

# ASTRO-NUTS

Mission One: The Plant Planet

By Jon Scieszka  
Illustrated by Steven Weinberg

978-1-4521-7119-7 • \$14.99 HC • Ages 9 to 12  
F&P Text Level Gradient: R • Lexile® Measure: 650L

## ABOUT THE BOOK

This laugh-out-loud, visually groundbreaking read launches a major new series by children's literature legend Jon Scieszka. Featuring full-color illustrations and a spectacular gatefold—plus how-to-draw pages in the back—this outer-space adventure will dazzle any kid looking for their next go-to series. AstroWolf, LaserShark, SmartHawk, and StinkBug are hybridized animals that have been sent on a mission to find new planets for humans to live on once we've ruined Earth. So off they rocket to the Plant Planet! But will it support human life? Or do the Plant Planet's inhabitants have a more sinister plan?

## ABOUT THE AUTHOR

Jon Scieszka is acclaimed for his bestselling picture books, including *The True Story of the Three Little Pigs!* and *The Stinky Cheese Man*. He is also the founder of [guysread.com](http://guysread.com) and a champion force behind [guyslisten.com](http://guyslisten.com), and was the first National Ambassador of Young People's Literature. He lives in Brooklyn and in the Catskills in New York.

## ABOUT THE ILLUSTRATOR

Steven Weinberg writes and illustrates kids' books about dinosaurs, roller coasters, beards, and chainsaws. He lives in the Catskills in New York.



**NOTE ABOUT THIS GUIDE AND *ASTRONUTS MISSION ONE: THE PLANT PLANET***

This guide consists of classroom extension activities, discussion opportunities, and vocabulary that can be used when reading, teaching, or discussing *AstroNuts Mission One*.

*AstroNuts Mission One* encourages readers to explore topics such as science, math, graphing, and plants, among others. This guide offers students opportunities to take part in wordplay, make predictions based on foreshadowing, analyze text structure, look at a unique point of view, create collage artwork, and more.

The discussion opportunities and classroom extension activities in this guide are designed to be used in 4<sup>th</sup> through 7<sup>th</sup> grade as the text is read as a whole group, in a small group, or independently. Although this guide primarily focuses on the text's use in middle grade classrooms, it should not be limited to these grade levels.

The Next Generation Science Standards, Common Core Anchor Standards in Math and English Language Arts, and National Core Art Standards Anchors that can be addressed using the discussion questions and activities in this guide are:

**Science**

PS1A: Structure and Properties of Matter

PS2B: Types of Interactions

LS2C: Ecosystems Dynamics, Functioning, and Resilience

ESS1A: The Universe and Its Stars

ESS1B: Earth and the Solar System

ESS2A: Earth Materials and Systems

ESS3C: Human Impact on Earth Systems

ESS3D: Global Climate Change

**Math**

CCSS.MATH.PRACTICE.MP1

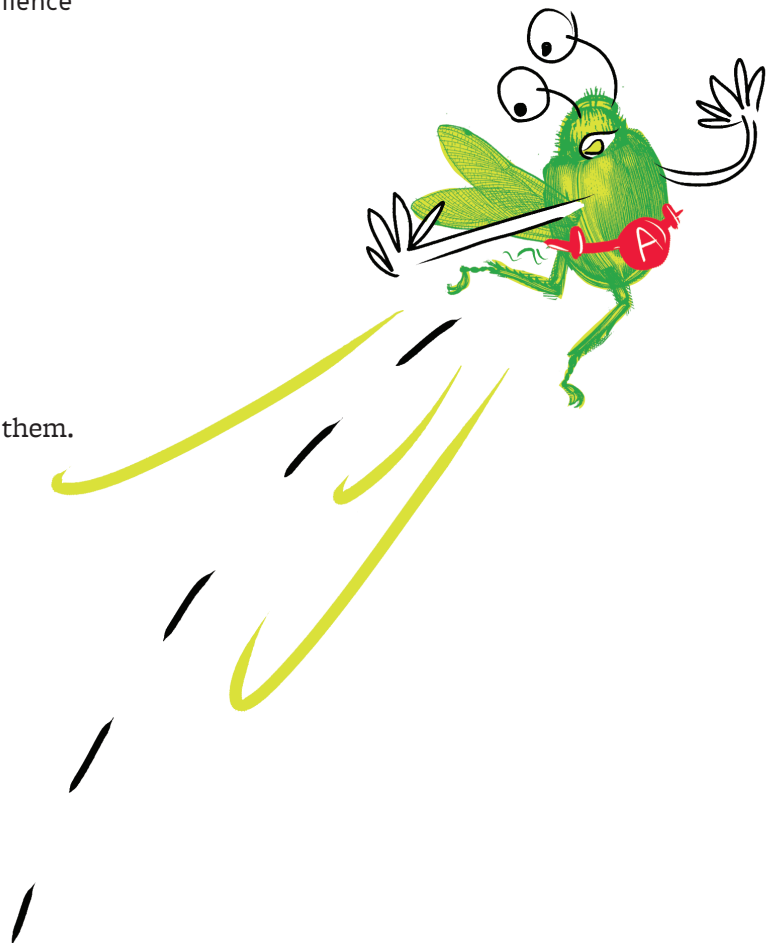
Make sense of problems and persevere in solving them.

