

BLOSSOM & ROOT

EARLY ELEMENTARY SCIENCE // LEVEL 0

My Great Space Adventure

PARENT GUIDE



LEVEL 0

Exploring Our Solar System

Blossom & Root

Early Elementary Science,
Level 0

My Great Space Adventure

A Complete, Hands-On Secular Science Curriculum

For Kindergarten and Early Elementary Learners

**Blossom & Root Early Elementary Science
Level 0: My Great Space Adventure**

By Kristina Garner - www.blossomandroot.com
Blossom and Root Home Education /
Hive Online Presence Management, LLC
6547 N. Academy Blvd. #1225
Colorado Springs, CO 80918

Find Us on the Web at <https://www.blossomandroot.com>

Welcome to a Year of Wonder

A Relaxed, Hands-On, and Adventurous Approach to Science in the Early Grades

When I decided I wanted to homeschool my daughters, one of the most difficult tasks I faced was finding a science curriculum that suited our needs. We wanted curriculum that was completely secular and hands-on. We wanted books, and lots of them! We wanted permission to explore, dig deeper, and go off to explore rabbit trails from time to time. But we also wanted structure--just enough to build concepts upon one another in a linear way without the pressure of a rigid schedule. When it came to recording our discoveries, we wanted freedom from the worksheets, tests, and time-consuming lap books that seemed to dominate most of our options--something more akin to a scientist's field journal.

When I couldn't find this particular unicorn, I decided to do what I had done for my early years curriculum--I created it. Since I knew we couldn't be the only family looking for such a thing, I put my heart, soul, and complete focus into crafting a solution for those families too. This curriculum is designed to be flexible, adaptable, inspiring, and gentle. My fondest hope is that it will provide discovery, joy, and wonder for the families that use it.

Thank you for your support of Blossom and Root. Please feel free to reach out to me at any time--I am always happy to help!

Kristina Garner
www.blossomandroot.com
kristina@blossomandroot.com

Options for Scheduling This Curriculum:

Traditional Schedule:

Aim to complete one lesson per week, in order, for a 36-week school year. If you do science once a week, this may mean reading the Mission Control letter, going over the "focus" points, completing any prompts from the Mission Control letter, and ending with your child recording their experience in the Captain's Log. If you do science twice a week or more, you may wish to incorporate multiple books and video links, and more of the optional activities per lesson.

Relaxed or Condensed Schedule:

Begin at the beginning and spend as much or as little time in each lesson as desired. You can even condense this into a unit study, completing one or two lessons every day for 4 to 6 weeks.

How to Plan Out Each Unit (the Simple Way):

A few weeks before you begin a lesson, look over it and decide which books or video links you'd like to use and which activities you'd like to do. Highlight them in the prent guide here or write them into a separate planner. Refer to the activity suggestions for specific supplies you'll need to gather.

Always feel free to add more activities, books, videos, field trips, etc. beyond the suggestions in this guide!

Bringing Math & Science to Life



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This curriculum features an integrated math and science program in the form of a dramatic play journey for you and your child to take together each week. Throughout the course of the year, you will follow a weekly prompt together to prepare for, embark on, and complete a make-believe journey into space. This curriculum will allow you the opportunity to explore many math and science topics, including:

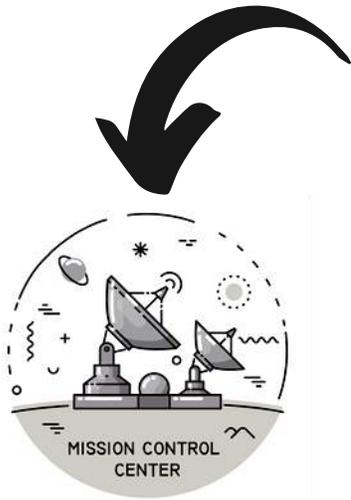
- health, wellness, and basic human anatomy
- nutrition and fitness
- living vs. non-living things
- requirements for life
- the sun and its effect on living things
- Earth, and how it supports life
- the phases of our Moon
- atmosphere
- gravity
- the planets of our Solar System
- space exploration (history and technology)
- asteroids, comets, meteors, black holes, nebulas, etc.
- counting up to 20 and down from 10 to 1
- the concepts of greater / fewer / more than / less than / equal to
- positional terms
- sequencing
- patterns
- quantities and numerals
- measurement
- number lines
- basic shapes
- calendar and dates
- addition and subtraction
- charts and graphs
- pairs
- and more!



