Dear Educator/Parent,

Welcome to the Center for Puppetry Arts and this production of SPACE!, written and directed by Jon Ludwig.

SPACE! is a rollicking, rocking musical ride through our solar system and beyond. This delightful puppet show is the perfect accompaniment to a thematic unit on the planets, the sun and moon, stars, astronomy, forces in space, and more -- and a celebration of the power that the arts have to both entertain and educate.

It has been proven (through test scores and numerous studies) that the arts
• invite empathy and interaction
• stretch the imagination
• develop important coordination and language skills (emotional and spoken)
• satisfy educational objectives across the curriculum
• support literacy and writing
• enhance social skills such as problem solving, turn-taking and active listening
• impact school attendance in a positive way
• improve motivation and behavior
• and simply allow children to have fun (they're called “plays” for a reason, after all!)

This Educator Resource Guide is designed to prepare you for the experience of a live performance. You're also invited to utilize the suggested activities as a springboard for follow-up fun after the curtain has gone down.

All three areas of programming at the Center for Puppetry Arts (performance, puppet-making workshops and Museum) meet Georgia Performance Standards (GPS) and Georgia Bright From the Start Pre-K Program Standards. To access the Georgia Performance Standards that have been correlated to each programming area according to grade level, click the links below:

SPACE!, P-K & K
SPACE!, Grade 1
SPACE!, Grade 2
SPACE!, Grade 3
SPACE!, Grade 4
SPACE!, Grade 5
SPACE!, Grade 6

To access a complete list of GA Performance Standards for all grades and subjects, please visit https://www.georgiastandards.org.

Enjoy the show!

Sincerely,

Aretta Baumgartner, Education Director
Association of Theatre Movement Educators
American Alliance for Theatre & Education
Educational Theatre Association
Pre-Show Activities / Discussions

WHAT IS A PUPPET?
A “puppet” is an inanimate (non-living) object that is brought to life by an outside force (usually a human being working as a performer) in order to tell a story.

SPACE! is performed using shadow and rod puppets, projections, innovative stagecraft, animation and up-to-date images that are from the credited public domain site of the National Aeronautics and Space Administration (NASA). Though technology is a big part of the show, puppets are the primary means of storytelling.

• DISCUSSION: Ask the children what puppets are. Have they seen them before? Are they real or pretend? What can be used as a puppet? Out of what materials can puppets be made, and why would you choose some materials over others for certain projects? Have you ever made your own mouth puppets or shadow puppets?

WHAT IS A PUPPETEER?
A performer who uses a puppet or puppets to tell a story is called a “puppeteer.”

There are five puppeteers in SPACE!: Dolph Amick (playing the role of Guitarth Vader), Luis R. Hernandez (Daddy-O), Allison Murphy (Starshine), Julie Scarborough (Eema), and Tim Sweeney (Ot, Robot). Though they have one primary or “main” character that they each portray in the show (noted after their names in the previous sentence), they also play other smaller roles (“minor” or “secondary” characters) throughout the performance. All the dialogue and songs are performed live.

• DISCUSSION: What skills does it take to be a puppeteer? Every puppeteer plays multiple roles in the show. How are they able to make each character distinct and unique? Puppeteers can change their bodies and their voices to make characters and stories come to life. Do you change your bodies and/or voices and play different “roles”? 

WHAT IS AN AUDIENCE?
Being a good audience member is as important as being a good puppeteer! It takes teamwork between the audience and puppeteer/actor to make a show successful. There are “rules of etiquette” that need to be followed, such as:

• A LIVE SHOW IS DIFFERENT THAN TV OR MOVIES. It’s okay to have fun, but do remember that the people on-stage (and in the audience) can hear you—be polite!
• MAKE SURE EVERYONE CAN SEE. Stay seated so the audience members behind you can see the show.
• BE SUPPORTIVE. The way audience members show they like something is to applaud. Make sure to applaud if you appreciate what you see and hear. Between songs or scenes, after the show, and after the post-show demonstration are appropriate places/times to show your appreciation.
• LISTEN CLOSELY. It’s important that you hear all the details of the story so that you can enjoy it fully.

• DISCUSSION: Review the “rules” of being a good audience member. Role play what is appropriate and what is not.
What is the Story We’ll Share (The Story Synopsis)?