CCSS.MATH.PRACTICE.MP4

Model with mathematics.

CCSS.MATH.PRACTICE.MP5

Use appropriate tools strategically.



**English Language Arts**

CCSS.ELA-LITERACY.CCRA.R.1

Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.

CCSS.ELA-LITERACY.CCRA.R.2

Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.

CCSS.ELA-LITERACY.CCRA.R.3

Analyze how and why individuals, events, or ideas develop and interact over the course of a text.

CCSS.ELA-LITERACY.CCRA.R.4

Interpret words and phrases as they are used in a text, including determining technical, connotative, and figurative meanings, and analyze how specific word choices shape meaning or tone.

CCSS.ELA-LITERACY.CCRA.R.6

Assess how point of view or purpose shapes the content and style of a text.

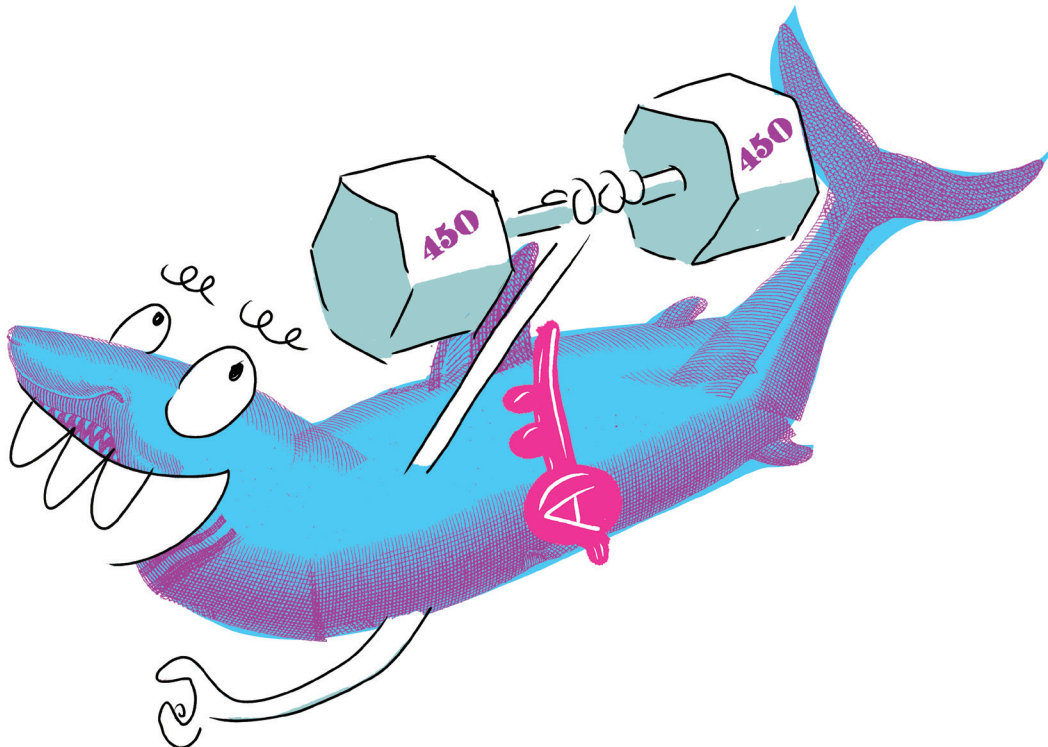
CCSS.ELA-LITERACY.CCRA.W.3

Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details and well-structured event sequences.

