

School Age Programming

SRP 2019 - A Universe of Stories

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Space Camp: Exploring the Solar System

The Solar System to Scale

- ◆ The Solar System on paper

Use the Plotting the Planets Activity (CSLP Children's Manual, p227) to plot the planets on a grid, where one square is equal to one Astronomical Unit (the distance from the Sun to the Earth)
- ◆ The Solar System in your community

Using a map of your community, with your library taking the place of the Sun, find local businesses or places of interest that fall as far away from your library as the planets fall from the sun (scaled down, of course! So if 1 ft = 1 million miles, St. Mark's is as far away from the Wood County District Public Library as Pluto is from our Sun!)

Provide a map on a cork board, and give the kids the addresses. Invite the kids to find the addresses on the map and put pins in them to see how the Solar System is spaced out in reference to their town.
- ◆ The Solar System in your library

Use the Jump to Jupiter Science Activity (CSLP Children's Manual, p166) to create a to-scale model of the Solar System in your library for kids to explore. Put a book about each planet at each planet's station, and use the Solar System Passports (CSLP Children's Manual, p187-189) for children to record a fact that they find in the book. Include Pluto for a discussion about NASA's definitions of planets and dwarf planets.

Books:

Space Science series. Bellweather Media, 2019.

Sweeney, Joan. *Me and My Place in Space*. Illus. Christine Gore. Dragonfly Books, 2018.

Wade, Steve. *A Place for Pluto*. Illus. Melanie Demmer. Capstone Editions, 2018.

Augmented/Virtual Reality

Norweld's AR/VR kit, available for request to Norweld members, provides lots of space exploration opportunities with AR and VR apps and devices, which can be supplemented with library-owned tablets or smartphones, and free downloadable apps.

Book:

Hughes, Howard. *iSolar System: An Augmented Reality Book*. Carlton Books, 2001.

Space Camp: Astronaut Training

NASA Fitness Training

Astronauts have to go through intense physical training. NASA has put together a series of physical challenges for kids based on real astronaut training. Challenge students to see how many challenges they can complete!

- ◆ www.nasa.gov/audience/foreducators/trainlikeanastronaut/activities/index.html
- ◆ CSLP Children's Manual, p168-169

Questions About Space Answered

Astronaut Scott Kelly spent a year in space on a fact-gathering mission. He made many videos about life in space, that can be found on NASA's YouTube channel. Have the students write down any questions they might have about life in space, and set up a research station with books and computers to see if they can find the answers.

Astronaut Games

"Don't Drop the Asteroid"

How to Play:

- Players must keep all the asteroids (balloons) up in the air while the music is playing.
 - When the music stops they all grab an asteroid and the leader call out a color.
Whoever has that colored asteroid must pop it and complete the challenge inside.
- NOTE: You can tie the challenges to the balloons if you'd prefer not to pop them.

Some challenge ideas:

- Sing the ABCs backwards
- Pretend like you're walking on the moon
- Pat your head and rub your stomach
- Answer a space riddle
- Think of more!

"Solar System Challenge"

How to Play:

- Two sets of planet images, one on red paper and one on blue, are hidden around the room.
- Players are divided into a Green Team and a Blue Team.
- Teams must collect all of their planets and arrange them in the correct order. The first team to accomplish this wins.
- For a more challenging game, you can turn this into a relay race, where only one team member at a time is searching for an image.

"Tissue Paper Earth Teambuilding"

How to Play:

- Students must work together to use pieces of blue and green tissue paper to create Earth's oceans and continents.

Space Camp: Astronaut Training Games, cont.

“Astronaut Simon Says”

How to Play:

-Traditional Simon Says, but theme the commands to space and NASA.

This game is an good way to transition into the “Moon Landing” game, getting the students used to listening to and following directions.

“Moon Landing”

How to Play:

-A leader is chosen, either an adult or older student.

-The leader calls out various commands, which each prompt an action from the players.

-If the action requires players to make smaller groups of 2, 3, 4, etc, any player who does not make it into a group of that number is OUT until the next round.

-**Start with a handful of commands** and add more as the players learn them.

-The goal is to be the last astronaut standing.

-The game can also be played as a non-elimination game, if preferred.

Commands:

-New Moon: Run to the back of the room

-Full Moon: Run to the front of the room

-1st Quarter: Run to the right

-3rd Quarter: Run to the left

-Waning: Run in a clockwise circle

-Waxing: Run in a counter-clockwise circle

-Alien Sighting: Pointer fingers on either side of head like alien antennae

-Crater: Sit on the ground in a ball

-One Giant Leap: Jump in the air

-Blastoff: Stand on one foot with one fist up in the air

-Houston: Yell “We have a problem!”