In the puppet show called SPACE!, a colorful crew of hipster aliens takes the audience on a wild ride through the universe. You will meet a shadow-puppet rock band (Daddy-O, Guitarth Vader, and Starshine), a hand-and-rod puppet spaceship mechanic (Ot), a rod puppet spaceship pilot (Eema) and many, many more characters! This story is an original story, not based on a book or inspired by a story that has been told before (in other words, SPACE! is not an “adaptation”).

• DISCUSSION: What is the difference between an original play and an adaptation? What challenges would each type of storytelling have? Brainstorm examples of adaptations and original stories that you’ve enjoyed and/or created.

Who Created the Show?

This show was written and directed by Jon Ludwig, the Artistic Director at the Center for Puppetry Arts. Mr. Ludwig is an accomplished performer, director, and designer who has worked at the Center since its inception. He has written and directed over 20 distinctive shows for the Family Series that educate and appeal to children and adults. Seven of his productions have received Citations of Excellence from UNIMA-USA (Union Internationale de la Marionnette-USA), and, in 2007, he was among the first recipients of a new grant from Atlanta’s Charles Loridans Foundation to honor individual artists who have made significant contributions to the city’s cultural life. Mr. Ludwig has also collaborated with national and international artists including Petr Matasek from the Czech Republic’s Theater DRAK, Ping Chong from New York, and Mitsuru Ishii from Japan. In children’s television, Mr. Ludwig wrote, designed, and puppeteered the shadow puppet segments for the Disney Channel/Henson Production “Bear in the Big Blue House.” He also directed and puppeteered for the Disney Channel’s “The Book of Pooh.” He is a member of The Directors Guild of America and ASCAP (The American Society of Composers, Authors and Publishers) and holds a B.A. in Theater from Chicago’s Columbia College.

The music for SPACE! was composed and performed by John Cerreta and Joey Bargsten.

The Center for Puppetry Arts is a unique cultural treasure - a magical place where children and adults are educated, enlightened and entertained. Since 1978, the Center has introduced millions of visitors to the wonder and art of puppetry and has touched the lives of many through enchanting performances, curriculum-based on-site workshops and outreach programs, the hands-on Museum and the award-winning Distance Learning program.

• DISCUSSION: Visit the Center for Puppetry Arts website (www.puppet.org). Find out about the Center’s mission (“About Us”), history (“History”) and programming (“Performances,” “Museum,” and “Education”). View a photo from the show on the “Performances” page of the website and discuss which characters you think are represented in the photo. What impressions of their personalities do you get from the image?
LEARNING ACTIVITY, P-K & K: Out-of-this-world Food Exploration!

Georgia Bright from the Start Pre-K Content Standards covered: LD3 (Language and Literacy Development, Vocabulary), SD4 (Scientific Development), SE3 (Social and Emotional Development), HPD3 (Health & Physical Development)

Georgia Performance Standards covered, Kindergarten: ELAKR5 (English Language Arts & Reading, Vocabulary), SKP3 (Science, Physical Science), SSKCG1 (Social Studies, Civics and Government Understanding, Rules), HEK1 (Health Education, Nutrition)

Objective: Students will explore day-to-day life in outer space, specifically, how eating can be very different and sometimes difficult when traveling in a spaceship.

Materials: instant pudding mix (and ingredients to make it), zip lock sandwich bags, straws, scissors

NOTE: Please be aware of any food sensitivities or allergies that students may have before inviting participation in preparation or sampling of food. Review food and cooking safety with students before beginning the cooking process. Remind students that moderation is key when sampling foods and for healthy eating habits.

Procedure:
1. Review with your students the different types of food that can be consumed in outer space (http://www.ag.iastate.edu/centers/ftcsc/pages/cuisine.htm): rehydratable, thermostabilized, intermediate moisture, natural form, irradiated and fresh. Make sure to share with the students the examples given on the website so they understand these tricky vocabulary words!

2. Make the instant pudding.

3. Put a large spoonful of instant pudding into a zip lock bag. Repeat this process until you have one bag for each student.

