideally pairs or groups of 3, will use the table space in front of them to construct their lander.

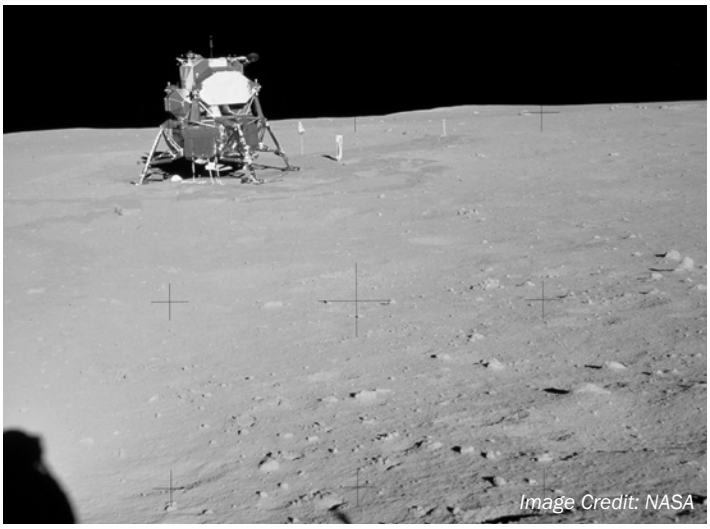

Image Credit: NASA

Activity Instructions

1. As part of the Apollo 11 mission, Alcoa designed a way for the legs of the Lunar Module to gently compress as the lander touched down. Show students the photos of the uncompressed and compressed pieces of the honeycomb shock absorbers.
2. The honeycomb structure that you see in the photo is made of aluminum. The legs were intended to compress when the lander touched down on the lunar surface, similarly to how aluminum foil compresses when crumpled into a ball. This would ensure a safe and gentle landing for the astronauts whether they landed on soft lunar dust or hard lunar soil.
3. These aluminum honeycomb legs provided shock absorption. On our bodies, our knees provide this shock absorption. If we bend our knees when we land after jumping, our knees absorb the shock. Students can explore this idea by rapid prototyping their own lunar landers using simple materials.
4. Each team (ideally pairs or groups of 3) will receive a Lunar Lander pack, an instruction sheet, and a cup of marshmallows. They should also have tape and scissors.
5. Students will spend a minute or two looking at their resources and making sure they understand these rules:
   - The index cards and straws can be cut and folded.
   - The cup is the cabin and both astronauts must stay in when the lander is dropped from 1 foot.
   - No lids allowed, and no rubber band restraints allowed. Astronauts must fall out of the cabin if the lander is turned upside down. The innovation we are working on is making a good shock absorber, not a better cabin!
6. After students have quickly read instructions and looked at materials, call the whole class together for a brainstorming session. Recall the knees example from the introduction – how can we get this same effect of shock absorption with these materials?
7. Once they have the idea of folding the paper like an accordion to absorb the shock of impact, give them 5 minutes to get to work on making the shock absorbers.
8. Give them an additional 5 minutes to attach the cabin and s.
9. Have each group test their modules by dropping them from the height of one foot.
10. If their astronauts stay in, make sure they fall out if you turn the module over. If they bounce out when they drop the module from a height of one foot, give them 3 minutes to modify and try again.

Extension Ideas

- If there is time, see whose astronauts stay in at two feet, three feet, etc.

Student Activity:
More than just Astronauts

In *Beyond the Moon*, José mentions that there are many opportunities to work for NASA aside from being an astronaut. In fact, an estimated 400,000 people worked on the Apollo program. From seamstresses sewing space suits to mathematicians calculating trajectories, the whole nation was mobilized in the goal of getting to the moon.

Image Credit: NASA

Image Credit: NASA

Activity Instructions

1. Have students look through images of the Apollo program on the NASA website at https://www.nasa.gov/apollo11-gallery. What types of jobs can they see being done? What can they see that someone had to design or create?

2. Ask the students to list 20 jobs that they can see based on these photos. Encourage them to think about things like the design of logos (graphic designers), metal structures (welders), computers (IT specialists), etc.

Extension Ideas

1. If a mission to Mars is successful, the astronauts who travel there and explore the planet will have to create a set of rules to live by. Just as the Constitutional Convention outlined how Americans would live in this new country, the Mars mission will require a similar convention. Have students think collectively about what these intrepid explorers might need to agree on before beginning their journey. How will injustices be handled on the long voyage to Mars? How will the work be divided, and who will make the tough decisions that may be required on Mars?

2. Read some excerpts from Mary Lou Reitler's letter to President Kennedy out loud to the class. It can be accessed at https://www.jfklibrary.org/asset-viewer/reitler-feldman-letters. Give students some time to deliberate on whether we should prioritize space exploration. Encourage them to think about all of the velopments made by NASA that we use today wledge we have gained from space exploration, as well as how much money is spent on space projects. Do students think we should prioritize a mission to Mars today?