**Art**

Creating: Anchor Standard #1: Generate and conceptualize artistic ideas and work.

Connecting: Anchor Standard #10: Synthesize and relate knowledge and personal experiences to art.



## ACTIVITIES

Use these activities to extend students' learning with *AstroNuts Mission One*.

### Math/Science

#### Goldilocks Planet

On page 15, Command Escape shares the mission to find a Goldilocks planet with the AstroNuts. Earth is our ultimate Goldilocks Planet. To help students further their understanding of this concept, visit NOAA's article "Earth, Our Goldilocks Planet" and read how Earth is perfect for our existence.

- [sos.noaa.gov/datasets/earth-our-goldilocks-planet](https://sos.noaa.gov/datasets/earth-our-goldilocks-planet)

Our closest choices for a new home if Earth is no longer viable are the moon, Venus, and Mars. Divide your class into three groups, assigning one of the options to each group.

Ask students to use what they've learned about Earth from the NOAA article to determine if the moon, Venus, or Mars would be habitable. Have them create a presentation to share their findings. Students may have free range of the internet to research; or, simply share information from [space-facts.com](https://space-facts.com) with students ([space-facts.com/the-moon](https://space-facts.com/the-moon); [space-facts.com/venus](https://space-facts.com/venus); [space-facts.com/mars](https://space-facts.com/mars)).

- If students decide their location is uninhabitable, their presentation must be a persuasive argument about why it is not worth studying or exploring the option of habitation.
- If students decide their location is habitable, their presentation must be a persuasive argument about why it is worth studying and exploring the option of habitation.

Allow each group to choose their preferred presentation format from the following options: digital presentation, commercial, courtroom reenactment

- Optional rubric for the presentation: [www.readwritethink.org/files/resources/printouts/Persuasion%20Rubric.pdf](http://www.readwritethink.org/files/resources/printouts/Persuasion%20Rubric.pdf)

#### Space Trash

On page 18, an illustration points out space trash as the AstroNuts take off to the Plant Planet. Space junk is not a small problem. Show students a TED talk given by rocket scientist Natalie Panek on what space junk is, why it needs to be cleaned up, and what some solutions are.

- [www.ted.com/talks/natalie\\_paneke\\_let\\_s\\_clean\\_up\\_the\\_space\\_junk\\_orbiting\\_earth](http://www.ted.com/talks/natalie_paneke_let_s_clean_up_the_space_junk_orbiting_earth)
  - If you would like to abridge the talk, here are key sections:
    - 0:00-4:31 (introduction to space junk)
    - 4:31-5:26 (some unsuccessful ideas for mandating)
    - 5:27-6:47 (compares space junk to Mt. Everest)
    - 6:48-8:59 (possibilities)
    - 9:00-10:03 (conclusion)
  - Reading list for continued learning:
    - [www.ted.com/talks/natalie\\_paneke\\_let\\_s\\_clean\\_up\\_the\\_space\\_junk\\_orbiting\\_earth/reading-list](http://www.ted.com/talks/natalie_paneke_let_s_clean_up_the_space_junk_orbiting_earth/reading-list)



After learning about space junk, have students write a letter to your state representative on why cleaning up space should be a priority.

**AstroNuts Animals**

In Chapters 2 through 4 we are introduced to the superpower-endowed AstroNuts with their “astro-stats.” This is a great opportunity for students to learn more about the animals the AstroNuts are based on.

Divide students up into four groups and assign each group one of the animals (timber wolf, broad-winged hawk, dung beetle, and great white shark).

Have students complete an “animal-stats” chart on their assigned animal:

<b>ANIMAL-STATS</b>	
----- animal -----	
Objective: [animal’s main goal in life]	
Length: [average adult length]	
Weight: [average adult weight]	
Hobbies: [what they do all day]	
Habitat: [map and explanation of where they live]	

- Next, form new groups of students that include one representative of each original group, and have students share their “animal-stats.”

Once finished, have students individually answer the following question using evidence from the “animal-stats” charts:

- Why would these four animals have been chosen for this mission? What does each of the animals bring to the team?



## Travel Time

On pages 34–35, the AstroNuts travel 39 light-years in 3 hours and 26 minutes.

A light-year is 6 trillion miles (6,000,000,000,000).

Have students determine how many miles the AstroNuts traveled.

