



Cosmic Cuisine Homeschool Lesson Plan

Overview

Raddish is designed by a dedicated team of teachers and chefs who believe the kitchen classroom is the tastiest place to learn. We love watching learning come alive when kids mix math, stir science, and taste culture!

Paired with the materials found in your Cosmic Cuisine box, this lesson plan divides your box into three 45-90 minute lessons. You can use these lessons for students from pre-K – middle school and adapt them to suit your needs. Depending on your timeframe, child's age, and their engagement, these lessons can be taught together or separated.

Please refer to the curriculum provided in your box: recipe guides, activity card, and introduction card.

Happy cooking! Happy learning!



Lesson #1: GALACTIC PANCAKES
& FACES of the MOON
Activity Time: 60 minutes

LEARNING OUTCOMES

- Students will **share** their understanding of why the moon changes in the sky.
- Students will be able to **describe** that the moon has different phases.
- Students will **read** books and **watch** videos about the moon.
- Students will **learn and use** the terms: *waxing, waning, full moon, new moon, half moon, quarter moon, etc.*)
- Students will **learn** that the phases of the moon make it look different every day, but it looks the same again about every four weeks.
- Students will **build** tools to **visualize, practice naming, and understand** the different phases.
- Optional – Students will **monitor** the moon over the course of a month and **record** what phase it is in each day.
- Students will **read and practice** with **Featured Culinary Skill** - Cooking Fluffy Pancakes.
- Students will **make and share** Galactic Pancakes.



MOON MADNESS

Notes for the Teacher:

- The moon is a fantastic place to start teaching about space as it is so visible and all students are used to seeing it in the night sky.

Teacher Prep:

- **Collect Materials:**
 - Recipe Guide, tools and ingredients listed
 - A variety of books about the moon (see list below)
 - Chart paper or whiteboard to record student ideas
 - “Phases of the Moon” information sheet (included – see page 25)
 - Activity Options:
 - Oreo Cookie Moon Phases
 - Oreos
 - Popsicle stick or butter knife for scraping
 - Writing utensils
 - “Phases of the Moon” information sheet (included – see page 25)
 - Worksheet as included from the website listed
 - Sliding Paper Moon Phases
 - Watch the video to understand how to teach to your students.
 - Simple Moon Phase Viewer (4:25)
https://www.youtube.com/watch?v=8IQsU_YqIWQ
 - Black construction paper
 - White paper
 - Scissors
 - Pencil
 - A coin or bottle lid to draw a circle
 - Plastic Cup Moon Phases
 - https://happytotshelf.com/moon-phases-learning-toy/?utm_medium=social&utm_source=pinterest&utm_campaign=tailwind_tribes&utm_content=tribes&utm_term=374045952_12039496_112125
 - 2 large clear plastic cups
 - Black permanent marker
 - 1-inch diameter yellow circle
 - Piece of black construction paper
 - Glue, tape, rule, scissors



- Read
 - Take a look at the book list provided and pre-read to suggest the best selection for your students.
- Watch
 - This video is a really simple explanation and demonstration for you as the teacher to wrap your head around the idea of the phases of the moon!
 - Moon Phases Demonstration (4:15)
 - <https://www.youtube.com/watch?v=wz01pTvuMa0>

Lesson: MOON MADNESS

- Introduction: THE BIG WHITE BLOB IN THE SKY
 - **Ask:** When you look up in the sky what do you see?
 - sun, clouds, birds, airplanes, moon, etc.
 - **Tell** the students that today you are going to be talking about the thing in the sky that you see at night!
 - **Ask:** Does the moon look the same every time you see it?
 - Sometimes you can only see a little white sliver and sometimes you can see the whole moon a great big circle with lumps, bumps, and holes on it!
 - **Discuss** with the students why they think the way they see the moon changes and **record** their ideas. **Ask:**
 - Does the moon change its shape?
 - What shapes do you think it makes?
 - How does the moon change its shape?
 - Can anything live on the moon? Why or why not?
 - Why doesn't the moon shine every night?
 - Does the moon always look different? Does it sometimes look the same?
 - **Tell** the students that today they are going to learn about why the moon appears to change shape, and how it got its lumps and bumps. They will also get to build a model of the moon.
- Background Info: WHAT IS THE MOON AND WHY DOES IT CHANGE?
 - **Read** appropriate book for your students
 - Younger students may enjoy So That's How the Moon Changes Shape! by Allan Fowler
 - Read aloud (2:21)
<https://www.youtube.com/watch?v=WLS6jAtpDfY>
 - Older Students may enjoy The Moon by Seymour Simon
 - Read aloud (6:21)
<https://www.youtube.com/watch?v=8v3dOkdIBNY>
 - **Review** the questions asked in the introduction in light of the information learned from the book and add your own.