-Crescent: Form your body into a crescent shape

-Gibbous: **Groups of 2**, form a circle together

-Eclipse: **Groups of 3**, stand in a line with the two outside players facing each other and the third in the middle, blocking them from view

-Moon Landing: **Groups of 4**, three people making a shuttle, the fourth sitting inside

-[Number] to an escape pod: Form **groups** of the specified number

Be creative and add commands of your own!

Books:

Hayden, Kate. *Astronaut: Living in Space*. DK Publishing, 2000.

Lawrence, Ellen. *Becoming an Astronaut*. Bearpoint Publishing, 2019.

Lawrence, Ellen. *Working in Space*. Bearpoint Publishing, 2019.

McCarthy, Meghan. *Astronaut Handbook*. Dragonfly Books, 2008.

Williams, Dave, Dr. and Loredana Cunti. *Go for Liftoff: How to Train Like an Astronaut*. Annick Press, 2017.

Williams, Dave, Dr. and Loredana Cunti. *To Burp or Not to Burp: A Guide to Your Body in Space*. Annick Press, 2017.

Mapping the Moon

Using a high-resolution NASA photo of the surface of the moon, you can create a giant Moon Map Mat for use in a multitude of programming. Laminate using contact paper so the mat will last longer.

Some ideas for Moon Map Mat programs:

- ◆ Moonscape Topography exploration - Attach numbers to the 10 most recognizable moonscape features. (CSLP Children's Manual, p135). Show the major impact craters and compare to the smoother "seas." Talk about how craters are formed. Talk about how the major moonscape features were named.
- ◆ Coding/Robots - Pretend your robots are moon rovers. Combine with the Moonscape Topography exercise and ask the students to drive the robots to specific moon locations.
- ◆ 50th Anniversary Moon Landing - Mark the landing sites of the spacecrafts that have visited the moon. Talk about each expedition and what they found and studied.
- ◆ Creative exploration - Ask the students if they can find the Man in the Moon. Ask them what other pictures they can see made by the moon's topography.
- ◆ Moon phases - Use black paper or fabric to show the moon phases. Teach the names – waxing, waning, gibbous, crescent – and have the students arrange the paper or fabric to show what the moon would look like in the sky at each point of its illumination cycle.
- ◆ Dark vs. Light - Print out a NASA photo of the "dark side" of the moon. Ask the students to compare and contrast the dark side and the light. Discuss why we call the far side of the moon the "dark side" and why they've never seen it while looking up at the sky. Discuss why the dark side has so many more craters than the light.
- ◆ Touchdown on the Moon - (CSLP Children's Manual p123-124) - Use as a backdrop for this STEM Engineering Project. Create an additional challenge in asking the students to land their astronauts on specific geographical features.
- ◆ Storytimes - Read moon stories while the students sit on the moon map.

Books:

Carle, Eric. *Papa, Please Get the Moon for Me*. Simon and Schuster, 1986.

Curgeon, Remi. *Many Moons*. Quarto Publishing Group, 2017.

Crews, Nina. *I'll Catch the Moon*. Greenwillow Books, 1996.

Lin, Grace. *A Big Mooncake for Little Star*. Little, Brown, and Company, 2018.

Rustgi, Jennifer. *A Moon of My Own*. Dawn Publications, 2016.

Slade, Suzanne. *Countdown: 2979 Days to the Moon*. Peachtree, 2018.

Sommer, Nathan. *The Moon*. Bellweather Media, 2019.

Intermediate Book Group for ages 6th-9th Grade

A recent YA trend is retelling fairy tales and classic novels in a space setting. This would make a perfect theme for a book group aimed at ages 6th-9th grade. Some titles to consider are below.

Books:

Donne, Alexa. *Brightly Burning*. HMH Books for Young Readers, 2018.

A space retelling of Charlotte Bronte's *Jane Eyre*.

Etienne, Sara Wilson. *Lotus and Thorn*. GP Putnam's Sons Books for Young Readers, 2016.

A space retelling of Fitcher's Bird.

Lewis, R.C. *Spinning Starlight*. Hyperion, 2015.

A space retelling of The Wild Swans.

Lewis, R.C. *Stitching Snow*. Hyperion, 2014.

A space retelling of Snow White.

Meyer, Marissa. *Cinder*. Feiwel and Friends, 2012.

A space retelling of Cinderella. First in a series, all fairy tales in space

Peterfreund, Diana. *For Darkness Shows the Stars*. Balzer and Bray, 2012.

A space retelling of Jane Austen's *Persuasion*.

Peterfreund, Diana. *Across a Wide-Swept Sea*. Balzer and Bray, 2013.

