

## ***Be a Space Scientist!* Additional Resources**

**In this guide, you will find suggestions of books, digital resources like videos and online games, and additional activities that relate to each of the activities included in *Be a Space Scientist!***

The resources may connect to the featured career, the relevant technology or science concepts, or otherwise relate to the story of each activity.

While these resources are meant to be used by all *GSK Science in Summer™* learners, the resources that are better for older learners (4<sup>th</sup>-6<sup>th</sup> grade) are marked with an asterisk (\*).

### **BIG IDEAS**

- **Space science is about exploring and traveling outside our planet.** Space scientists study questions like:
  - What kinds of things are in the universe?
  - How can we learn more about them?
  - How might people (and other living things) travel or live in space?
- **Space is *really* big! Almost everything in space is too far away and hard to reach for space scientists to visit and study.** Instead they:
  - Use tools and machines to **gather information** and send it back to Earth
  - **Compare** what they see in space to things they know about on Earth
  - **Use models** to represent things that are too big, too small, or too far away to study directly

### **CAREERS**

- [Astrobiologist](#)
- [Robotics Engineer](#)
- [Planetary Geologist](#)
- [Rocket Engineer](#)
- [Spacesuit Designer](#)

## **Astrobiologist**

**Big Question:** How can we discover if a sample contains something alive?

### **Books:**

[\*Do You Know Which Ones Will Grow?\* by Susan A. Shea](#)

[\*Alien Tomato\* by Kristen Schroeder](#)

[\*Alien Worlds: Your Guide to Extraterrestrial Life\* by David A. Aguilar\\*](#)

### **Digital Resources:**

VIDEO: [What is Astrobiology?\\*](#)

VIDEO: [There may be extraterrestrial life in our solar system](#)

VIDEO: [Astrobiology: Life in the Universe\\*](#)

VIDEO: [What Makes Something "Alive"?](#)

VIDEO: [Tools of Science Case Study: E•NIG•MA](#)

ONLINE GAME: [Exoplanet](#)

ONLINE GAME: [It's Not the Same](#)

### **Additional activities:**

[Astrobiology Science Learning Activities for Afterschool](#)

[Astrobiology Coloring and Drawing Pages](#)

[Living vs. Nonliving](#)

[Bready Bubbles](#)

[Backyard BioBlitz Bonanza](#)

[Exploring the Universe: Imagining Life](#)

[Astrobiology: Life in the Universe](#)

[Is it Alive?](#)

[Exploring Deep-Subsurface Life\\*](#)

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## **Robotics Engineer**

**Big Question:** How can we design a rover's arm to scoop up soil and rocks?

### **Books:**

[\*Curiosity: The Story of a Mars Rover\* by Markus Motum](#)

[\*Science Comics: Robots and Drones: Past, Present, and Future\* by Mairghread Scott\\*](#)

[\*Hello, Opportunity: The Story of Our Friend on Mars\* by Shaelyn McDaniel](#)

### **Digital Resources:**

VIDEO: [Meet the Mars Rover](#)

VIDEO: [How to Design a Mars Rover](#)

VIDEO: [Twin of NASA's Perseverance Mars Rover on the Move](#)

VIDEO: [Life in the Lab: Soft Robots](#)

ONLINE GAME: [Rescue Quest](#)

ONLINE GAME: [Rover Maker](#)

ONLINE GAME: [Game Rover](#)

ONLINE GAME: [Explore Mars](#)

### **Additional activities:**

[Robo-arm](#)

[Rover Driver Board Game](#)

[Mars Rover](#)

[Cardboard Rover](#)

[Rover Races](#)

[DIY Pasta Rover](#)

[Make a Balloon Powered Nanorover](#)

[I Want to Hold Your Hand\\*](#)

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## **Planetary Geologist**

**Big Question:** How can we learn about landscapes on Mars where future astronauts might go?

### **Books:**

[\*Rocks: Hard, Soft, Smooth, and Rough\* by Natalie M. Rosinsky](#)

[\*I'm a Volcano!\* by Bridget Heos](#)

[\*Science Comics: Rocks and Minerals: Geology from Caverns to the Cosmos\* by Andy Hirsch\\*](#)

### **Digital Resources:**

VIDEO: [Bringing Mars Rock Samples Back to Earth](#)

VIDEO: [NASA Planetary Scientist Profile: Brent Garry](#)

VIDEO: [Studying How Craters are Formed\\*](#)

ONLINE GAME: [Mystery Mineral](#)

VIRTUAL LAB: [Interactive Rock Chart\\*](#)

VIRTUAL LAB: [Rocks and Minerals](#)

### **Additional activities:**

[Down to the Core](#)

[Spotting Craters](#)

[Sculpting Lunar Landscapes](#)

[Impact Craters](#)

[Candy Core Sample](#)

[Future Moon: The Footsteps of Explorers](#)

[Mars from Above: Viewing Volcanoes](#)

[Infant Moon: Moon Mix](#)

[Mars from Above: Carving Channels](#)

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## **Rocket Engineer**

**Big Question:** How can we design a rocket to fly as far as possible?

### **Books:**

[\*Lonely Planet Kids: How Spaceships Work\* by Clive Gifford](#)

[\*Bonnie's Rocket\* by Emeline Lee](#)

[\*Science Comics: Rockets: Defying Gravity\* by Anne Drozd\\*](#)

### **Digital Resources:**

VIDEO: [How do Rockets Fly?](#)

VIDEO: [How Do We Launch Things into Space?](#)

VIDEO: [NASA for Kids: Intro to Engineering](#)

VIDEO: [Women of Artemis: Meet Wind Tunnel Researcher Engineer Beth Rieken](#)

VIRTUAL LAB: [Projectile Motion\\*](#)

ONLINE GAME: [Rocket Builder](#)

ONLINE GAME: [Spacecraft Assemble](#)

ONLINE GAME: [Rocketship Creator](#)

### **Additional activities:**

[DIY Rocket](#)

[Safe Landing on the Lunar Surface](#)

[Heavy Lifting](#)

[Soft Landing](#)

[Paper Mars Helicopter](#)

[Design, Build and Test: Spacecraft](#)

[Propulsion with the Space Launch System\\*](#)

[Build, Launch, and Recover\\*](#)

[Space Origami: Make Your Own Starshade](#)

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## **Spacesuit Designer**

**Big Question:** How can we design a spacesuit that protects astronauts from radiation and micrometeoroids?

### **Books:**

[Luna Muna by Kellie Gerardi](#)

[Spacesuits by James Buckley Jr.](#)

[Lonely Planet Kids: How to be a Space Explorer by Mark Brake\\*](#)

### **Digital Resources:**

VIDEO: [Spacesuit Designer Amy Ross Puts Astronauts in Good Hands](#)

VIDEO: [The Future of Space Suits](#)

VIDEO: [NASA Astronaut Peggy Whitson #SuitUp Video](#)

VIDEO: [Clip from Moonwalk One, ca. 1970: Space Suit\\*](#)

ONLINE GAME: [Space Explorer](#)

ONLINE GAME: [Space Walk](#)

### **Additional activities:**

[Hazards to Deep Space Astronauts\\*](#)

[Build a Heat Shield](#)

[Habitat Planning](#)

[Sunlight Oven](#)

[Designing 2D Materials\\*](#)

[Grilled Cheese Stackers](#)

[Cool Spacesuits\\*](#)

[Spacesuit Design\\*](#)