- **Assess** what information is still tricky for the students to understand.
- **Provide** further information as necessary:
 - The moon, just like the Earth, has a day side and a night side—a part that is facing the sun (day), and a part that is not (night). So, when we see a little sliver of bright moon we are seeing a little part of the moon that is facing the sun, while the rest of the side that is facing us is dark.
 - The moon doesn't make its own light!
- **Read** the “Lunar Phases” fun bite from the Galactic Pancakes recipe guide.
 - The size and shape of that little sliver of lit-up moon changes because the moon orbits, or moves around, the Earth.
 - It takes the moon about one month to make one full orbit around the Earth. As it moves around our planet, the day-time side of the moon is facing in a different direction as we see it from Earth. That is why every night we get a slightly different view.
- **Show** the following video to help fill in more gaps.
 - Why Does the Moon Change? (3:48)
<https://www.youtube.com/watch?v=yXe0yxzYkjo>
- After watching the video **create** a moon phase poster with as few or as many phases as you think is appropriate for your students. Starting with the base of New Moon, Half Moon, Full Moon.
 - Use the “Phases of the Moon” information sheet (included – see page 25)
- **Activity Instructions: PHASES OF THE MOON IN ACTION**
 - **Choose** one or more of the following activities that you think are appropriate for your students.
 - **Oreo Cookie Moon Phases**
 - Collect materials as listed above.
 - Instructions:
 - <https://www.teacherspayteachers.com/Product/Phases-of-the-Moon-Oreo-Activity-FREEBIE-158654>
 - <https://sciencebob.com/oreo-cookie-moon-phases/>
 - Review and print out papers as necessary
 - **Support** the students in completing the project
 - For younger learners: simplify the number of phases
 - **Challenge** students to name the phases of the moon.
 - **Sliding Paper Phases**
 - Collect materials as listed above.
 - **Watch** the video
 - Simple Moon Phase Viewer (4:25)
https://www.youtube.com/watch?v=8IQsU_YqIWQ
 - **Support** the students in completing the project.



- Challenge students to name the phases of the moon.
 - Plastic Cup Moon Phases
 - Collect materials as listed above.
 - Read the lesson plan:
 - https://happytotshelf.com/moon-phases-learning-toy/?utm_medium=social&utm_source=pinterest&utm_campaign=tailwind_tribes&utm_content=tribes&utm_term=374045952_12039496_112125
 - Support the students in completing the project
 - Have students display or present their moon phase activities.

Extension:

- Perform experiments to understand how craters were formed on the moon.
 - Older Students
 - Kids Do Science- Moon Craters (5:38)
<https://www.youtube.com/watch?v=szFYiiX-Et0>
 - Younger Students
 - <https://www.giftofcuriosity.com/how-did-the-moon-get-its-craters-an-art-and-science-activity-for-kids/>
- Curious about other moon facts?
 - <https://moon.nasa.gov/about/in-depth/>
- Record what the moon looks like every night for a month
 - Use this calendar
 - https://www.mensaforkids.org/MFK2/assets/Image/Teach/LessonPlans/Lesson_Moon-6.png
- Matching activity for four phases of the moon
 - https://www.mensaforkids.org/MFK2/assets/Image/Teach/LessonPlans/Lesson_Moon-5.jpg



COOKING GALACTIC PANCAKES

Kitchen Prep

- Read the Galactic Pancakes recipe card together.
- Identify and gather ingredients.
- Gather tools.
- Read the **Featured Culinary Skill – Cooking Fluffy Pancakes.**
- Discuss kitchen safety. Specifically, Handwashing safety (Visit Raddishkids.com/pages/safety).