- 234 trillion miles (234,000,000,000,000)

In the book, the AstroNuts travel 58,700,000,000,000 miles per hour, which is virtually impossible in our reality. To put that in perspective, NASA's *New Horizons* interplanetary space probe was launched directly into a solar escape trajectory with a speed of 36,500 miles per hour in 2006.

Have students determine how long the trip would have taken the AstroNuts if they had traveled at 36,500 miles per hours.

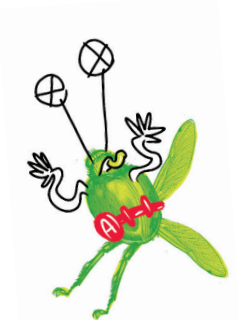
- 6,410,958,904.1 hours
- 267,123,287.7 days
- 731,844.6 years

## Graphs

There are many graphs and diagrams featured throughout the book, including in the preface, Chapters 2–5, Chapter 9, and Chapters 13–14.

Take time to have students “read” each graph, and then ask them to answer the following questions:

- What type of graph is it?
  - page 11: line graph
  - page 23: bar graph
  - page 25: box and whisker plot
  - page 27: pie chart
  - page 29: line graph
  - page 49: bar graph
  - page 76: line graph, function plot
  - page 92: line graph
- What are the different parts of the graph?
  - title, data, x-axis, y-axis, labels, scale
- What is the graph telling us?
  - Have students write out in plain language what the graph demonstrates.



Have students create their own graphs using the book as a mentor text.

- For example, page 27 shows LaserShark's favorite snacks. Students could interview their classmates and make a pie chart representing the class's favorite snacks.

## Reports

Chapter 13 is filled with AstroNut Reports that each member of the team completes.

Give students blank versions of these reports to complete, thinking about Earth.

- Extension: Have students complete the reports while thinking back to the planet/moon they were assigned in the Goldilocks Planet activity.
- Extension: Have students analyze the reports. What were some hints in the reports that showed that the Plant Planet wasn't the right planet for humans?

## Global Warming

Global warming features prominently throughout the book (particularly in pages 92–97) and is the cause of the entire mission for the AstroNuts.

First, have students reread pages 92–97 to better understand global warming and its causes and effects.

On page 97, Earth says we have to figure out a way to burn less fossil fuels. Charge your students with being problem solvers! Place students in pairs and have them brainstorm ways that humans could reduce the burning of fossil fuels.

- If you would rather not leave the activity open, consider one of the following options for directing students:
  - Provide a list of inventions that cause COD emissions and ask students to find alternatives.
  - Have students research alternate forms of energy such as solar, wind, biofuel, etc.

Looking at ways to combat the global effects of climate change can feel daunting, so as a class, brainstorm ways that each individual can reduce their carbon footprint on a daily basis.

- Resources:
  - [www.climaterealityproject.org/blog/just-kids-what-climate-change-and-what-can-i-do](http://www.climaterealityproject.org/blog/just-kids-what-climate-change-and-what-can-i-do)
  - [kidsagainstclimatechange.co/what-can-kids-do-to-help-slow-down-global-warming](http://kidsagainstclimatechange.co/what-can-kids-do-to-help-slow-down-global-warming)
  - [www.amnh.org/explore/ology/earth/ask-a-scientist-about-our-environment/how-can-kids-help-prevent-global-warming](http://www.amnh.org/explore/ology/earth/ask-a-scientist-about-our-environment/how-can-kids-help-prevent-global-warming)

## Plants

Botany (plant biology) also features prominently throughout the book. This topic provides opportunities for students to learn about the oxygen cycle, photosynthesis, agriculture, aquaculture, plant cells, seeds, and more. Take time to have students review the following sections, and then ask them to answer questions about each topic.

- pages 50–51, 128: the oxygen cycle and photosynthesis
  - How does the oxygen cycle work here on Earth? What was missing in the cycle on the Plant Planet?
- pages 54–57: agriculture and aquaculture
  - LaserShark looks at both agriculture and aquaculture. What is the difference between the two? What are some examples of each on Earth?
- pages 81: plant cells
  - What are the different parts of a plant cell? What is the purpose of each part?



- page 129: the parts of a seed
  - What are the different parts of a seed? How does each part help a plant to grow?