4. Carefully cut a small hole in a corner of each bag and poke the straw through it.

5. Let the students attempt to eat the pudding through the straw and discuss how easy or difficult this might be when floating in the zero-gravity atmosphere of a spaceship. Identify what category this snack might fall into, and brainstorm what the meal-time process might be like in space (food storage and preparation, utensils used, etc.).

Assessment: Ask the students to apply the terms for the types of foods consumed in space to foods eaten at snack-time or meal-time in the classroom. Review the vocabulary words and concepts learned. Remediate if necessary.
Objective: Students will learn the characteristics of the major bodies in our solar system (the Sun, the eight planets, and the asteroid belt) by performing the Solar System Song.

Materials: Solar System Song sheet/s (one for each student OR one to share with classroom via dry erase board, chalk board, or SMART Board), poster or picture of our solar system

Procedure:
1. Show students a picture of our solar system and review with them the location of the Sun, the eight planets and the asteroid belt.

2. Lead students through the gestures for each verse in the Solar System Song.

3. Enjoy the Solar System Song with students, either performing it as a group activity or assigning “roles” to students. As a variation, have students stand (individually or in groups) in order of orbit (with the Sun at the center of the room, and the students placed appropriately by planet/role out from the Sun’s location).
**Solar System Song (to the tune “London Bridge is Falling Down”)**

The Sun, at the center, is a star, is a star, is a star. (hands out to sides, open and close to “twinkle”) The Sun, at the center, is a star— (hands out to sides, open and close to “twinkle”) Provides light and heat! (arms in swooping motion above head)

Tiny Mercury’s closest to the sun, to the sun, to the sun. (hold arms to chest and crouch to be small) Tiny Mercury’s closest to the sun— (hold arms to chest and crouch to be small) Volcanic and rocky! (pointy arms above head to form volcano)

Hot, hot Venus has yellow clouds, yellow clouds, yellow clouds. (wave hand by face to denote “hot stuff”) Hot hot Venus has yellow clouds— (wave hand by face to denote “hot stuff”) Made of acid! (make “sizzle” sound after the word “acid”)

Earth is “home” to you and me, you and me, you and me! (point out on “you” and to self on “me”) Earth is home to you and me— (point out on “you” and to self on “me”) Care for her greens and blues! (hug yourself)

Small planet Mars is oh-so-cold, oh-so cold, oh-so-cold! (turn hugging arms to “shiver” arms) Small planet Mars is oh-so-cold— (turn hugging arms to “shiver” arms) Red and rusty! (make “creak” sound after the word “rusty”)

The asteroid belt’s filled with rocks and dust, rocks and dust, rocks and dust. (one hand in fist for “rock,” other hand open on “dust”) The asteroid belt’s filled with rocks and dust— (one hand in fist for “rock,” other hand open on “dust”) Separates inner and outer planets. (arms together then apart to show “separation”)

Huge Jupiter’s the first of four gas giants, four gas giants, four gas giants. (be as big as possible) Huge Jupiter’s the first of four gas giants— (be as big as possible) With a stormy big, red spot! (pat yourself on the side)

Saturn is known for its rings, for its rings, for its rings. (make circles in air with pointer finger) Saturn is known for its rings— (make circles in air with pointer finger) The second gas giant. (hold up two fingers)

Icy Uranus is made of methane gas, methane gas, methane gas. (hold nose for “smelly” gesture) Icy Uranus is made of methane gas— (hold nose for “smelly” gesture) Tilts to the side. (lean to the side)

Neptune’s the last planet in our system, in our system, in our system— (“run” to far side of room to be far away) Neptune’s the last planet in our system— (“run” to far side of room to be far away) Giant, blue and icy! (make BIG circle with arms above head)

**ACTIVITY LEADER:** (spoken) “And little Pluto used to be considered a major planet in our solar system, but scientists recently discovered that it’s not! It’s too small! Pluto’s a dwarf planet!” (pinch thumb and first finger together to show “small”)

**CLASS:** Pluto’s a dwarf planet! (pinch thumb and first finger together to show “small”)
LEARNING ACTIVITY, 3rd & 4th Grades: 
Look on the Bright Side: Building a Pinhole Projector