Prepare Galactic Pancakes

- Ask children to read or describe each step.
- Together, follow the steps in the recipe.
- Give each child a turn to crack, whisk, and flip.
- When the Galactic Pancakes are ready, eat, taste and share!
- While your friends and family are eating, share some facts about the moon that you learned and show and tell them the names of the phases of the moon using the tool you created.

RESOURCES

- **Books**
 - [Moonshot: The Flight of Apollo 11](#) by Brian Floca
Read aloud interspersed with actual film from the mission (12:06)
<https://www.youtube.com/watch?v=o2ApgcRO7tk>
 - [Hidden Figures Young Readers Edition](#) by Margot Lee Shetterly
 - [The Moon Book](#) by Gail Gibbons
 - [So That's How the Moon Changes Shape!](#) by Allan Fowler
 - [The Moon](#) by Elaine Landau
 - [Margaret and the Moon: How Margaret Hamilton Save the First Lunar Landing](#) by Dean Robbins
 - [Many Moons](#) by Remi Courgeon
 - [Papa, Please Get the Moon for Me](#) by Eric Carle
- **Websites**
 - https://happytotshelf.com/moon-phases-learning-toy/?utm_medium=social&utm_source=pinterest&utm_campaign=tailwind_tribes&utm_content=tribes&utm_term=374045952_12039496_112125
 - <https://earthsky.org/moon-phases/new-moon>
 - https://www.nasa.gov/pdf/326863main_Moon_Munchies_Lesson_2.pdf
 - <https://www.teacher.org/lesson-plan/all-about-the-moon/>
 - <https://www.mensaforkids.org/teach/lesson-plans/the-moon/>
 - <https://www.spaceracers.com/pdf/moon-phases-lesson-plan.pdf>



- Videos

- Simple Moon Phase Viewer (4:25)
https://www.youtube.com/watch?v=8lQsU_YqIWQ
- Phases of the Moon: Astronomy and Space for Kids (5:41)
<https://www.youtube.com/watch?v=f4ZHdzl6ZWg>
- The Moon for Kids- Moon Phases for Kids- Astronomy for Kids (5:46)
<https://www.youtube.com/watch?v=XYGvCuiRijl>



Lesson #2: PLANETARY PASTA SALAD
& PLANETS OF OUR SOLAR SYSTEM
Activity Time: 60 minutes

LEARNING OUTCOMES

- Students will **learn** that our solar system is made up of the sun, eight planets, many moons, and asteroids and meteors.
- Students will **learn** the names of the eight planets in our solar system.
- Students will **categorize** the planets into two groups: inner/terrestrial planets and outer/gaseous planets.
- Students will **discuss** what a model is and why you would use one.
- Students will **create** either a tiny or large representation of the planets and their place in our solar system.
- Students will **read** and **practice** with **Featured Culinary Skill** - Cooking Perfect Pasta.
- Students will **make** and **share** Planetary Pasta Salad.



PLANETS OF OUR SOLAR SYSTEM

Notes for the Teacher:

- Knowledge about the solar system is more important than ever. It helps us appreciate the Earth. It gives us incentives to preserve and respect our natural resources.
- NASA says that studying the solar system may help us understand important issues, such as how global warming will affect the Earth.
- **Review** books and videos about the solar system (see the lists below) in order to ascertain which would be most suitable for your students.

Teacher Prep:

- **Collect Materials:**
 - Recipe guide, tools, and ingredients listed.
 - “Solar System Worksheet” (included – see page 26)
 - Model of the Solar System Activity
 - Tiny Version
 - Cotton balls (2 per student)
 - Whole coffee beans or dried beans of similar size (2 per student)
 - Whole peppercorns (2 per student)
 - Tiny beads or seeds (like sesame) (2 per student)
 - White glue
 - Pencils or pens
 - Paper (8.5 x 11)
 - Large version
 - Big outdoor space, like a baseball diamond
 - Circles of colorful construction paper with names of planets written on them
 - Different sized balls to represent planets:
 - beach ball, basketball, soccer ball, 2 softballs, 2 ping pong balls, marble, ball bearing (or balls of similar size)
 - Activity instructions listed in the lesson plan below
- **Read**
 - [The Magic School Bus Lost in the Solar System](#) by Bruce Degen and Joanna Cole
- **Watch**
 - Planets of Our Solar System for Kids (19:20)
<https://www.youtube.com/watch?v=d8y8kc3I7EE>
 - This video will recap the information you are about to teach.