## Composting

One way to help the environment is through composting (LaserShark's chore in Chapter 17). FullTimeKid from PBS Parents has a video on why and how to compost ([youtu.be/kA3qo7paNbE](https://youtu.be/kA3qo7paNbE)) and the Seattle Central Creative Academy created a video on composting for kids ([youtu.be/YuH\\_R\\_Ljtw](https://youtu.be/YuH_R_Ljtw)). Quiet Hut also created "A Complete Guide to Composting for Kids" with step-by-step instructions on how to compost ([quiethut.com/composting-for-kids/](https://quiethut.com/composting-for-kids/)).

After watching these videos, choose one of the following activities:

- Students can make a plan to compost at home.
- Students can make a plan to compost at school.

## Literacy

### Wordplay Scavenger Hunt

The author, Jon Scieszka, loves to play with words and does so throughout the book. For example, in the Nose Rocket introduced in Chapter 1, he placed the *AstroNoseBridge* on the *bridge* of Jefferson's nose, and he called the *auditorium* the "AstroTorium."

Have students (in groups, pairs, or individually) go on a scavenger hunt to find their favorite examples of wordplay within the book.

- Create a giant classroom one-pager with all the fun examples students find, and have students create illustrations to bring their examples of wordplay to life.

Lead the class in a discussion about why the author might have chosen to play with words the way he did throughout the book.



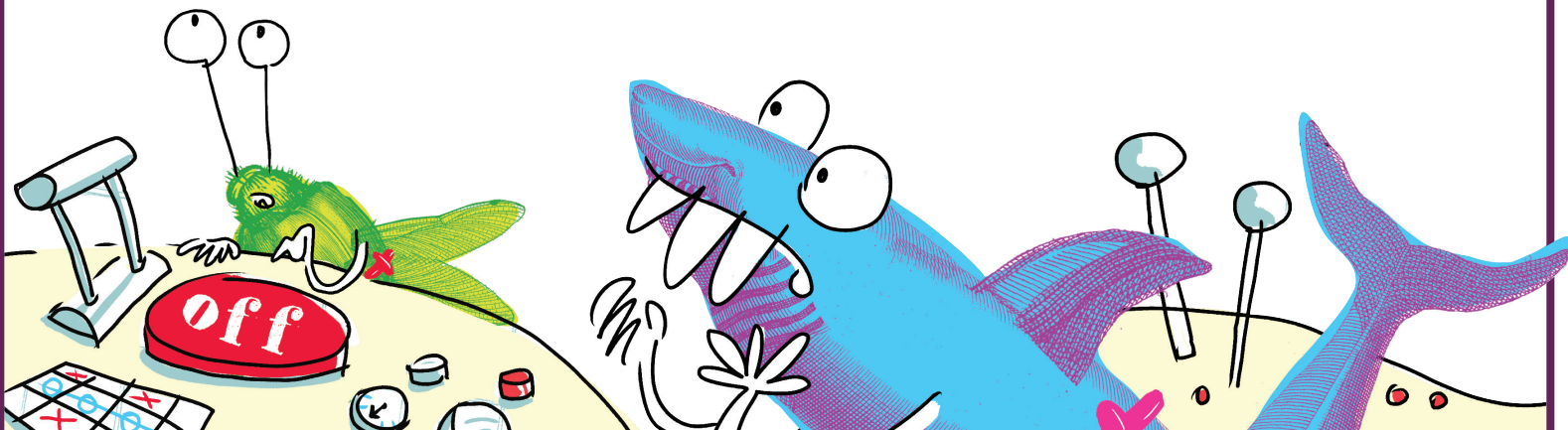


**Character**

Activity 1: Character Trait





- For each character, have students complete a character trait chart:

<b>Character</b>	
<p>When authors create characters, they build a personality for their characters by giving them traits. For example, one of Cinderella's traits is ambition because in her story she wants more than was given to her. For _____<sup>character</sup>_____, come up with four traits of their personality and give evidence from AstroNuts to support your character analysis.</p>	
Trait	Evidence (page #)
<p>Synthesis: Would you want this character as part of your team on a space mission? _____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>	



Activity 2: Character Report Card

- To look at how well each character met their purpose on the mission, have students complete a report card for each character:

