“That Which We Call A Rose”

Performing Planetary Nomenclature

Educational Resource Guide for Teachers

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About the Artistic Director:

Vivian Appler is an Assistant Professor in the Department of Theatre and Dance. At the College of Charleston, she teaches courses in theatre history, devised theatre, and script analysis. She has taught at the College of William and Mary, Temple University, the University of Pittsburgh, and Penn State Abington. Her research interests include science and performance, practice-as-research, puppetry and mask, and activist theatre. She is currently developing a monograph about women performing science.

In addition to her scholarly work, she has extensive practical experience in devised and physical theatre. She has acted, directed, devised, and designed puppets in Philadelphia, the San Francisco Bay Area, and Pittsburgh, PA. She holds a certificate in Physical Theatre from the Dell'Arte International School of Physical Theatre. In 2010, she was granted a Fulbright Fellowship for which she worked in residence at the Dimitri Clown School in Verscio, Switzerland, in order to research, write, and design masks and puppets for the science-integrative play, *Particle Play: A Romance for Quarks, Strings, and Other Things*. Her solo show, *In the Still of the Night: Andromeda's Dark Stuff* premiered in 2013. In 2017, she directed Lauren Gunderson's *Silent Sky* at CofC .

A Word from the Artistic Director :

As an interdisciplinary artist, I am especially thrilled that this work has funding from state and national funds in the arts and the sciences. To me, that is the heart of what STEAM (Science, Technology, Engineering, Arts, and Mathematics) means. All of these areas are necessary for the education of creative, versatile, critical students at all phases of learning. Through the STEAM model, arts do not merely support science learning, and neither does science only provide novel content for arts projects. Art and Science practices provide different, complementary platforms by which all learners might enthusiastically direct their inquiries about the world in which we live.

What is Devised Theatre?

Devised theatre is theatre that typically begins with little more than a rehearsal space and a group of eager, committed theatre practitioners. Through a series of improvisatory theatre games or other conceptual ice-breakers, they start to tease out the kinds of stories they'd like to tell and the way they'd like to tell them. Over time, a text emerges, one covered with the fingerprints of each and every participant.

Our Process

From our Actor/Contributors

What were the devising sessions like?

"All sessions begin with us coming together as a company to share where we are, both physically and emotionally, and to connect with one another and prepare to fully immerse ourselves in the creative process for the allotted session time. Many of our earlier rehearsals included a lot of group work activity, creative writing, movement work, research and brainstorming to generate the spine of the pieces we wanted to create. Now our sessions have evolved to become a more focused and critical process. We still remain open to the creative influences from the beginning of the project, but are focusing our attention towards creating a cohesive show that communicates our message. The entire process is very open and intersectional, and encourages all members of the team, regardless of their specific job title, to contribute both intellectually and physically to further developing the show and solving creative problems that we encounter. "
-Meagan McMahon

Can you briefly describe the devising process?

I would say that devising is very much like playing with your friends. In the beginning, everyone uses their imagination to create imaginary characters, choreograph dance moves, sing made-up songs, draw pictures, write stories, etc. Then, we take those creations, we've developed, and choose what we like. Next, we see if we can make a single story from those creations. Afterwards, we play even more, developing a clearer story. This continues until we decide to write our ideas down, making a script. Once we have a clear storyline, we build and rehearse our newly devised play!
-Joe Albright

Can you describe a breakthrough moment in the devising process?

"Early in the devising process, I was going through a creative crisis. Feeling like I was creatively inept and doing a lot of soul searching, I began working through the book entitled "The Artist's Way" at Vivian's recommendation. After trudging through the book for a few weeks, I began to feel more confident as an artist. A short time after during a devising rehearsal over the summer, Vivian had us work through some object improvisation. My object was a wooden flute, and, as I worked through some silent improvisation alone with my object, I began to develop a narrative about a lonely sailor rowing through space using the sound of the flute as propulsion. Rather than allowing my creativity critic tell me the idea was dumb, I brazenly offered this narrative to the group. It was received very well by the group, which was a huge artistic confidence boost for me. Eventually this storyline worked its way into our Bennu scene and became the basis for our idea of having the birds directing the asteroid through space! I loved being able to contribute creatively to this process and, in this instance specifically, seeing how the ideas of others shaped and grew the seed I developed over the summer."
-Noah Ezell

Synopsis

As a crew of 22nd Century cosmographers head toward Europa (one of the moons of Jupiter) to scout it out as a possible site for a human settlement, they receive a message Dr. Psyche Sutton, a quirky scientist of the Consortium of Women Cosmographers, with an even quirkier pet. She gives the crew a new mission--one that sends them on an unimaginable adventure! As they travel the solar system, the crew encounters surprises they couldn't dream of and learn lessons about our place in the universe and our responsibility to our planet.