Georgia Performance Standards covered, Grade 3: ELA3LSV1 (English Language Arts and Reading, Listening/Speaking/Viewing), S3CS4 (Science/Characteristics of Science, Habits of Mind), S3CS7 and S3CS8 (Science/Characteristics of Science, Nature of Science), M3M2 (Mathematics, Measurement), M3G1 (Mathematics, Geometry)

Georgia Performance Standards covered, Grade 4: ELA4LSV2 (English Language Arts and Reading, Listening/Speaking/Viewing), S4CS1 and S4CS4 and S4CS5 (Science/Characteristics of Science, Habits of Mind), S4CS7 and S4CS8 (Science/Characteristics of Science, Nature of Science), S4E2 (Science/Earth Science), M4G1 (Mathematics, Geometry)

Objective: Students will learn about eclipses and construct a pinhole projector so they can safely view the next solar eclipse.

Materials: shoebox-sized cardboard box, white paper, ruler, pencil, aluminum foil (4” square), pin, clear tape, razor blade (for adult use ONLY)

Procedure:
2. Mark the date of the next solar eclipse on your classroom calendar (May 20/21, 2012) and plan to view it. Note that, for the southeastern part of the United States, this will be a partial eclipse. Though “only” a partial eclipse, it is NOT safe to view with the naked eye!
3. Using a pencil and a ruler, draw a one-inch square in the center of one end of the box.
4. At the opposite end of the box, draw a one-inch by four-inch rectangle so that the one-inch side is approximately one inch from the end of the box. The four-inch sides of the rectangle should be parallel to the long sides of the box. Use the illustration below as a guide:

5. Cover the inside of the box with white paper, affixing with clear tape.
6. Have an adult use the razor blade to cut out the square and rectangle drawn in steps 3 and 4.
7. Poke the pin through the center of the piece of aluminum foil, creating a very small hole.
8. Tape the edges of the foil over the square hole in the end of the box so that the pinhole is in the middle of the opening.
9. To use your pinhole projector, aim the foil end at the sun. NEVER LOOK DIRECTLY AT THE SUN – IT CAN PERMANENTLY DAMAGE YOUR EYES! Look through the opening at the top of the projector and you will see the image of the eclipsed sun on the inside back end of the box.

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10. Ask students to look carefully at the projector to figure out how each part of it functions to make the projector to work properly. Why must the hole be so small? Why must there be a reflective material covering the opening on the side of the box? Why must the inside of the box be white (or light colored)?

Assessment: As the date of the eclipse draws nearer, review the definition of “solar eclipse” and the process for using the pinhole projector safely. Remediate as/if necessary.
LEARNING ACTIVITY, 5th & 6th Grades: 
Blast Off! (an internet scavenger hunt and word puzzle)

**Georgia Performance Standards covered, Grade 5:** ELA5R1 (English Language Arts and Reading, Reading, Comprehension), ELA5R3 (English Language Arts and Reading, Reading,Vocabulary), S5CS5 and S5CS6 (Science/ Characteristics of Science, Habits of Mind)

**Georgia Performance Standards covered, Grade 6:** ELA6LSV2 (English Language Arts and Reading, Listening/ Speaking/Viewing), S6E1 (Science Content, Scientific Views of the Universe), S6E2 (Science Content, Relative Positions of the Earth Sun and Moon)

**Objective:** Using the student pages of the website of the National Aeronautics and Space Administration (NASA) as a resource, students will complete a worksheet that explores basic vocabulary words related to our solar system.

**Materials:** Copies of word puzzle handout (one per student), pens/pencils (one per student), computer(s) with internet access

**Procedure:**

1. Review the “Blast Off!” word puzzle handout with students, explaining that they must fill in the appropriate vocabulary word that fits follows each short description.

2. Point out that one letter is provided in each answer already (completing the vertical phrase “EXPLORE THE SOLAR SYSTEM”) and that the total number of letters in each vocabulary word is denoted by that one letter plus blanks/underscores (for example, the answer to question 1 has six letters, the answer to question 2 has four letters, and so on).