A space retelling of Emmuska Orczy's *The Scarlet Pimpernel*.

Poston, Ashley. *Heart of Iron*. Balzer and Bray, 2018.

A space retelling of the Duchess Anastasia myth.

Space Jeopardy

Trivia is huge right now! Put a trivia or Jeopardy program together for your tweens and teens. Use flipquiz.com for a free and intuitive online Jeopardy board maker.

Possible categories include:

- ◆ Space Travel: history and people
- ◆ Space objects: planets, galaxies, comets, stars, etc
- ◆ Photo identification
- ◆ Space fandoms: Star Wars, Star Trek, Firefly, Guardians of the Galaxy, etc

Have the students play in teams, and give each team a different type of noisemaker to buzz in (it's easier to identify which sound you hear first than which hand you see first)

Books:

Artell, Mike. *Starry Skies: Questions, Facts, and Riddles About the Universe*.
Good Year Books, 1997.

Any Fandom trivia books

Star Wars Program

Check locally to see if you have any Star Wars Cosplay Garrisons who would be willing to send characters in costume to your event.

Set up a variety of stations for students to float around too, and encourage everyone to come in costume!

Stations could include:

- ◆ Lightsaber Battle - Create pool noodle lightsabers and hang Stormtrooper balloons from a ceiling. Blindfold Jedi Padawans and give them 30 seconds to defeat as many Stormtroopers as possible.
- ◆ Star Wars Origami - Tom Angleberger, author of the *Origami Yoda* series, has several designs on his website, origamiyoda.com
- ◆ Star Wars Masks - Print out life-size versions of the characters' faces and cut out the eyes. Glue to popsicle sticks or use yarn to tie around students' heads.
- ◆ Admiral Ackbar's Snack Bar - Yoda Soda, Pretzel Rod Lightsabers, Wookiee Chow, Princess Leia's Cinnamon Buns, the possibilities are endless
- ◆ Leia Bun and Yoda Ear headbands - Create ear and bun templates and allow the students to decorate. Glue to green and brown strips of paper and tape to the size of the student's head.
- ◆ Storm Trooper Bowling - Decorate water bottles or oatmeal canisters to look like Stormtroopers
- ◆ Pin the Lightsaber on the Jedi Master - Print out Yoda or Luke and prepare long strips of green paper to the lightsabers
- ◆ Word puzzles and coloring sheets

Books:

Alexander, Chris. *Star Wars Origami*. Workman Publishing, 2012.

Angelberger, Tom. *Origami Yoda* series. Amulet books, 2010-2018.

Bookmaking Programs

Accordion Books

Possible Accordion Book themes:

- ◆ Planet identification - Each folded segment can showcase one planet, a drawing, and some facts
- ◆ Exploring Earth's atmosphere - Use *The Skies Above My Eyes* as a demonstration. Its unique format lends itself to accordion books

Alien Mix and Match

Use the three flap format to create a book of wacky, mixable aliens. Kids can color the pre-drawn aliens, and including blank pages at the end allows them to create their own.

Fandex

Show examples of the Fandex Fact Cards, and encourage students to create their own on any space topic: planets, astronauts, constellations, etc.

Books:

Guillain, Charlotte. *The Skies Above My Eyes*. Quarto Publishing, 2018.

STEM

The STEM opportunities this summer are endless. Consider a weekly, themed STEM program that allows you to teach about all aspects of space. Use library books of science experiments, the CSLP Children's Manual, and online resources to find hands-on science experiments that fit the following possible themes:

- ◆ Sun
- ◆ Moon
- ◆ Earth
- ◆ The planets of our solar system
- ◆ Comets, asteroids, and other heavenly bodies
- ◆ The Habitable Zone and life on other planets
- ◆ Gravity
- ◆ Rocket Science
- ◆ Stars and Constellations
- ◆ Space Travel and Astronauts
- ◆ Space Rovers and other robots
- ◆ Coding, mathematics, and technology that make space travel possible

After Hours Stargazing

Check your community for a local planetarium or Astronomical Association who could come in to do a stargazing program. Some dates to consider:

- ◆ June 10 - Jupiter at Opposition (fully illuminated by the sun)
- ◆ June 17 - Full Moon
- ◆ July 9 - Saturn at Opposition
- ◆ July 16 - Full Moon (also 50th anniversary of the Apollo 11 launch)
- ◆ July 20 - 50th anniversary of the Apollo 11 moon landing

Books:

Martin, Claudia. *Planets and Stars*. Quarto Library, 2018.

Mitton, Jacqueline. *Once Upon a Starry Night*. National Geographic, 2003.

Mitton, Jacqueline. *Zoo in the Sky*. National Geographic, 1998.