"Should I add an additional math curriculum?"

Some families are ready to add a structured math curriculum in the kindergarten year, while others choose to wait until first grade. While we include some math in this science curriculum, it is very gentle and unstructured. If you are ready to introduce a more structured resource for math, we recommend that you add one at this time. Some popular options with our families include RightStart Math, Singapore Math, Kindergarten Math with Confidence, and Wild Math.

How to Use This Curriculum



For each unit,
choose from one or
multiple suggested
resources to
introduce the topic
and inspire
curiosity.

In this guide, you will find one letter from Mission Control for each week. These are the weekly prompts for your activities together. On the first day of the week that you do integrated math and science, read the letter from Mission Control.

You will find these to be very open to a variety of approaches. You may wish to keep things very simple and short, or to elaborate richly. The choice is yours, and should be determined by your child's interest, resources available to you, and how much time you are able to commit to each week's lesson. If you have a busy household with multiple homeschooled children of different ages, it is perfectly fine to keep your integrated math and science lessons to a bare-bones "minimalist" approach. We've provided focus points for each week to help you zoom in on the heart of the lesson.

If you have the time and resources to do more, and your child is interested, please feel free to dive as deep as you like, and linger as long as you like, for each lesson. In this edition, we've included recommended pages from several "spine*" books, supplemental book recommendations, suggested videos and websites to explore, and light activities to consider. You can take what you like from these lists, leave what you don't, add your own additional books and activities, etc. Make the program work for you!

Use your child's learning style to help determine your approach as well. If your child loves books, use the library as a key resource. If you thrive on YouTube and other internet resources, use those. If you love documentaries and films, use them! Or do a mix of all of these.

You will also be able to add in more or less math, depending on your child's current skill level and comprehension. If your child is able to count and recognize numerals higher than the prescribed numbers in the prompt, go higher! If they are struggling with the quantities in the prompts, lower the numerals and quantities a bit. The key to success with this program is to really tune into your child and make it fit their learning style, your resources, and their current level. Above all, it should be a fun and playful introduction to astronomy in the early elementary years.

**A spine is a book used for multiple lessons throughout the year. See the book list further in this guide for more information!*

This curriculum is designed to provide support and inspiration to the parent educator. Above all else, please make it yours!

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Week / Lesson

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Contents

Week / Lesson

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Week / Lesson

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Week 36: Home at Last

Book List: Highly Recommended

Required Books:

There are no required books for this curriculum. Theoretically, you could complete this curriculum without using any books at all, simply by using the focus points, the suggested websites, video links, etc. However, we do have several books which are highly recommended (see below) to help truly bring each topic to life in a visual way for your child. The books on this list are used over multiple weeks throughout the year. You are welcome to use more than one book from the list below, if you like.

Highly Recommended Spine* Books (Optional, Choose One or Several):

Week(s)	Book
Most	<ul style="list-style-type: none">• <i>DK Find Out! Solar System</i> by Sarah Cruddas (A good, inexpensive option with an appropriate amount of information for the kindergarten level if you don't want to juggle one of the bigger DK books.)
Most	<ul style="list-style-type: none">• <i>Space For Kids Who Really Love Space</i> by Sarah Powell (Appropriate amount of information for the kindergarten level if you want a <i>very light</i> option.)
Most	<ul style="list-style-type: none">• <i>What We See in the Stars: An Illustrated Tour of the Night Sky</i> by Kelsey Oseid (This would be a good choice for slightly older or more advanced learners, as the language is targeted to an elementary audience.)
Several	<ul style="list-style-type: none">• <i>Professor Astro Cat's Solar System</i> by Dr. Dominic Walliman and Ben Newman (Best for <i>very young</i> learners. Simple with <i>very little</i> information. If you're working with children under 3 in tow, this might be a good one for them.)
Most	<ul style="list-style-type: none">• <i>Professor Astro Cat's Frontiers of Space</i> by Dr. Dominic Walliman and Ben Newman (This is a good fit for learners 5 - 7, if you prefer cartoon-like illustrations over photographs / more realistic images of the planets. It's fun, with a good amount of information for the kindergarten level.)
Most	<ul style="list-style-type: none">• <i>DK Smithsonian Space!</i> (A hefty, information-packed option that would be great for an older or advanced learner, or a space-enthusiast that needs more than the typical kindergarten-level content. This is the spine for our Level 5 astronomy curriculum as well.)
Most	<ul style="list-style-type: none">• <i>DK Smithsonian Super Space Encyclopedia</i> (Lots of great photos, more information than the typical kindergarten-level books but less than <i>DK Smithsonian Space!</i> has. If you want tons of great photos, this would be a good option.)
Most	<ul style="list-style-type: none">• <i>DK The Mysteries of the Universe</i> by Will Gater (A beautiful option with lots of information for kindergarteners wanting more, or for older / more advanced learners.)
Several	<ul style="list-style-type: none">• <i>DK Find Out! Human Body</i> (A good "spine" to use for the anatomy topics we touch on in this curriculum.)