Lesson: PLANETS OF OUR SOLAR SYSTEM

- Introduction: What Do We Know About Planets?
 - **Ask:**
 - What's the name of the planet that we live on?
 - What are some of the things that you know about the planet Earth?
 - Do you know the names of any other planets?
 - What do you know about them?
 - **Record** the knowledge that the students already possess
 - **Ask:**
 - Do you know what we call the area of the universe where the Earth is located?
 - Hint: it has something to do with the hot, bright thing that we see in the sky during the day. (The Solar System!)
 - **Tell** the students that today they are going to learn more about the planets in our Solar System, how they move around in space, and which ones are closest to and farthest away from the sun. Let them know that they will have the chance to build a model of the solar system to show what they learn.
- Background Info: WHAT DO WE KNOW ABOUT THE SOLAR SYSTEM?
 - **Gather** books (see the list below), images, and videos (see the list below) about the solar system.
 - **Give** students the "Solar System Worksheet" (included – see page 26). Go over the questions to make sure that they understand.
 - **Encourage** students to fill in any information that they already know, but **ask** them to double check and **make changes** as necessary when they learn new information.
 - **Read aloud or provide** books to students
 - [The Magic School Bus Lost in the Solar System](#) by Bruce Degen and Joanna Cole
 - [The Planets in Our Solar System](#) by Kevin O'Malley and Franklyn M. Branley
 - [The Solar System](#) by Dana Meachen Rau
 - [There's No Place Like Space: All About Our Solar System \(Cat in the Hat's Learning Library\)](#) by Tish Rabe
 - **Show** videos to support building knowledge.
 - Solar System Lesson for Kids (4:29)
<https://www.youtube.com/watch?v=8tMh30PXfFo>
 - Planets of Our Solar System for Kids (19:20)
<https://www.youtube.com/watch?v=d8y8kc3I7EE>
 - **Assist** students in **filling in** the "Solar System Worksheet" as they read and watch.
- Activity Instructions: THE PLANETS AND THEIR PLACE IN SPACE
 - **Decide** whether you want to create a tiny or large representation of our solar system. Or do both!



- Gather the necessary materials listed above.
- Explaining models
 - Tell students that you want them to make solar system so they can keep exploring the planets, but you don't know how they will be able to carry around something so large. Do they have any ideas?
 - Share your idea to make a model of the solar system.
 - A model is something that is different from the actual thing but can be used to show understanding about the actual thing.
 - Explain that the model that they will build in this activity is going to be much smaller than the actual solar system, but that they are still going to show where the planets are located in relation to the sun, which ones are big, and which ones are small. In other words, the model will be similar in size/scale to the planets and Sun of our solar system.
- Tiny Solar System
 - Give students a piece of paper and have them **draw** a big half circle to represent the sun at the left side of the paper.
 - Provide students with materials and ask them to match the item (coffee bean, cotton ball, seed, peppercorn) to a planet based on its size.
 - Start from the sun in an outward direction visiting each planet and ask:
 - Name this planet.
 - Is it larger or smaller than its neighbors?
 - cotton balls for Jupiter and Saturn
 - coffee beans for Uranus and Neptune
 - peppercorns for earth and Venus
 - seeds for Mercury and Mars
 - Have the students **glue** the objects onto their model and label them.
 - Discuss what you can tell by looking at the model?
 - What can you tell about the differences between the planets?
 - What information does the model not tell you?
 - How would you change or add to the model to provide more information?
- Large Solar System
 - Go to a large space, like a soccer field.
 - Bring the materials (paper circles or balls)
 - Conduct the activity:
 - Tell your students that you will represent the sun and each of the items (balls or circles) represent the planets.
 - Sun = beach ball
 - Jupiter = basketball