Characters:

Javaron-Chief astronomer/earth cultural expert

Nick-the truth grounder

Jenny-Navigator/Communications Officer

Dr. Psyche- practical astronomer/sweeper of the solar system

Boss-the distracted and volatile boss at Mission Control

Jeff-assistant to "boss"

Themes/Topics Explored:

-Mythology

-Cultural histories

-How planets are named

-Refugees/What it means to be a refugee

-Colonialism

Glossary:

Amazonis Planitia	one of the smoothest plains on Mars located between the Tharsis and Elysium volcanic provinces, to the lest of Mount Olympus. It is named after the Amazons, a mythical race of warrior women.
Mount Olympus	a very large shield volcano on the planet Mars. It has a height of 72,000 feet - about two and a half times the height of Mount Everest. It is the largest volcano, tallest planetary mountain, and the second tallest mountain currently discovered in the Solar System. Mythical home of the gods in Ancient Greek mythology. On Earth, it is the highest mountain in Greece.
Amazons (people)	In Greek mythology, the amazons were a tribe of warrior women believed to live in what is modern day Turkey. These women were considered to be brutal and aggressive as their main concern in life was war.
Amazon (location)	the Amazon is a rainforest in the Amazon basin of South America. A large river, the Amazon River, flows through the middle of the basin. The Amazon received its name after a war that Spanish explorer Francisco de Orellana fought with some of the people groups who inhabited the area. Because the women fought alongside the men, Orellana compared them to the Amazons of Greek mythology, giving the Amazon basin, rainforest, and river their names.
Elysium	In Greek mythology, Elysium refers to the paradise to which heroes on whom the gods conferred immortality were sent. As Greek mythology evolved over time, Elysium became a place for the blessed dead at large. In this version of Elysium, entrance was gained by a righteous life. The Elysium Planitia on Mars, named after the Greek Elysium, is a broad plain that straddles the equator of Mars. It is the second largest volcanic region on the planet, containing major volcanoes Elysium Mons, Albor Tholus, and Hecates Tholus. The planitia also has river valleys.
Nitrogen Cycle	The Nitrogen cycle is a biochemical cycle by which nitrogen is converted into multiple chemical forms as it circulates among atmosphere, terrestrial, and marine ecosystems. The process can be carried out through both biological and physical processes. The steps of the process are nitrogen fixation (the process by which nitrogen is converted from an unusable form into an organic form), nitrification (the process by which ammonia is converted into nitrogen that can be used by plants), assimilation (the process by which plants take in nitrogen and its compounds from the soil which are used in the formation of plant and animal proteins), ammonification (the re-entry of nitrogen into the soil after an animal or plant dies, whose remains are broken down by bacteria and converted into ammonia), and denitrification (the process by which nitrogen makes its way back up into the atmosphere).
Insight Lander	The InSight Lander is NASA's first mission to explore Mars' deep interior. It delves beneath the surface of Mars, detecting the process that shaped the rocky planets of the inner solar system. It landed in the Elysium Planitia region of Mars in November of 2018.
SOS	an acronym standing for "Save Our Ship" that is used when people are in need of help
Whirlwinds	A whirlwind is a column of air moving rapidly around and around in a cylindrical or funnel shape. They form due to instabilities and turbulence created by heating and flow gradients and occur all over the world and in any season

