

EDUCATOR GUIDE

DR. DAVE ASTRONAUT SERIES

by Dr. Dave Williams and Loredana Cunti

illustrated by Theo Krynauw

Learn about space programs and exploration and how success takes creativity, science, and technology. In the Dr. Dave Astronaut series, former NASA astronaut Dr. Dave Williams shares his passion, commitment, and journey. His message is clear: have an “astronaut attitude”—be persistent, optimistic, and curious. Learn to be your best self, and pursue your dreams!

GENRE: Middle grade non-fiction

THEMES: space; careers; exploration; problem-solving; science; teamwork; technology; aeronautics; space science; robots; rockets; astronauts; space travel; engineering; mechanics

SUITABLE FOR: Grades 3–6, Ages 8–10

GUIDED READING LEVEL: Fountas and Pinnell S (*To Burp, Go for Liftoff!*) T (*Mighty Mission*)

LEXILE: 940L

COMMON CORE STANDARDS: *To Burp; Go for Liftoff!:* SL.4.1,1a,1c,1d,2,3,4,5,6
L.4.3,3c,4,4a,4b,4c,5,6 / RF.4.3,3a,4,4a,4c
RI.4.1,2,3,4,5,6,7,8,9,10 / W.4.1,2,4,6,7,8,9,9b,10
Mighty Mission Machines: L.5.3,4,4a,4b,5,5b,6 / RF.5.3,3a,4,4a,4c
SL.5.1,1c,1d,2,3,4,5,6 / W.5.2,2a,2b,2c,2d,2e,7,8,9,10
RI.5.1,2,3,4,5,6,7,8,9,10
Desination Space: SL.4.1,1a,1c,1d,2,3,4,5,6 / RF.4.3,3a,4,4a,4c
W.4.2,2b,2c,2d,2e,4,7,8,9,10 / L.4.3,4,4a,4b,4c,5,6
RI.4.1,2,3,4,5,6,7,8,9,10

Please remember that the suggested questions and activities within this educator guide are meant to serve as a starting point. Educators are encouraged to select items from each part of the guided inquiry process that work best for their style of teaching and will help them meet their goals when covering the topics in this book. Activities and prompts should be tweaked and/or reformatted to best fit your students, context, and community to ensure equity and inclusion.

BEFORE READING THE BOOK

These activities introduce the topic of the book, establish prior knowledge and interest, and make predictions about the text.

BIG QUESTIONS

1. What is an astronaut?
2. Why do we send people into space?
3. What skills do you think an astronaut needs to survive in space?
4. What tools and equipment do they need? Why?
5. What is it like to travel to space?
6. Would you like to travel in space? Where would you like to go? What would you like to explore? And what do you think you'll need to pack?
7. Draw a detailed picture of yourself as an astronaut.

WHILE READING THE BOOK

These activities check on comprehension, stimulate interest, involve readers in reflection as they read, and encourage consideration of other readers' reactions.

USING INFORMATIONAL TEXT FEATURES AND LITERARY ELEMENTS

1. Skim the book. What informational text features does Dr. Dave use to help you understand the topic and locate information?
2. What information is presented on the front and back cover?
3. How can you use the table of contents and index to find specific information? Provide an example.
4. Examine the words printed in italics or bold type. Why does the author choose these text features for these words? Justify your answer with evidence from the text.

5. How does Dr. Dave use diagrams and labels? Find an example of a diagram that was helpful.
6. What is the purpose of using photographs and captions in the book? Is it effective?
7. Read the fun facts. How do they relate to the main idea of the text?
8. What is the point of view of the text?
9. How do you know when Dr. Dave is telling the story?
10. How does the author's point of view help you learn about the topic?
11. Pick a chapter. What are the main ideas and details of the chapter? Create a chart. How do specific sentences or paragraphs relate to the main idea?
12. What is the purpose of the cartoons in the book?
13. Find examples of figurative language in the book. How does this affect meaning and tone?
14. What is the author's purpose for writing this book?

BE AN ENGINEER! DESIGNING A LAUNCH TOWER

Materials needed: index cards, tape and a model (toy) vehicle (plane, rocket, car, truck)

- What is a model?
- Discuss examples of models from your experiences (for example, toy cars, dollhouses, globes).
- Why are models important in science, technology, and engineering?

Objective: Students will work in pairs to design and build a model “launch tower” that will hold a space vehicle above the ground before launching into space.