- Saturn = soccer ball
- Uranus and Neptune = softball
- Earth and Venus = ping pong ball
- Mars = marble
- Mercury = ball bearing (about 2/3 the size of Mars)
- Tell students that you will be modelling distance!
 - The scale you will be using is that one step= 36 million miles.
 - Pick different students to walk the appropriate amount of steps and place the ball for that planet. Have them walk in a straight line away from where you place the sun.
- Measure distances:
 - Neptune, 2.8 billion miles from the sun, or 78 steps.
 - Uranus, 1.8 billion miles, or 50 steps.
 - Saturn, 885 million miles, or 25 steps from the Sun.
 - Jupiter, 483 million miles, 13 steps from the Sun.
 - Mars, 142 million miles, 4 steps from the sun.
 - Earth, 93 million miles, 3 steps from the sun.
 - Venus, 67 million miles, 2 steps from the sun.
 - Mercury, only 36 million miles, 1 step from the sun.
- Give the students a moment to study, and get a feel for the distances the planets are from the sun and each other.
- Ask:
 - Which planets are the closest to their neighbors?
 - Which planet is the farthest away from its nearest neighbor?
 - Given these distances, how long do you think it would take to travel between the planets?
 - Mariner 4 took about six months to reach Mars, our closest neighbor.
 - Ulysses took 14 months to reach Jupiter.
 - Voyager took 12 years to reach Neptune.
 - What do you think will be necessary before space travel within our own solar system will be possible?

Extension:

- Write space poetry:
 - Using similes: Earth is as _____ as a _____.
 - Acrostic Made out of...
Amazing red light in the night sky....
Rover taught us....
Streaking through the universe at
- Write a story or jokes- What if planets could talk? What would they say to or about one another?



- Create a presentation: What is your favorite planet and why?
- Research and debate whether Pluto should still be considered a planet.
- Create a mnemonic to remember the planet order. For example, My Very Enthusiastic Mother Just Served Us Noodles.



COOKING PLANETARY PASTA SALAD

Kitchen Prep

- Read the Planetary Pasta Salad recipe card together.
- Identify and gather ingredients.
- Gather tools.
- Read the **Featured Culinary Skill - Cooking Perfect Pasta**.
- Discuss kitchen safety. Specifically, Stove Top safety (Visit Raddishkids.com/pages/safety).

Prepare Planetary Pasta Salad

- Ask children to read or describe each step.
- Together, follow the steps in the recipe.
- Give each child a turn to drain, cut, and drizzle.
- When the Planetary Pasta Salad is ready, eat, taste, and share!
- While your friends and family are eating, wow them with your knowledge of the names of the planets and some cool facts about each planet. Show them your tiny solar system or describe how you know how far Jupiter is from the sun!

RESOURCES

- **Books**
 - [The Magic School Bus Lost in the Solar System](#) by Bruce Degen and Joanna Cole
 - [Explore the Solar System!](#) by Nancy Finton
 - [The Planets in Our Solar System](#) by Kevin O'Malley and Franklyn M. Branley
 - [Black Holes and Other Space Phenomena](#) by Philip Steele
 - [The Solar System](#) by Dana Meachen Rau
 - [Magic School Bus Space Explorers](#) by Ted Enik and Eva Moore
 - [When is a Planet Not a Planet?](#) By Elaine Scott
 - [Destination Mars](#) by Seymour Simon
 - [There's No Place Like Space: All About Our Solar System \(Cat in the Hat's Learning Library\)](#) by Tish Rabe
- **Websites**
 - <https://scm-oursolarsystem.com.au/web/download/pdf/lesson1/our-solar-system-what-do-i-know.pdf>
 - <https://www.scholastic.com/teachers/lesson-plans/teaching-content/reading-and-writing-about-solar-system-magic-school-bus/>
 - <https://www.education.com/activity/article/solar-system-kids/>
 - <https://www.teacher.org/lesson-plan/planets-and-solar-system/>
 - https://www.academia.edu/176862/Teaching_about_the_Solar_System_-_a_Multiple_Intelligences_Approach
 - <https://www.nasa.gov>



- Videos

- Solar System Lesson for Kids (4:29)
<https://www.youtube.com/watch?v=8tMh30PXfFo>
- Creative Teaching, The Solar System (2:38)
<https://www.youtube.com/watch?v=8tMh30PXfFo>
- It's Learning Time: Learn the Planets of Our Solar System (2:39)
<https://www.youtube.com/watch?v=8tMh30PXfFo>
- Planets of Our Solar System for Kids (19:20)
<https://www.youtube.com/watch?v=d8y8kc3I7EE>