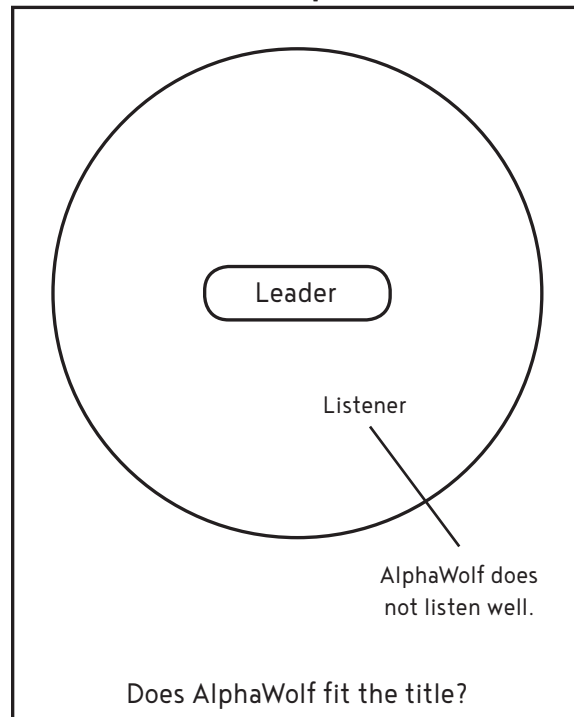
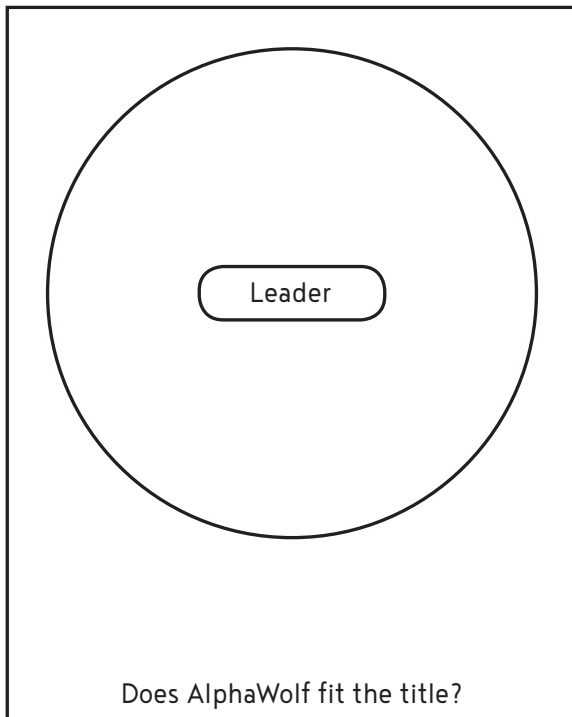
AstroNuts Report Card		
Look at chapters 2-5 to find each character's objective for the mission. Then give them a grade for how well they accomplished their objective. Explain in the comments, with evidence from the text, why they earned that grade.		
Character	Objective	Grade
AlphaWolf 		
SmartHawk 		
LaserShark 		
StinkBug 		



Activity 3: Characteristics of a Leader

- AlphaWolf was supposed to be the leader of the AstroNuts; but does he fit the title? To determine the answer to this question, have students complete a graphic organizer (for example, a circle map, altered from Thinking Maps ©) looking at the characteristics of a leader and whether AlphaWolf possesses such traits.
  - To create this version of a circle map, write the term you're defining inside the first circle ("leader"). Write words that define that term in the larger circle ("listener"), and write down examples of evidence answering the text-dependent question in the square ("AlphaWolf does not listen. p. 152").
  - Continue filling out the chart using other definitions of "leader."
  - For an extended activity, use this graphic organizer to investigate the roles of the other AstroNuts.

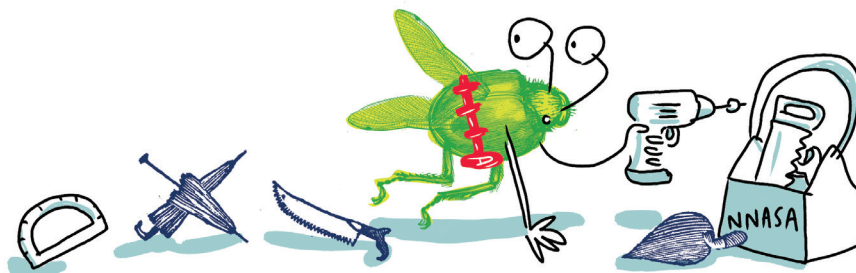
Example



- When finished with the graphic organizer, ask students to use the information in the circle map to answer whether or not they think AlphaWolf is a leader.