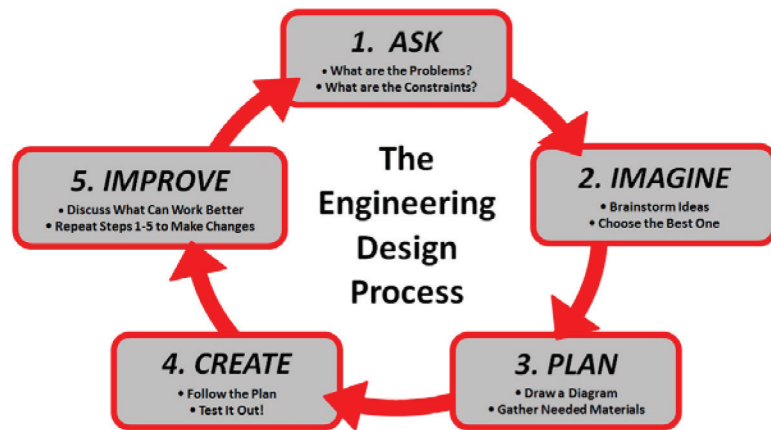
Ask: How can materials (index cards) be changed to fit together and hold something?

Imagine: Students will try out various shapes based on provided materials.

Plan: Students will choose one design they will build.

Create: What are the criteria for this design? What shapes are best to hold a weight? Students will test their design with the “space vehicle,” observe and describe results. Students will share their design and results with the class.

Improve: Students will consider what changes they would make based on their experience and hearing about others' solutions. Discuss other things they would like to include in their design based on what they saw. How would they improve the model space vehicle they used? What changes would they make?



AFTER READING THE BOOK

These activities inspire continued reflection and response to the text, bring conclusion to the experience of reading this particular text, and stimulate further extensions.

MAKING TEXT TO TEXT CONNECTIONS

1. Find examples in the book that explain the following quotes from Dr. Dave:
 - “Learning to be an astronaut isn’t just about science and space travel.”
 - “Exploration is all about teams and machines.”
 - “Humans are driven to explore. Our curiosity leads us to ask questions, learn all that we can, and explore our horizons.”
2. Work in small groups. Go back to the text to answer the BIG questions.
3. What types of technology have increased our understanding of the universe?
4. Discuss major shifts that have occurred in the scientific knowledge of the universe through space travel.
5. Why do you need to be physically fit to be an astronaut?
6. Describe a success and a setback of space travel.
7. What do astronauts do in space? What personal challenges do they have?
8. Why is good communication very important for a space mission to be successful? How do astronauts communicate in space?
9. What kind of training do you need to become an astronaut?

10. What are the benefits of continuing to explore space?
11. What are some safety concerns for space travel in the future? What dangers does traveling to space include? What could future space travel look like?
12. What features of space have been explored?
13. What happens to the human body in space? Why?
14. Why is it necessary to have knowledge and resources in STEM (science, technology, engineering, and math) when traveling to space?

COLLABORATIVE ACTIVITIES

1. Create a trivia game based on information you learned in one of Dr. Dave's books.
2. Choose one. Create a PowerPoint presentation:
 - Teams and machines—*Mighty Mission Machines: From Rockets to Rovers*
 - My journey as an explorer and scientist—*To Burp or Not to Burp: A Guide to Your Body in Space*
 - Dr. Dave pursues his dreams—*Go For Liftoff!: How to Train Like an Astronaut*
 - Challenges to living on other planets—*Destination: Space: Living on Other Planets*

WRITE ABOUT IT . . . WHAT IS YOUR OPINION?

1. Would you be interested in traveling to Mars?
2. Would you want to be on the first spaceship to land on Mars?
3. How much should countries spend on space exploration?
4. Do the benefits of future space travel outweigh the costs?
5. Should humans pursue a future in space?
6. You are an astronaut traveling to Mars. Write a journal describing a week of your life.
7. What do you think a microgravity environment might be like?
8. What do you think might be the biggest challenges to humans traveling in space?
9. What would you like to see explored or researched?

AUTHOR STUDY: DR. DAVE WILLIAMS

1. Where does Dr. Dave Williams call home?
2. What qualifies Dr. Dave to write these books?
3. What were some obstacles he endured on his journey to become an astronaut?
4. What is he known for?
5. What is Dr. Dave's "success ladder"?
6. Describe different fields he has influenced.
7. What is something Dr. Dave has said that made you think? What are the qualities of having an "astronaut attitude"? Do you have these qualities? Explain.