Lesson #3: METEOR MEATBALLS
& AMAZING ASTRONAUTS
Activity Time: 90 minutes

LEARNING OUTCOMES

- Students will **imagine** what it would be like to be an astronaut.
- Students will **discuss** why the earth needs astronauts.
- Students will **read and discuss** the Fun Bite “Astronaut Meals.”
- Students will **watch** videos that demonstrate what living on the International Space Station (I.S.S.) is like.
- Students will be able to **explain** who an astronaut is, what they do, what tools they use, where they go, and how they get there.
- Students will **create and participate** in activities similar to what astronauts go through in space.
- Students will **read and research** about what it takes to be an astronaut.
- Older students will **explore, discuss, and compare** the terms: *free-fall, microgravity, zero gravity, and weightlessness*.
- Students will **read and practice** with Featured Culinary Skill - Making a Meatball.
- Students will **make and share Meteor Meatballs**.



AMAZING ASTRONAUTS

Teacher Prep:


- **Collect Materials:**
 - Recipe guide, tools, and ingredients listed.
 - Activities – choose as many as you like!
 - **Glove Box**
 - Instructions to make a Glove Box
<https://www.giftofcuriosity.com/diy-astronaut-glove-box/>
 - Cardboard box
 - Plastic wrap
 - Rubber kitchen gloves
 - Duct tape
 - Box cutter or scissors
 - Objects to examine
 - Optional – magnifying glasses
 - **Space Menu**
 - Paper and pencil to write menu
 - Menu items - for example:
 - Drink box
 - Squeeze pouch food
 - Dried fruit
 - Tortillas
 - Optional:
 - Snow pants to look like space suit
 - Duct tape to keep food from floating away
 - **Walking on the Moon**
 - 2 large plastic buckets
 - Rope
 - Something to make a hole through the bucket
 - Optional - a terrain, either drawn on paper or actual items
 - **Jumping on the Surface of the Moon**
 - Trampoline
 - Large paper ruler to measure jump height (see photo in Activity section below)
 - **Sponge Spool Spine (older students)**
 - Instructions and background information:
 - https://www.lpi.usra.edu/education/explore/space_health/space_stations/sponge-spool/
 - Clear colorless container (e.g. clear 2-litre soda bottle with the top few inches cut off)



- Ruler
- Pencil
- Scissors
- Pipe cleaners
- Small wooden spools
- Cellulose sponge
- Read
 - Instructions to make a Glove Box:
 - <https://www.giftofcuriosity.com/diy-astronaut-glove-box/>
 - Sponge Spool Spine Activity Instructions:
 - https://www.lpi.usra.edu/education/explore/space_health/space_stations/sponge-spool/
 - https://www.lpi.usra.edu/education/explore/space_health/space_stations/SpongeSpoolSpine_Background.pdf

Lesson:

- Introduction: WHAT WOULD IT BE LIKE IF YOU WERE AN ASTRONAUT?
 - Ask
 - Have you ever imagined what it would be like to be an astronaut?
 - Discuss topics your students are interested in, like:
 - Living on another planet?
 - Flying a spaceship?
 - Saving the planet from intruders?
 - Tell the students that in this lesson they will learn about what it takes to become an astronaut and what life is like aboard the International Space Station (ISS). They will even get to take part in some simulations of life as an astronaut.
- Background Info: LIFE AS AN ASTRONAUT
 - Have students **generate** a list of questions that they would like to ask an astronaut and record them on a whiteboard or chart paper.
 - **Provide** students with books or videos to help answer their questions (see lists provided below for suggestions).
 - **Show** videos of Chris Hadfield from the ISS:
 - Sleeping in Space (2:43) <https://www.youtube.com/watch?v=UyFYgeE32f0>
 - Getting Sick in Space (1:47) https://www.youtube.com/watch?v=goZM9NbH_40
 - Chris' Kitchen: Dessert in Space (1:41) <https://www.youtube.com/watch?v=Pww6Hcn-0HY>
 - Links to many videos with Chris Hadfield answering questions about daily life
 - <https://thekidshouldseethis.com/post/48048656991>
 - How do you become an astronaut?