3. Use NASA's image and video archive, found at https://www.nasa.gov/apollo11-gallery, to show students the original footage and photographs from the Apollo program. Then show the images from the Mars rover, found at https://mars.nasa.gov/msl/. Have students compare and contrast the images, thinking about the different considerations for these two missions. How have technological advances made missions easier?

Pittsburgh CLO
CELEBRATING MUSICAL THEATER

INFORMATION about MUSICALS

At a performance y oduct – cast members singing and dancing with colorful costumes and scenery. But what goes into the creation of a musical? In this section, we break down the show into all of its components to give you a better understanding of the magic behind musical theater.

THE WRITERS

Most musicals are broken up into three parts: the Book, the Lyrics and the Music. Often, these are divided among three people. The Playwright writes the script, or the lines that the actors speak. This is referred to as the Book. The Lyricist writes the words that the actors sing. And the Composer writes the music that the band or orchestra plays and the notes that the actors sing. When the three writers work together, it is called a collaboration. The three individuals share ideas and ther's writing. They work separately on their jobs and then come together and share their work. They then revise and rewrite until they think the show is ready to be produced.

For *BEYOND THE MOON*, the book, lyrics and music were written by Joseph Domencic and Christina McCann.

THE ARTISTIC STAFF

The Director does just what their job sounds like. They direct the play. But there's much more that goes into a Director's job. It is the Director's responsibility to make sure the show has a successful run from start to st, the Director meets with the Designers who will design the costumes, props, lights, scenery and video. They make sure that the designs match the writers' vision of the play. Assisting the Director is the Stage Manager, who schedules meetings between the Designers and Director, oversees rehearsals, and rounds up any materials or props that may be needed for the play. The Director also works with the Choreographer and the Music Director. The Choreographer creates and teaches all of the dancing or stylized movement for the show. The Music Director teaches all of the music to the performers and usually works with the orchestra. The Stage Crew works backstage and moves scenery and helps the actors change costumes. They also run lights and sound. They are the unsung heroes that you hardly think of when you see a musical. But where do they get people to perform in the play?

THE PERFORMERS

An audition is how actors get their jobs. For a musical, the actors come to the theater with a song or two prepared and sing for the Director, Choreographer and Music Director.

If the artistic staff thinks that they may be right for the show, they are invited to a callback. A callback is a second audition where the performers are asked not only to sing again, but also to read from the script and dance a combination taught by the Choreographer. If they make the cut, they are invited to act in the show.

THE REHEARSALS

A rehearsal is the period of time where the actors learn their lines, songs and where to move on the stage – also known as "blocking." In *BEYOND THE MOON*, the actors learned it all in eight days! They are truly professional. or the show is called the Dress Rehearsal. Here, the actors, artistic staff, crew and designers put it all together to create oduct. The actors wear their costumes and practice on the completed set. The Dress Rehearsal is st and only time they get to run the completed show non-stop without an audience. After the dress rehearsal — it's opening! As you can see, there are quite a lot of things that go into the making of a musical.

Truthfully, we've touched on a few jobs that make up a musical. However, we hope that this has opened your eyes to this theater experience and made you appreciate all the different talents that go into creating a show.

BEYOND THE MOON

BOOK, MUSIC & LYRICS:
Joseph Domencic & Christina McCann

THE ARTISTIC STAFF:
Director: ***David Cabot***
Music Director: ***Mark Domencic***
Choreographer: ***Kiesha Lalama***
Costumes: ***Missy Nowakowski***
Set Design: ***Nicholas Doyle***
Video Design: ***Dino Pandolfo***
Sound Engineer: ***Angela Mazzocco***

THE PERFORMERS:
Sarah Chelli
Gabe DeRose
Sarah DiFiore
Daniel Keitel
Jared Pfennigwerth
Saige Smith
Nathaniel Yost

2019 PITTSBURGH CLO

SUMMER CAMPS

Seussical Kids
Grades 1-4*
June 17-28

Seussical Jr.
GRADES 2-12*
June 10-14 • July 29-August 2

Shrek The Musical Jr.
Grades 3-10*
July 1-19

Disney Freaky Friday A New Musical
Grades 3-10*
July 22-August 9

Into the Woods Jr.
Grades 6-12*
July 1-12 • July 15-26

Promising Preschoolers
Ages 3-5
June 17-21 • July 29-August 2

Summer Acting Spotlight
1-WEEK SCENE STUDIES
Featuring a performance at the end of the week!
Ages 12-18*
June 17-21

Private Lessons
VOICE, PIANO, ACTING & AUDITIONS
Half Hour or Full Hour
Ages 10-18
June 17-August 9

Boot Camp
Ages 10-18
TRIPLE THREAT
(act, sing, dance)
June 11-13
August 13-15
ACTING ONLY
August 13-15

*Camp ends in a performance at the CLO Academy. *Admission is based on the grade level the student will attend in Fall 2019.*

REGISTER TODAY!

pittsburghCLO.org or call 412-281-2234