Sols	the term used by planetary astronomers to refer to one single solar day on Mars. Martian sols are very similar in length to those on Earth. A Martian sol lasts 24 hours, 39 minutes, and 25.244 seconds
Ribollita	a famous Tuscan bread soup, a hearty thick soup made with bread and vegetables. There are many variations but the main ingredients always include leftover bread, cannellini beans, lacinato kale, cabbage, and inexpensive vegetables such as carrot, beans, chard, celery, potatoes, and onion. Its name means "reboiled"
Emissary	a person sent on a special mission, usually as a diplomatic representative
Triton	a Greek god of the sea and the son of Poseidon. Triton lived with his parents in a golden palace on the bottom of the sea and was often depicted as having a conch shell which he would blow like a trumpet. He is usually represented as a merman.
John Herschel	Son of William Herschel, an English polymath, mathematician, astronomer, chemist, inventor, and experimental photographer who invented the blueprint and did botanical work. He originated the use of the Julian day calendar system in Astronomy, named seven moons of Saturn and four moons of Uranus, and advocated an inductive approach to scientific experiment and theory-building.
William Herschel	a German-born British astronomer, composer, and brother of fellow astronomer Caroline Herschel, with whom he worked. He is widely credited as the founder of sidereal astronomy for observing the heavenly bodies. He found the planet Uranus and its two moons, and formulated a theory of stellar evolution
Caroline Herschel	a German astronomer who discovered eight comets and 14 nebulae. She was the first woman to receive a salary as a scientist, the first woman in England to hold a government position, and the first woman to be awarded a Gold Medal of the Royal Astronomical Society. She was the younger sister of William Herschel
Greco-Roman	relating to the ancient Greeks and Romans
Inuit	referring to indigenous people of northern Canada and parts of Greenland and Alaska
Norse	referring to Norwegians or Scandinavians, especially in medieval times
Gallic	referring to the Gauls, the group who inhabited modern day France in ancient times
Enlightenment	an intellectual and philosophical movement that dominated the world of ideas in Europe during the 17th to 19th century. Enlightenment ideals focused on the sovereignty of reason and the evidence of the senses as the primary sources of knowledge, liberty, progress, toleration, fraternity, constitutional government, and the separation of church and state
Samuel Taylor Colridge	an English poet, literary critic, philosopher and theologian who was a founder of the Romantic Movement in England and a member of the Lake Poets
Channel A	Channel A was a channel used by Huygens to transmit scientific data to Cassini. Channel A was the sole path for an experiment to measure wind speeds by studying tiny frequency changes caused by Huygens' motion. However, Cassini never listened to channel A because of a software designer error, and the receiver on the orbiter was never commanded to turn on. Because of this mistake, the ESA was not able to obtain a lot of the data they had initially planned.
ESA	an acronym meaning European Space Agency. The ESA is an intergovernmental organisation of 22 member states dedicated to the exploration of space. It was established in 1975 and has its headquarters in Paris

Kubla Khan	a poem written by Samuel Taylor Coleridge published in1816. The poem was composed one night after he experienced an opium-influenced dream after reading a work describing Xanadu, the summer palace of the Mongol ruler and Emperor of China Kublai Khan.
Adiri	a large, bright albedo feature on Titan. It is named after the paradise in Melanesian mythology. It is a region of high ground and appears to be riddled with drainage channels
Shangri-La	a large, dark region on Titan. It is named after the mythical paradise in Tibet. It is thought to be an immense plain of dark material and was once a sea that has since dried up. It is studded with bright 'islands' of higher ground.
Romeo and Juliet	a tragedy written by William Shakespeare early in his career about two young star-crossed lovers whose deaths ultimately reconcile their feuding families. It was among Shakespeare's most popular plays during his lifetime and, along with Hamlet, is one of his most frequently performed plays.
Williams Shakespeare	an English poet, playwright, and actor, widely regarded as the greatest writer in the English language and the world's greatest dramatist. His extant works, including collaborations, consist of some 39 plays, 154 sonnets, two long narrative poems, and a few other verses, some of uncertain authorship. His plays are performed more often than those of any other playwright
Tempest	a play by William Shakespeare that is thought to be one of the last plays he wrote alone. It deals with both tragic and comic themes and tells the story of a sorcerer and exiled ruler who uses magic to restore his daughter to power

Pre-Show Discussion Questions:

Based on what we know so far, what do you think the play is going to be about?

How do you think planets and other bodies in space get their names?

How does culture impact how we interact with other people?

What is a refugee? What do you think that experience is like?

What responsibility do we have to our planet?

Post-Show Discussion Questions:

What do you think the theme or main idea of the play is?

Who was your favorite character? Why?

Did the play differ from your expectations? How?

If there was a sequel, what do you think would happen?

What did you think was real/fiction within the plot?

Have your ideas about our responsibility to our planet changed? If so, how?

How did the design help to tell the story?

What was your favorite design element? Why?