*A spine is a book that is used for several lessons throughout the curriculum.

Supplies

Note: Please see activity suggestions for each week to determine which supplies you will need. You will need to pick and choose which activities you plan to do (and, therefore, which supplies you need. You will *not need* every supply listed for every week.)

General, Used Throughout the Year:

- scissors, glue or glue stick, tape
 - counters (can made from just about anything: dried beans, pebbles, small toys, acorns, etc.)
 - LEGO bricks or colorful blocks (linking cubes or colorful "math cubes" would work)
 - a ruler or tape measure
 - Solar system model (optional)--there are many different varieties to choose from. This is completely optional, but a fun thing to add to your exploration of each planet
 - Materials for the Captain's Log: crayons, pencils, markers, etc. for writing and drawing
 - Scrap paper for figuring out patterns, making lists, etc.
 - Stickers of various shapes (optional)
 - Construction or craft paper in various colors
 - Clay or Model Magic (optional)
 - Paint supplies and paper (optional)
-
- Week 5: Scrap cardboard, glue gun and glue sticks for it (all optional, glue gun for adult use only)
 - Week 7: Materials to build your spacecraft, according to your needs (boxes, scrap cardboard, aluminum foil, paint and paintbrushes, etc.) Please read the lesson for more information.
 - Week 9: Please read activity options before deciding what you'll need. Sidewalk chalk (optional), paint and painting paper in black or dark blue and white (optional), paint brushes (optional), white acrylic paint pen (optional), mini-marshmallows and toothpicks (optional), black construction paper or card stock (optional), metallic star stickers (optional), white crayon or oil pastel stick (optional)
 - Week 10: White foamy shaving cream (optional)
 - Week 11: Sidewalk chalk
 - Week 12: Sidewalk chalk and a favorite spaceship toy (or any other toy)
 - Week 13: Please read activity options before deciding what you'll need. One sheet 140 lb. cold press watercolor paper, watercolor paint in red and yellow, watercolor brush, and a paint board or plastic cutting board (all optional.) Four craft sticks, hot glue gun and glue stick (adult only), yellow yarn (all optional.) Clear contact paper, kite paper or tissue paper, dry erase marker (all optional.)
 - Week 17: Please read activity options before deciding what you'll need. "Astronaut food" like astronaut ice cream or dehydrated meals (optional.) Mini-marshmallows, scrap cardboard, glue, floss, toothbrush (all optional.)
 - Week 18: Please read activity options before deciding what you'll need. Oreo cookies, sugar cookies and dark-colored and white frosting, or salt dough and black craft paint (all optional.) A notebook to use as a moon log (optional.) Play-dough and rocks (optional.)
 - Week 20: Scrap cardboard and various items from around your home to make a model rover (optional.)
 - Week 21: Duct tape and aluminum foil
 - Week 23: Please read activity options before deciding what you'll need. One sheet 140 lb. cold press watercolor paper, watercolor paint, watercolor brush, a paint board or plastic cutting board, sea salt (all optional.)

Supplies, cont.

- Week 26: Please read activity options before deciding what you'll need. Aluminum foil, a stick, white or silver ribbons (all optional.) X-ray images of the human skull (optional.) Play-dough in various colors (optional.)
- Week 27: Thermometer (optional.) Notebook to use as a temperature tracker (optional.)
- Week 30: Please read activity options before deciding what you'll need. Items for tasting party (see lesson.) Items for smelling party (see lesson.) Box, pillow case, items for "Guess What's in the Bag?" activity (see lesson.)
- Week 31: Chalk pastels, black paper, and white acrylic paint (optional.) Sugar cookies, frosting in two different colors, star-shaped sprinkles, and a toothpick (optional—see lesson for details.)
- Week 32: Watercolor paint and paper, waterproof marker (all optional.) Prepared slides with bacteria or fungi and a microscope (optional.)
- Week 34: Items for tea party, a favorite cake recipe (see lesson for details.)