- Nasa's base requirements:
 - A bachelor's degree in engineering, science, or math
 - 3+ years of related professional experience or 1,000 hours of pilot-in-command time in a jet aircraft
 - Ability to pass a Nasa astronaut physical examination
 - Other useful skills that can be an asset:
 - Scuba diving
 - Wilderness experience
 - Leadership experience
 - Medical training
 - Facility with other languages, especially Russian.
 - If you get selected to be an astronaut candidate there follows two years of basic training to learn survival, language, and technical skills.
 - After graduation, new astronauts may be assigned to a space mission or be assigned to a technical role on the ground.
 - Activity Instructions: ACT LIKE AN ASTRONAUT
 - Glove Box
 - Read instructions at <https://www.giftofcuriosity.com/diy-astronaut-glove-box/>
 - 
 - **Explain:** A Glove Box is a special box that astronauts and scientists use to study objects that may be harmful to humans if handled directly or be damaged if touched directly by human hands.
 - **Help** students to build their own Glove Box and then investigate a variety of objects.
 - Create a Space Menu
 - Read the “Astronaut Meals” Fun Bite from the Meteor Meatballs Recipe Guide.
 - **Watch** Chris Hadfield’s Space Kitchen (2:26)
 - <https://www.youtube.com/watch?v=AZxORIV0wss>
 - Using the information they have learned, **support** students in creating a menu that can be eaten in space.
 - Have students **write** up a menu. Some ideas:



- Drink boxes
- Squeeze pouch food
- Tortillas
- **Shop** for the menu items and put your meal together.
- **Optional-**
 - **Dress-Up** in snowsuit bottoms to look like space suit.
 - **Put** a large loop of duct or masking tape on a placemat to “secure” food from floating away!
 - **Eat** your space meal standing up like you are floating around the space station.
- **Walking on the Moon**
 - **Gather** the materials and create giant “space boots”



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- Poke a hole a couple of inches up from the bottom of the bucket on opposite sides.
- Cut a piece of rope long enough for students to hold while standing on top of the bucket.
- Make the hole big enough to poke the rope through and tie a knot to secure it on the inside on one side, then loop it across the outside of the bucket and repeat the securing through the second hole.
- Turn the buckets upside down and your moon boots are ready!
- Have students **create** a terrain, either on paper or with actual objects, to traverse in their moon boots.
- **Jumping on the Surface of the Moon**
 - **Set-up** the trampoline and giant ruler in a clear area.



- - Discuss with students about the lesser gravity, or pull towards the surface, experienced on the moon.
 - Explain that the trampoline is mimicking the lesser gravity.
 - Tell them that they will have the opportunity to pretend they are trying to get around on the surface of the moon.
 - Have students estimate how high they could bounce.
 - Clarify what you are measuring:
 - The distance their feet go from the surface of the trampoline/moon surface?
 - Or how high they can reach when they are jumping?
 - Review trampoline safety and then jump away!
- **Sponge Spool Spine (older students)**
- It may look like astronauts are having a ton of fun in microgravity - “flying” around the ISS, however, there are some downsides for astronaut health.
 - Show The Hadfield Shake- Exercise on the ISS (2:41)
 - <https://www.youtube.com/watch?v=Wam7poPzGIw>
 - Gather the materials as listed in the Space Stations - Sponge Spool Spine lesson plan found here:
 - https://www.lpi.usra.edu/education/explore/space_health/space_stations/sponge-spool/
 - Use the information and procedure contained within to do the experiment.
 - Discuss the findings and how what they learned connects to life in space and why it would be important to study?

Extension:

- Base Station Walk Back Activity <https://www.nasa.gov/tla/activities/english>
- Read biographies about astronauts.
- Visit a space museum.



- Older Students - watch the series "One Crazy Rock" on Netflix. Tells what astronauts learned about Earth by looking back at it from space.
- Check out where the International Space Station is right now!
 - <http://www.isstracker.com/>
- Write a fictional or non-fictional account of life on the International Space Station.



COOKING METEOR MEATBALLS

Kitchen Prep

- Read the Meteor Meatballs recipe card together.
- Identify and gather ingredients.
- Gather tools.
- Read the **Featured Culinary Skill - Making a Meatball.**
- Discuss kitchen safety. Specifically, Stove Top safety (Visit Raddishkids.com/pages/safety).