6th Grade Lesson Plans
Mask Making and Storytelling through Tableau

Learning Objectives:

I can:

- Recall facts about Greek theatre
- Explain the function of the mask in Greek theatre
- Recall that masks were used in many cultures
- Create a mask depicting a clear emotion
- Define "tableau"
- Create a story outline, using characters, setting, plot
- Create a problem and solution that could occur in space
- Create 3 tableaus, one depicting the beginning, middle, and end of the story
- Perform the tableaus

Materials and Supplies:

Pre-Show

- Google Slides Presentation
- Heavy cardstock or paper plates
- Thin sewing elastic
- Scissors
- Hole-punch
- Crayons, markers, colored pencils, paint, etc.
- Construction paper
- Glue

Post-Show

- Student Masks
- Paper
- Pencils

Standards

South Carolina Academic Standards for Performance Indicators for Science

6.S.1A. Conceptual Understanding: The practices of science and engineering support the development of science concepts, develop the habits of mind that are necessary for scientific thinking, and allow students to engage in science in ways that are similar to those used by scientists and engineers.

6.S.1A.1 Ask questions to (1) generate hypotheses for scientific investigations, (2) refine models, explanations, or designs, or (3) extend the results of investigations or challenge claims.

South Carolina Academic Standards for Performance Indicators for ELA

Standard 1: Interact with others to explore ideas and concepts, communicate meaning, and develop logical interpretations through collaborative conversations; build upon the ideas of others to clearly express one's own views while respecting diverse perspectives.
1.4 Engage in focused conversations about grade appropriate topics and texts; build on the ideas of others, and pose and respond to specific questions to clarify thinking and express new thoughts

South Carolina College and Career Readiness Standards for Theatre Proficiency

Anchor Standard 1: I can create scenes and write scripts using story elements and structure.

Indicator T.CR NM.1.1 I can make choices about how to tell a story nonverbally.

Anchor Standard 3: I can act in improvised scenes and written scripts.

Indicator T.P IL.3.1 I can portray a character within the context of a story using my body

Anchor Standard 7: I can examine the role of theatre through history and culture.

Benchmark T.C NM.7 I can relate to character experiences of a specific culture.

Indicator T.R NM.7.1 I can recognize how a specific culture explores theatrical elements.

Pre-Show Activity-Mask Making!

Introduction-Greek Theatre and Masks (10 minutes)

Use the accompanying Google Slides Presentation to lead this introduction!

- Explain that today we'll be making our own theatre masks, but first, we need to learn a little bit about the origin of theatre masks
- Explain that many cultures used masks in their theatre and show students the images of the Kabuki, Commedia, and Greek theatre masks
- Show the video clip about Greek theatre
- Ask the students to take a look at the image of the Greek theatre masks
- Ask the students what they notice about the masks. Are all the facial expressions the same?
- Explain the function of the mask in Greek theatre
    - It allowed actors to play more than one character
    - Had exaggerated facial expressions to help the audience understand the character
    - The genre determined which expressions were used
    - Large costumes and masks were used to enhance the experience for the audience members in the back row
    - Some believed the masks actually helped with vocal projection

Make the Masks! (30 minutes)

Remind students that they'll be making their own mask today and that they need to choose a clear emotion to convey on their mask. They should have materials at their desk or work station by this point. Use whatever materials you have for them to decorate--markers, colored pencils, paint, construction paper, beads. Use what you have! It may be helpful to model some of the steps below for your class before they begin. Go over the following steps with your students:

1. Measure the distance between their eyes with two fingers.
2. Transfer the distance to paper and mark the eyes. Make sure they're centered!
3. Draw the eyes around your marks
4. Draw the shape of a head around the eyes. (Remove this step if using paper plates)
5. Choose which emotion you'd like to convey
6. Decorate your mask! Remember to convey a clear emotion. Think about character!
7. Cut out the mask
8. Cut out the eyes
9. Punch holes on the sides, about one inch below the eyes.
10. Tie one end of a piece of sewing elastic to each side and adjust to fit your face

Circulate as your students work to keep them on track and assist with anything they might need!

Mask Work (If time allows, 15 minutes)

Create an audience area and a performance area for this activity. Ask three to four students to come up the performance area at a time with their masks on. Lead the class in a discussion about what kind of characters we see. Ask them questions, such as:

- What emotion is being conveyed?
- What characters do we see? Why? What makes you say that?
- How does their body language affect your thoughts about the character?
- Does the body language match the mask?

Repeat this process until each student has showcased their mask.