Week 1: The Mission

Letters From Mission Control: **The Mission**

(to be read out loud to your child)



Good Morning, Captain!

Today, we received a transmitted message from a planet just outside of our Solar System. This is what it said:

“Greetings Earth-Friends. My name is Zoola and I live on Planet L21. I am doing a school project on your Solar System and need some help. Can you help me with my project?”

We sent a message back saying that you would be glad to help. Here was the response we got:

“Hooray! I will send instructions over the next few weeks. There is a catch, though. I will need you to deliver some things to me, and the journey is long and difficult. Do you think you would be willing to go on such an exciting adventure?”

What do you think, Captain? You will have a lot to do, should you choose to accept this mission. You will need to build a spacecraft, gather specimens, and travel through our Solar System all the way to Planet L21. It will be quite an adventure!

(Encourage your child to take on the adventure. You will be there to help them, after all!)

Wonderful! We will send word to Zoola straight away. Please await further instruction. Talk to you next week!

Signing off,

Mission Control

Week 1: The Mission

Week 1: The Mission

Focus on: Introducing Your Child to This Curriculum, What an Astronaut Does

1. This week, the main focus should be on introducing this program to your child. Explain that each week they'll be receiving a letter from Mission Control. You'll be exploring different topics together through books, videos, websites, and activities. And each week, they'll be making entries in their Captain's Log to remember everything they're learning and seeing. Flip through the Captain's Log together and look at any books you've purchased for the long haul. This is going to be such an exciting journey for you and your child!
2. Now is also a good time to explain that your journey will be an imaginary one, if you're concerned that your child will be expecting a *real* trip to outer space.
3. You may also spend some time this week learning about what an astronaut is and what they do. We've recommended some books below, but feel free (during any week) to find more books at your local library, beyond the ones we recommend. Keep in mind that we'll be diving deep into topics like living in space, space suits, the International Space Station, etc. in later weeks. This week should just be a gentle introduction to get your child excited.

In the Captain's Log:

Record today's date. Complete an entry in your Captain's Log. This week's entry is fairly open-ended. You can write about the letter you received from Mission Control and the exciting journey ahead. You can record what you learned about astronauts. Don't forget to complete the "astronaut profile" page in your log this week, too! Please note that there are two pages in the log this week.

For your Captain's Log entries, you are welcome to make your own pictures or find pictures online to print out and tape into your log. You can also photocopy pictures from books you read and tape them in. Parents, we encourage you to write your child's words down for them at this stage, so they can focus on processing information and ideas, rather than mechanics, spelling, and handwriting.

Optional Lesson Enhancements and Support:

1. Optional Pages from the Spines:

- *DK Find Out! Solar System*: "What's It Like To Be an Astronaut?" (pages 24 - 25)
- *Space For Kids Who Really Love Space*: "Astronauts"
- *What We See in the Stars*: N/A
- *Professor Astro Cat's Solar System*: N/A
- *Professor Astro Cat's Frontiers of Space*: page 18
- *DK Smithsonian Space!*: page 124 - 125
- *DK Smithsonian Super Space Encyclopedia*: 170 - 173, 178 - 179, 194 - 195
- *DK The Mysteries of the Universe*: N/A

Week 1: The Mission

2. Optional Supplemental Books:

- *Astronaut Training* by Aneta Cruz
- *If I Were an Astronaut* by Eric Mark Braun
- *The Planets in Our Solar System* by Franklyn M. Branley (We recommend this one if you'd like to gently familiarize your child with the planets in our solar system before diving in.)

3. Optional Videos to Watch (clickable links in the back of this guide):

- From SciShow Kids, "What Do Astronauts Do?": <https://youtu.be/jhD8GFwy734> (this one is also recommended in later weeks)
- From Storytime in Space, "If I Were an Astronaut by Eric Mark Braun": <https://youtu.be/9wV8yw7iV8w>

4. Optional Websites to Visit:

- <https://www.dkfindout.com/us/space/life-in-space/>

5. Optional Activities:

- Make a "space adventure corner" somewhere in your homeschool area, if you like. This can be a special spot where you display books, your growing solar system model (optional addition to the "planets" weeks--see supplies list), photos you find online and print out, completed projects, your child's Captain's Log, and materials for writing and drawing. Feel free to keep this very simple, or to go all-out and make it really special.
- Join the Blossom and Root Families group on Facebook, or one of the kindergarten cohorts. This is a great place to share pictures of your adventure together, and get ideas from other families throughout the year.