3. Have students direct their web browser to NASA’s grades 5-8 student resource page: [http://www.nasa.gov/audience/forstudents/5-8/features/homework-topics-index.html](http://www.nasa.gov/audience/forstudents/5-8/features/homework-topics-index.html)

4. Encourage students to complete the worksheet using the above webpage as resources.

5. ANSWER KEY:

   1. Comets
   2. Axis
   3. Planets
   4. Satellites
   5. Moon
   6. Meteorite
   7. Telescope
   8. Orbit
   9. Earth
   10. Constellation
   11. Astronaut
   12. Revolution
   13. Galaxy
   14. Rotate
   15. Astronomy
   16. Asteroids
   17. Gravity
   18. Solar
   19. Saturn
   20. Mercury
   21. Atmosphere

**Assessment:** Circulate around the room during the activity to observe students reading and completing their work. Check handouts for completeness and accuracy. Remediate as/if necessary.
Blast Off!

Complete the puzzle with words related to the solar system. Use a reference book to help you.

1. particles of dust, ice, and gases orbiting the sun _______ E ______
2. imaginary line around which a planet spins _______ X ______
3. objects revolving around and reflecting light from the sun _______ P ______
4. objects that orbit planets _______ L ______
5. satellite that orbits Earth _______ O ______
6. a meteor that has fallen to Earth _______ R ______
7. instrument for observing objects in space _______ E ______
8. path of one body in space around another _______ T ______
9. travels around the sun in 365 1/4 days _______ H ______
10. group of stars that forms a picture _______ E ______
11. one who travels in space _______ S ______
12. one complete path around the sun _______ O ______
13. grouping of billions of stars that form a system _______ L ______
14. turn on an axis _______ A ______
15. study of the universe _______ R ______
16. small planets with orbits between Mars and Jupiter _______ S ______
17. force of attraction between objects _______ Y ______
18. having to do with the sun _______ S ______
19. the ringed planet _______ T ______
20. planet closest to the sun _______ E ______
21. gaseous layer surrounding a planet _______ M ______
Additional Learning and Enrichment Opportunities

Acting and Drama
How do performers tell stories? Just as carpenters use hammers and doctors use stethoscopes, performers use tools: voice, body and movement. Talk about how we use our voice, our body, and our movement to pretend to be things, other people, animals, etc. Have the children explore the tools (body, movement, voice) one at a time:

1. **BODY**: pose as different things (i.e. an elephant, using an arm as trunk and expanding to be as big as possible; a grandmother/grandfather, bending your back and leaning over a bit; a Ferris wheel, placing both arms over your head in a circle and clasping your hands together)
2. **MOVEMENT**: add movement to the above
3. **VOICE**: how would they sound?

**CURRICULUM CONNECTION**: Theatre Arts

Constellations
Every constellation is inspired by a story. Using books from your library and/or NASA’s website as a resource, show pictures of some of the major constellations (such as Pegasus, the Big Bear and Little Bear, Leo the Lion, and Orion the Hunter) and share the mythological story (or stories) of their creation and naming. Have students form the shapes of the constellations with their bodies, one child per star, or act out their origin tales.

**CURRICULUM CONNECTION**: English Language Arts & Reading, Science, Theatre Arts

Fitness
Have students do exercises astronauts do such as squats, heel raises, arm curls and running—these activities improve muscular strength and cardiovascular endurance. Allow them to leap around the room like they are walking on the moon, noting how different it feels to be in the air (weightlessness) and being pulled back to the ground (gravity). Explain to them the importance of taking care of their bodies and receiving the proper nutrition just like astronauts need when they go into space.

**CURRICULUM CONNECTION**: Physical Education, Science

Music and Sound Effects
Explore how music can help tell a story. Music was a big part of this theatrical experience. How did music help you understand the actions of the play and the feelings of the characters? Make your own music: play drums you make out of coffee cans, guitars you make out of cereal boxes and rubber bands, and flutes you make out of empty plastic bottles. Create lyrics and sing along! What mood or emotion do these different instruments suggest, and how can your voice reflect these emotions? Listen to different styles of music (such as classical, jazz, country and pop/rock) and identify what instruments you hear being played. Discuss what “sound effects” are and recall any sound effects you heard in the show that helped create the world of the puppet play.