**Battle Sequence**

Between pages 173–180, a lot of action happens on a four-page fold-out showing the “biggest battle I have ever seen,” according to Earth. Have students create a narrative of the battle either by writing a short story or by creating a short comic.



## Visual Arts

### Collage

The illustrator, Steven Weinberg, used the Rijksmuseum’s public domain artwork as inspiration and as collage elements in *AstroNuts*. Pages 212–213 include some examples as well as resources students can use to make their own AstroNuts at Astronuts.Space ([www.astronuts.space](http://www.astronuts.space)).

The Rijksmuseum is not the only museum with public domain art! The National Gallery of Art and the Metropolitan Museum of Art also offer online access to public domain images of artworks in their collections.

- [www.metmuseum.org/art/collection](http://www.metmuseum.org/art/collection) (check OPEN ACCESS when searching)
- [images.nga.gov/en/page/show\\_home\\_page.html](http://images.nga.gov/en/page/show_home_page.html)
- <https://www.rijksmuseum.nl/en>

Have students use public domain images of art to make their own collages!

- Extension: Have them write a story to accompany their collage.
- Extension: Have students create a collage depicting the environment of the next planet the AstroNuts are going to explore.

## DISCUSSION QUESTIONS

Use these questions as whole class discussions, reading check-ins, or writing prompts. Some can even serve as jumping-off points for research projects/papers.

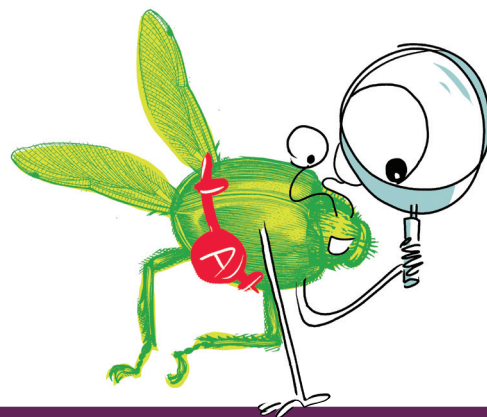
- The front and back endsheets show a diagram of “the whole entire universe,” but they are not exactly complete or accurate. Looking at what is labeled, what do you think is fact and what is fiction?
  - Extension: Have students confirm if what they think is fact is truly a fact.
- Why do you think the author chose to have Earth narrate the adventure? How does this change the reading experience?
- Why is an ideal planet called a Goldilocks Planet?
- If you could pick an animal to endow with superpowers to represent Earth on missions to find a Goldilocks Planet, what animal would you choose and what powers would you give it?
- Why does Command Escape glitch so much?
- How do you think the “I Love Flying” song from Chapter 10 goes?
- Who was the first AstroNut to realize something was wrong with the Plant Planet?
- In Chapter 14, how did the AstroNuts cause the Electrified Dark Energy Super Vortex? What was the effect of the Super Vortex?
- Look at pages 164–165. Daisy shares how they “perfected” their planet, but in reality, their elimination of other species was their final downfall. How did their mass extinction of everything but plants lead to their demise?
- On pages 168–169, Daisy shares the flower heads that they planned on replacing the AstroNuts’ heads with. Which flower head do you think was going to go on each animal? How do you know?
- Which AstroNut do you think was the least helpful when exploring the planet and fighting the plants? Which one was the most helpful? Explain.
- What are some overall themes of this book?