Week 2: Supplies

Letters From Mission Control: **Supplies**

(to be read out loud to your child)



Good Morning, Captain!

We have pinned Zoola's location on Planet L21. It is really going to be quite a journey. Planet L21 is all the way past our Solar System! She sent another message for you. Here is what it said:

"Greetings Captain. I am so glad you agreed to help me. I know the trip will be very long, so you will want to start thinking about what to pack for the journey. I will send a list of what I need from Earth for my project, since that is the planet you are starting on. In the meantime, start thinking of what to put on your ship for the long trek ahead. I can't wait to meet you! - Zoola."

Well, Captain, she is correct. You need to start thinking about how to prepare for a long trip like this. Perhaps you and your assistant (the parent or a grown-up reading this letter to you) can sit down and make a list of the things your body will need to stay healthy on a long trip. Can you think of things that a living creature needs to survive? You will have to bring these things along with you.

Your assignment this week is to make a list of everything you will need to bring along to stay healthy. Think of what you will need while you are awake and asleep, how you will get energy, how you will stay hydrated, and how you will stay strong and healthy. We will be in touch soon!

Signing off,

Mission Control

Week 2: Supplies

Week 2: Supplies

Focus on: Planning Ahead, Needs of Living Things

1. This week, focus on how we plan ahead for different "trips," large and small, in our lives. Ask your child what you would need to pack for a trip to the library or the grocery store. What about a trip to the pool? An overnight stay at a friend's house? What about a week-long vacation to a whole new city, state, or country?
2. After you talk about trips in your normal, day-to-day life, talk about what you'd need to bring along on a trip to outer space. Start with things you would need to survive. What do living things need? (You'll dive deeper into this in the next two weeks, so focus on planting that "thought seed" this week.) You would need to bring oxygen, water, food, something to keep warm if it's chilly, etc.
3. After the basics are covered, talk about what else your child would want to bring along: comfort items, items for personal hygiene, entertainment, exercise, etc. Share what you would bring, too.

In the Captain's Log:

Record today's date. Complete this week's entry in your Captain's Log. You will make a list (in pictures and / or words) of what you would need to bring on your great space adventure. Be sure to include practical survival items as well as items for comfort, entertainment, hygiene, exercise, etc.

Optional Lesson Enhancements and Support:

1. Optional Pages from the Spines:

- No recommended pages from the spines this week.

2. Optional Supplemental Books (the following books are appropriate for weeks 2 - 4):

- *What's Alive?* by Kathleen Weidner Zoehfeld
- *Living Things and Nonliving Things: A Compare and Contrast Book* by Kevin Kurtz
- *You're Aboard Spaceship Earth* by Patricia Lauber (a little outdated--still refers to Pluto as a planet--but useful for addressing what living things need and how Earth supports life)
- *Living Sunlight: How Plants Bring The Earth To Life* by Molly Bang and Penny Chisholm (also recommended for Week 13, recommended for older / advanced learners)