**CURRICULUM CONNECTIONS**: Fine Arts/Music, Fine Arts/Visual Art

The Planetary Puzzle
It’s hard to visualize the size of the planets in relationship to one another, so gather materials to build a scale model of the solar system in order to illustrate this “planetary puzzle”! Use everyday objects to make the activity easy and fun. Great examples can be found at the Exploratorium or SkyTeller websites (for example, Exploratorium illustrates that, if the Sun were the size of a soccer ball, the Earth would be 1/14th of an inch, the size of a peppercorn!). Once the materials are gathered, have students take turns holding the objects and lining up in the order the bodies appear in the solar system. Then have them orbit around one another as these objects do in the sky.

**CURRICULUM CONNECTIONS**: Science, Physical Fitness
Puppetry
How are puppets brought to life? How are puppet shows created? Have the students create a puppet show using objects they can find in the classroom and/or in their desks. Have them each bring in one kitchen utensil from home (marked with their name on masking tape!) and brainstorm how to re-create a favorite fairytale using these utensils. Puppets designed for this show and for all puppet shows use scientific applications in their designs. Can you figure out how simple machines (levers, pulleys, wedges, screws, wheels/axles, inclines) might have been used in the puppets, set, props or stage for this puppet show? What other ways can you see that science would have been used in the research for or creation of Space!?

CURRICULUM CONNECTION: Theatre Arts, Science (Engineering and Technology)

Spelling
What fun can you have with the letters of the words “outer space”? Give each student the letters O-U-T-E-R-S-P-A-C-E, and ask them to make (and define) the following words: spear, route, create, asp, erect. What other words can you and your students make (and define) using those letters?

CURRICULUM CONNECTIONS: English Language Arts & Reading (Spelling)

Storytelling
How are stories written? How can a story be told? Have the children draw a series of pictures to illustrate what happened in the story. Add simple captions. This is called a “storyboard” and is often the way a play or a movie is created! Have the children act out what they remember, allowing different children to take on different roles (including scenery so all have a part to play!).

CURRICULUM CONNECTIONS: Theatre Arts, English Language Arts & Reading, Fine Arts/ Visual Art

The Hubble Space Telescope over Earth
Photo courtesy of www.nasa.gov
Selected Bibliography


Earth
Photo courtesy of www.nasa.gov
Internet Resources

Visit the website of the Center for Puppetry Arts, where you can take a virtual tour of the Museum and see examples of puppets from many cultures and of many different styles: [http://www.puppet.org](http://www.puppet.org)

Discover the statistics and learn about the importance of Arts Advocacy at the Educational Theatre Association website: [http://schooltheatre.org/sites/default/files/Did%20you%20know%20with%20links%20web%20post%2011-18_1.pdf](http://schooltheatre.org/sites/default/files/Did%20you%20know%20with%20links%20web%20post%2011-18_1.pdf)

Print out and enjoy out-of-this world coloring and activity pages at Kids Soup: [http://www.kidssoup.com/Space/Space_Activities.html](http://www.kidssoup.com/Space/Space_Activities.html)

Explore hundreds of great space-related lesson plans and activities on the website of the one and only National Aeronautics and Space Administration (NASA): [http://www.nasa.gov/audience/foreducators/index.html](http://www.nasa.gov/audience/foreducators/index.html)

Play with your food (your space food, that is!) as you dig into the activities on the webpage for the NASA Food Technology Commercial Space Center: [http://www.ag.iastate.edu/centers/ftcsc/pages/educate.htm](http://www.ag.iastate.edu/centers/ftcsc/pages/educate.htm)

Find out about puppetry and puppeteers in the United States by visiting the webpage for the Puppeteers of America: [http://www.puppeteers.org](http://www.puppeteers.org)

Find the latest in space news, terrific space photos and more at [www.space.com](http://www.space.com)

Reinforce important space and science vocabulary words by visiting the glossaries on the Star Child Learning Center for Young Astronomers' website: [http://starchild.gsfc.nasa.gov/docs/StarChild/StarChild.html](http://starchild.gsfc.nasa.gov/docs/StarChild/StarChild.html)

Identify constellations and learn more about the solar system on the Starry Skies website: [http://www.earthspace.net](http://www.earthspace.net)

Learn how Union Internationale de la Marionnette-USA “promotes international friendship through the art of puppetry”: [http://www.unima-usa.org](http://www.unima-usa.org)

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