Prepare Meteor Meatballs

- Ask children to read or describe each step.
- Together, follow the steps in the recipe.
- Give each child a turn to mince, grate, and form meatballs.
- When the Meteor Meatballs are ready, eat, taste and share!
- While your friends and family are eating, ask them if they ever imagined what it would be like to be an astronaut. Share with them what you learned about life on the ISS. Let them try some of the Act Like An Astronaut Activities.

RESOURCES

- **Books**
 - Moonshot: The Flight of Apollo 11 by Brian Floca
 - Read aloud interspersed with actual film from the mission (12:06)
<https://www.youtube.com/watch?v=o2ApgcRQ7tk>
 - The Life of an Astronaut by Bobbie Kalman and Niki Walker
 - Astronauts: A Kid's Guide: To Space, The Stars, Planet, The Solar System, The Moon and Flying Out Of This World by A.D. Largie
 - I Want to Be an Astronaut by Dee Phillips
 - Astronauts (First Explorers) by Christiane Engel
 - Space Heroes: Amazing Astronauts by DK Readers
 - The Darkest Dark by Chris Hadfield
 - You Are Here: Around the World in 92 Minutes: Photographs from the International Space Station by Chris Hadfield
 - An Astronaut's Guide to Life on Earth by Chris Hadfield
 -
- **Websites**
 - <https://www.nasa.gov/tla/activities/english>
 - <http://idahoptv.org/sciencetrek/topics/astronauts/teachers.cfm>
 - <https://thekidshouldseethis.com/post/48048656991>
 - <https://www.space.com/37110-becoming-a-nasa-astronaut-surprising-facts.html>
 - <http://www.isstracker.com/>
 - <https://www.giftofcuriosity.com/diy-astronaut-glove-box/>



- https://www.lpi.usra.edu/education/explore/space_health/space_stations/sponge-pool/
- Videos
 - Sleeping in Space (2:43) <https://www.youtube.com/watch?v=UyFYgeE32f0>
 - Getting Sick in Space (1:47) https://www.youtube.com/watch?v=goZM9NbH_40
 - Chris Hadfield's Space Kitchen (2:26) <https://www.youtube.com/watch?v=AZx0RIV0wss>
 - Chris' Kitchen: Dessert in Space (1:41) <https://www.youtube.com/watch?v=Pww6Hcn-0HY>
 - Wringing out Water on the ISS- for Science! (3:17) <https://www.youtube.com/watch?v=o8TssbmY-GM&list=PLPfak9ofGSn9vOEklz328i4xQQq7e0kjc>
 - Water Recycling on the ISS (1:52) <https://www.youtube.com/watch?v=BCjH3k5gODI&list=PLPfak9ofGSn9vOEklz328i4xQQq7e0kjc&index=26>

Phases of the Moon

New Moon - We only see the dark side of the moon so the moon is invisible to us on Earth.

Waxing Crescent - *Waxing* means growing and is used to describe the moon as it grows from new moon to full moon. It grows from right to left.

First Quarter or Half Moon - The moon has completed $\frac{1}{4}$ of its orbit around the earth. This is when the moon looks like a half moon.

Waxing Gibbous - *Gibbous* comes from a root word that means hump-backed. This moon phase is where the lit face of the moon is still growing towards full.

Full moon - We see a full circular moon - the half of the moon that is facing the Earth is fully lit up by the sun.

Waning Gibbous - *Waning* means shrinking and is used to describe the moon as it gets smaller from full moon to new moon. It shrinks from left to right. This moon phase is where the lit face of the moon is shrinking back towards the New Moon.

Last quarter or Half Moon - The moon has completed $\frac{3}{4}$ of its orbit around the Earth and looks like a half moon to us.

Waning Crescent - Here the moon is showing us less and less of its lighted side. Sometimes called an "old moon."

Sourced From <https://earthsky.org/moon-phases/new-moon>

What is the difference between a terrestrial and gas planet? Which planets fit into each category? Complete the chart below with your answers.

Terrestrial Planets	Gas Planets
Definition:	Definition:
Planets:	Planets:

What other things, besides planets, are flying around in our solar system?

What other questions do you have? Or cool facts found?