Post-Show Activity-Storytelling Through Tableau

Introduction-What is tableau? And the Dramatic Elements (5 min)

- Ask the students what a tableau is
- Remind the students of the part of the play where the actors formed still images with their bodies
- Explain that those moments were tableaux. A tableau is a frozen image made up of a group of people representing a part of a story
- Explain that today their task will be to create tableaus that tell a story
- Tell the students that are things that every story has, and in theatre, they're known as The Dramatic Elements
- Explain that the dramatic elements are: characters, setting, and plot--things they've been learning about for years!
- Remind students that within the plot, there is a beginning, middle and end, and a problem and solution

Introduce the Activity (3-5 minutes)

- Explain that today, students will be working in groups to create characters based on their masks, create a problem that these characters could face in space, and create tableaux that depict the problem and solution. One tableau will depict the beginning of the story, one will depict the middle, and one will depict the end.
- Remind the students of the "Not So Sweet Potato Rebellion" in the play. Encourage them to be creative about what problems these characters could face!
- Get the students into groups of 4 or 5 then introduce the steps of the project using the slide in the Google Slides Presentation

Planning, Creating, and Rehearsing the Tableaux (25 min)

The students will:

1. Look at their masks to determine specifics about these characters. What is their relationship to each other? What are their character traits?
2. Create a problem that these characters could face in space.
3. Create a solution to this problem
4. Create specifics about each character. Who's the leader? What roles are each person serving?
5. Decide on a specific setting. Are they on the moon? On Mars? On a spacecraft?
6. Create a basic plot outline. What happens in the beginning, middle, and end?
7. Brainstorm on how the group could depict these key plot moments in a frozen image
8. Create 3 tableaux, one for the beginning, middle, and end
9. Rehearse transitioning between tableaux while wearing the masks

Circulate as the students work! Help them if they're stuck. When creating tableaux, remind them of where their audience is; backs should not be to the audience and people shouldn't be blocking one another. We want to see everyone! Remind them to be extra expressive with their bodies, because we can't see their face. Remind them that everyone should be completely frozen in the tableau--including eyes! Pick a focal point and focus.

Perform the Tableaux (15 minutes)

Have each group come up and share their tableaux with the class. After each group, ask the audience what they thought the plot was and compare it to the group's description of the plot. Was the plot clearly communicated? Why or why not? Give feedback!

Adaptations

-We know that these lessons are jam-packed! Feel free to cut down, omit activities, or take more time!

-Spend more time on genres and have students create contrasting masks, one for tragedy and one for comedy!

-Instead of creating tableaus, expand the mask work activity and dive deep into exploring these characters. Encourage students to explore exaggerated physical movement to communicate.

Want to do more?

-Reflect on the project as a whole. What was challenging? What was easy? Did seeing the play help inspire plot ideas? What would you do differently next time? What was one thing your group did well? What was one thing your group could improve on?

-Take pictures of the tableaus or record all three. Have the students watch their performance and critique themselves. Perhaps have them make adjustments based on the photos or video!

-Expand the project! Have students turn the story they created into a script!

8th Grade Lesson Plans
Designing a Mars Set and Creature

Learning Objectives:

I can:

- Define "set" and "set design"
- Recall the basic steps of a design process
- Search online for images
- Choose appropriate images for my collage
- Create a design collage showcasing initial ideas for a Mars set
- Justify my choices of images
- Create a basic rendering of a creature design
- Choose a medium to use for my rendering
- Collaborate with my peers
- Explain my choices in my creature design

Materials and Supplies:

Pre-Show

- Google Slides Presentation
- Student Chromebooks (or school computer lab)
- Pencils
- Paper
- Sample Collage (Optional)

Post-Show

- Google Slides Presentation
- Student Chromebooks (or school computer lab)
- Pencils
- Paper
- Colored Pencils
- Construction paper (Optional)
- Magazines (Optional)
- Glue (Optional)
- Markers (Optional)
- Sample Creature Design (Optional)

Standards:

South Carolina Academic Standards for Performance Indicators for Science

8.S.1B. Conceptual Understanding: Technology is any modification to the natural world created to fulfill the wants and needs of humans. The engineering design process involves a series of iterative steps used to solve a problem and often leads to the development of a new or improved technology.

8.S.1B.1 Construct devices or design solutions using scientific knowledge to solve specific problems or needs: (1) ask questions to identify problems or needs, (2) ask questions about the criteria and constraints of the device or solutions, (3) generate and communicate ideas for possible devices or solutions, (4) build and test devices or solutions, (5) determine if the devices or solutions solved the problem and refine the design if needed, and (6) communicate the results.

South Carolina College and Career Readiness Standards for Theatre Proficiency

Anchor Standard 2: I can design and use technical elements for improvised scenes and written scripts.

Benchmark T.CR NH.2 I can use basic technical elements in the dramatic process.