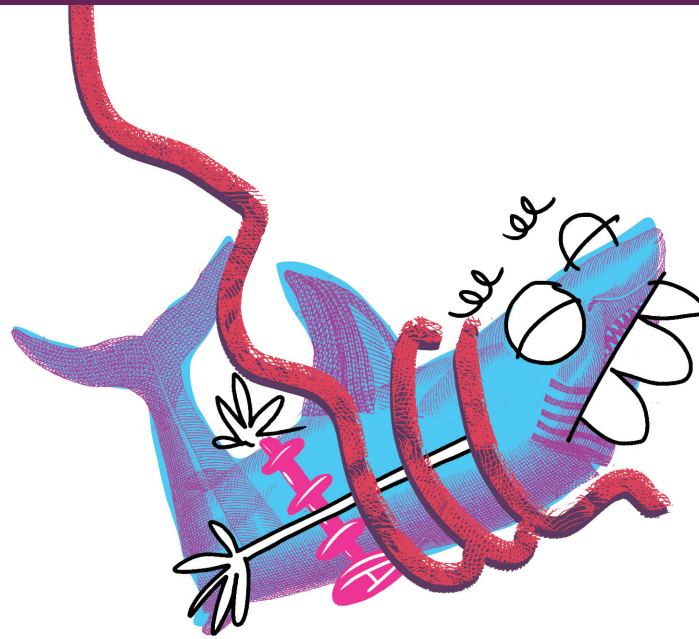


- One theme of the book is the danger posed when one species takes over a planet. According to the book, what are some potential dangers posed if one species eliminates all others?
  - What would happen if humans did the same thing on Earth?
- What are all the different formats that the author and illustrator used to tell this story?

And don't forget to answer the questions that the narrator asks the reader along the way!

- Have you ever heard of the saying “Stop and smell the roses”? (p. 68)
  - Ask students: What does this saying mean? What are idioms?
- I'll give you three guesses who finished their report first. (p. 75)
  - Have students give evidence on who they think finished first.
- You know that feeling after you've turned in your homework? When you are so glad you are finished that you don't notice anything around you? Not even really bad things really near to you? (p. 84)
  - Ask students: What is a time you felt two opposite emotions at once?
- But really—how did they not see that coming? (p. 104)
  - Have students look back for foreshadowing of this event.
- Have you ever accepted an invitation to something you thought was going to be amazing? But it turned out to be truly terrible? Have you ever accepted an invitation to something you thought was going to be terrible? But it turned out to be truly amazing? (p. 150)
  - Have students describe a time they experienced one of these scenarios.
  - Ask students: Which one of these scenarios did the AstroNuts experience?
- Have you ever made what you thought was a good decision? But then your mission leader bossed you out of it? (p. 152)
  - Have students write about a time they made a good decision but they let someone talk them out of it.
- You know that part in stories where the Bad Guy captures the Good Guys, and then starts explaining everything that has happened, and all the Bad Things that are going to happen next, which, for some terrible reason, always seems to include the total destruction of [the Earth]? (p. 161)
  - Ask students: What is another story you've read or movie you've seen where this scenario happens?
- Remember that bit I told you about balance? How it's key to a planet's survival? (p. 192)
  - Ask students: What caused the imbalance on the Plant Planet?
  - Ask students: How does this question also apply to Earth?
- Because are you feeling a little carbon-sick? And greenhouse overheated? Or is it just me? (p. 208-209)
  - Ask students: Based on this ending, what do you predict will happen in the future?





## VOCABULARY

These vocabulary words can be found throughout the book. Use these words as a starting point for a vocabulary study with *AstroNuts Mission One*. Research shows that reading and discussing vocabulary in context is one of the most effective ways to learn vocabulary.

oddball (p. 12)	jazzed (p. 35)	activated (p. 72)	innocent bystander (p. 112)
glitchy (p. 14)	lush (p. 47)	composition (p. 77)	fortnight (p. 113)
ecosystem (p. 24)	intact (p. 48)	abundance (p. 79)	convenient (p. 113)
supersonic (p. 25)	fertile (p. 50)	swarm (p. 86)	foraging (p. 113)
electromagnetic (p. 27)	imbalance (p. 50)	precise (p. 91)	dominate (p. 142)
gravitational (p. 27)	vortex (p. 51)	misfire (p. 99)	intruders (p. 165)
manipulation (p. 27)	altitude (p. 58)	amperes (p. 99)	hedgers (p. 166)
hurtling (p. 34)	alter (p. 64)	fused (p. 100)	valve (p. 185)
intergalactic (p. 34)	tamper (p. 64)	vortex (p. 101)	initial (p. 202)

## ABOUT THE GUIDE CREATOR

This guide was created by Kellee Moye, a middle school literacy specialist in Orlando, Florida. Kellee is the author of various teaching guides for all levels; the co-author of the blog [Unleashing Readers](#); a jury member of the 2020–2021 Schneider Family Award Committee; a member of the 2016–2018 ALAN Board of Directors; a member of NCTE, ALAN, and ALA; and the 2012–2014 chair of the Amelia Elizabeth Walden Book Award committee. Kellee can be reached at [Kellee.Moye@gmail.com](mailto:Kellee.Moye@gmail.com).