3. Optional Videos to Watch (clickable links in the back of this guide):

- From NASA/JPL edu, "Imagine You're an Astronaut": https://youtu.be/Vr1_AipoW_c

4. Optional Websites to Visit:

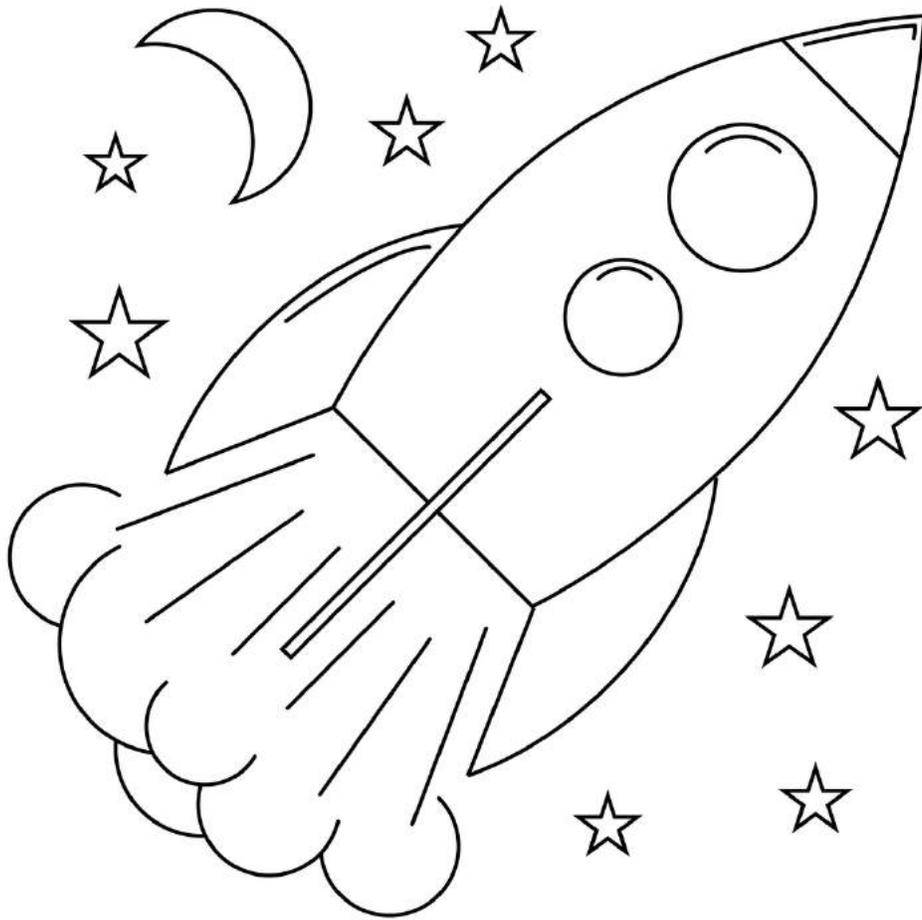
- <https://www.nasa.gov/feature/the-personal-preference-kit-what-astronauts-take-with-them-to-space>
- <https://www.jpl.nasa.gov/edu/learn/project/imagine-youre-an-astronaut/>

5. Optional Activities:

- Over the course of a day, carry a piece of paper and a pencil around with you and write down everything you need or use in a typical day. Do this together, with you writing things down and your child helping you to think of everything you're using. At the end of the day, talk about which of those daily items would be practical or necessary to take into space. Which ones would you need to leave behind?
- On your next nature hike or trip to the library, encourage your child to pack their own bag. If needed, gently remind them of the kinds of items they need to bring for trips to different places.

My Great Space Adventure

STUDENT NOTEBOOK



This book belongs to:

LEVEL 0

Exploring Our Solar System

Example

Captain's Log

<input type="radio"/> January	<input type="radio"/> July	1	2	3	4	5	6	7	8	9	10
<input type="radio"/> February	<input type="radio"/> August										
<input type="radio"/> March	<input type="radio"/> September	11	12	13	14	15	16	17	18		
<input type="radio"/> April	<input type="radio"/> October	19	20	21	22	23	24				
<input type="radio"/> May	<input checked="" type="radio"/> November										
<input type="radio"/> June	<input type="radio"/> December	25	26	27	28	29	30	31			
<input type="text" value="Monday"/>	<input checked="" type="text" value="Tuesday"/>	<input type="text" value="Wednesday"/>	<input type="text" value="Thursday"/>								
	<input type="text" value="Friday"/>	<input type="text" value="Saturday"/>	<input type="text" value="Sunday"/>								

How to Use the Calendar Portion of the Daily Captain's Log:

- Recite the months of the year, beginning with the current month. Color the circle to show which month of the year it is.
- Count the days of this month so far, beginning at "1" and ending with today's date. Circle the number that shows what the date is.
- Recite the days of the week, beginning with the current day. Color the box that shows which day of the week it is.