Indicator T.CR NH.2.2 I can use basic technical elements safely in a small project.

Pre-Show Activity-Designing a Mars Set

Introduction-Teacher Led Instruction (10 minutes)

Use the accompanying Google Slides Presentation to guide this introduction!

- Ask the question: What is a set?
- Briefly explain what a set is
- Explain that the students will begin to design a set for a future Colony on Mars.
- What do we know about Mars? Turn and talk, then share with the group. What will the buildings of the colony look like? What are the colors of Mars? Inside and outside.
- Explain the basic steps of a design process
    - Ask questions of the students as you go through these steps. What do they think each step means? Why is that step important?
- Watch the video on set design

Introduction of Project (5 minutes)

- Explain that students will be creating a design collage in groups of 4 or 5.
- Ask the question: What is a collage? Revoice student answers to guide the group to a common definition of collage.
- Explain that the purpose of the collage is to showcase your initial set design ideas for a play that is set on a future Mars Colony. The setting is outside in the Mars terrain as well as inside buildings in the colony. The collage should showcase ideas for both settings
- Explain that students will be showcasing your initial design ideas on a Google Slides Presentation
- Explain that students' finished products need to contain:
    - At least 5 images that show inspiration for Mars exterior terrain
    - At least 5 images that show inspiration for settlement buildings
    - At least 5 images that show inspiration for technology found inside settlement buildings.
    - A written explanation on each slide on why those images were chosen--justify your choices based on what you know about the environment. What kind of technology do the colonists need? Why?

Group work (30 minutes)

Students will:

- Get into groups of 4 or 5
- Collectively brainstorm about how they'd like their design to look and jot down ideas
- Create a shared Google Slides Presentation
- Decide how to divide the image search
- Share their found images with their group
- Write their justification statements for each slide
    - This can be divided like the image search was or students can decide as a group and have one student type onto each slide

Circulate as the groups work to help them keep on track and give guidance and suggestions.

Adaptations

Don't have chromebooks or easy access to a computer lab? Collect some magazines and print some images and do an old-school collage! Use poster boards or large sheets of paper, glue, and makers.

Post-Show Activity-Designing a Mars Creature

Review of Previous Lesson Activity (5 minutes)

The teacher will:

- Ask students to remind you what they were working on before seeing the show
- Revoice student answers to clarify the details of the set design project
- Ask the group if they would make any changes to their design after seeing the play

Group work (Optional) (10 minutes)

If the students weren't able to finish their group collages, give them time to finish. If some groups did finish, give them time to make changes to their work based on any new ideas after seeing the play.

Introduction of Next Phase (5 minutes)

The teacher will:

- Remind students of the "Not So Sweet Potato Rebellion" in the play
- Ask students to share what they remember about that plot point
- Guide student answers to remind students that mutated sweet potatoes took over the colony
- Tell students that their task today is to create a creature design for the mutated sweet potato
- Tell students that they have the option to draw their creature, create a digital collage using images from the internet, create the creature using pieces of cut construction paper, or create a physical collage by cutting out pictures from magazines or printed images to create a picture of the mutated sweet potato
    - Student options will vary depending on what materials you have available!
- Explain that students should prepare to explain why they made the choices they did

Group work (20 minutes)

Students will:

- Get back into their groups from the previous lesson
- Brainstorm, share ideas, and jot down ideas
- Decide what medium to use
- Create their creature design
- Write an explanation of their choices, either on the back of their work or on the digital version

Reflect (5 minutes)

The teacher will:

- Bring the whole group together
- Ask students reflection questions, such as:
    - Was this challenging or easy? Why?
    - What was challenging about the process?
    - How did your design ideas change after watching the play?
    - Was the second task more or less challenging? Why?
    - What would you do differently next time?

Want to do more?

-Have students prepare a presentation and present their design to the class! Then students can compare and contrast their designs, give feedback to one another, and reflect on the entire process.

-Go deeper into the design process! Have your students refine their ideas and make a model of the set using a shoe box and 3D materials!

Links for Teachers

Various Resources:

NASA STEM and STEAM Lessons

Our Blog

Gazeteer of Planetary Nomenclature

NASA Solar System Treks

Maps:

NYT: NASA's Opportunity Rover Dies on Mars

Mid-2017 Map of NASA's Curiosity Mars Rover Mission

Moon LRO LROC WAC Global Morphology Mosaic

Moon LRO LOLA Color Shaded Relief Blue Steel