Week 1

Captain's Log

<input type="radio"/> January	<input type="radio"/> July	1	2	3	4	5	6	7	8	9	10
<input type="radio"/> February	<input type="radio"/> August	11	12	13	14	15	16	17	18		
<input type="radio"/> March	<input type="radio"/> September	19	20	21	22	23	24				
<input type="radio"/> April	<input type="radio"/> October	25	26	27	28	29	30	31			
<input type="radio"/> May	<input type="radio"/> November										
<input type="radio"/> June	<input type="radio"/> December										

Monday

Tuesday

Wednesday

Thursday

Friday

Saturday

Sunday

The Mission

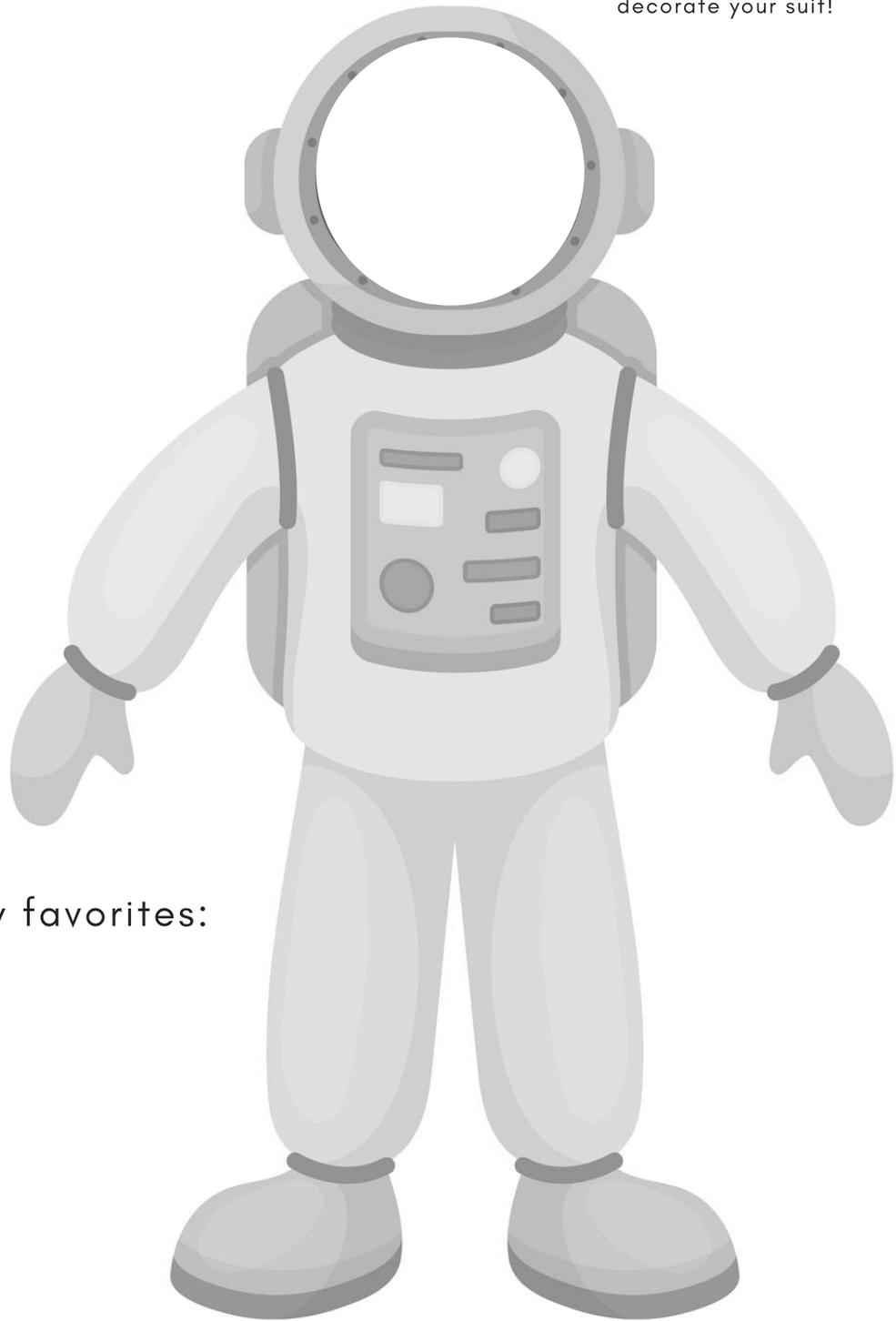
Week 1

Astronaut Profile

Name:

Add a picture or a photograph
of your face in the helmet and
decorate your suit!

Age:



Some of my favorites:

Week 2

Captain's Log

January

July

1 2 3 4 5 6 7 8 9 10

February

August

11 12 13 14 15 16 17 18

March

September

April

October

19 20 21 22 23 24

May

November

June

December

25 26 27 28 29 30 31

Monday

Tuesday

Wednesday

Thursday

Friday

Saturday

Sunday

What I Will Bring on My Trip to Space

