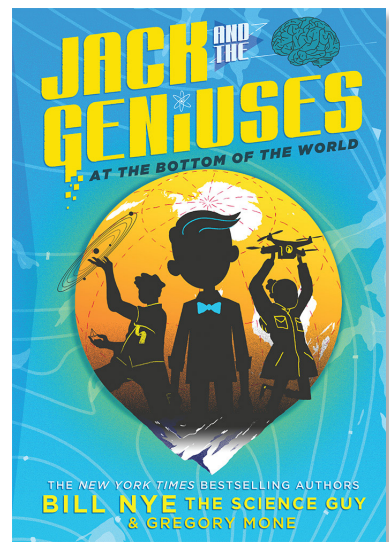


Jack and his foster siblings Ava and Matt are not your typical kind of orphans—they're geniuses. Well, Ava and Matt are, anyway. Ava speaks multiple languages and builds robots for fun, and Matt is into astronomy and is a whiz at math. As for Jack, it's hard to stand out when he's surrounded by geniuses all the time. Things get even more complicated when the trio starts working for Dr. Hank Witherspoon, one of the world's leading scientists. The siblings travel to Antarctica with Hank for a prestigious award ceremony, but they quickly find that all is not as it seems: A scientist has gone missing, and it's up to Jack, Ava, and Matt to find her and discover who's behind it.



Jack and the Geniuses: At the Bottom of the World, the first installment of an exciting new series created by science educator Bill Nye, weaves real-world science with action, adventure, and a mystery that will have readers guessing until the very end.

About the Authors

Bill Nye is a scientist and media personality best known for his children's television show, *Bill Nye the Science Guy*. As a science educator, Nye has appeared on numerous television programs, including *Larry King Live*, *Real Time with Bill Maher*, *Last Week Tonight with John Oliver*, *Inside Amy Schumer*, *The Nightly Show with Larry Wilmore*, and *Late Night with Seth Myers*. He currently splits his time between New York City and Los Angeles. Follow him online at www.billnye.com.

Gregory Mone is a novelist, science journalist, and speaker who has written several books for children, including *Fish*, *Dangerous Waters: An Adventure on the Titanic*, and *The Truth About Santa*. Mone is co-author of the *New York Times* best seller *Quiet Power: The Secret Strengths of Introverts*, with Susan Cain. He lives in Martha's Vineyard, Massachusetts.



WORDS TO KNOW

This rollicking mystery features science-related terms your students may be unfamiliar with. Before reading each section, list the words below down the left side of one or more sheets of chart paper, skipping two lines after each word. Explain the meaning of each word to students and write it on the chart. (In advance, make sure to locate the word in the book and use context clues to identify the meaning being used.) Then have each student restate the meaning in his own words in his reading journal and draw a picture that illustrates it. Students can refer to the chart and their journals as they encounter the words during reading.

Page numbers are in parentheses.

Chapters 1 and 2

solar panels (4)	hypothesizing (4)	sensor (15)	circuit board (26)
code (29)	prototype (29)	simulation (33)	application (35)
habitat (35)	scale model (35)	theories (41)	data (41)

Chapters 3 and 4

frostbite (65)	knots (65)	global warming (67)
climate change (67)	ice shelf (67)	geoscientist (68)

Chapters 5 and 6

species (76)	biologist (78)	desalination (81)	encrypted (86)
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Chapters 7 and 8

physicist (96)	hydrated (98)	physics (99)	cosmologists (100)
adaptation (105)	pi (113)	aquatic (114)	geotags (122)

Chapters 9 and 10

plankton (124)	density (124)	organism (136)	translucent (137)
geoscientist (141)			

Chapters 11-14

oceanographer (175)	turbine (178)	propels (178)	terrain (180)
plates (180)	inertia (184)		

Chapters 15-17

nanosecond (203)	hypothermia (210)	krill (213)	submersible (222)
resolution (223)			



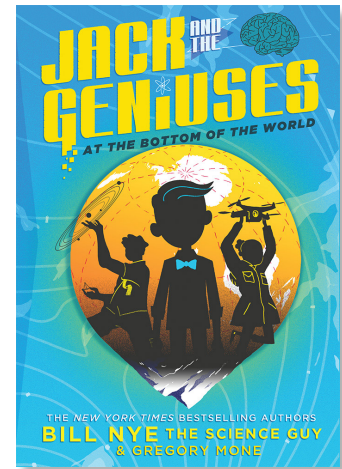
CLASSROOM ACTIVITY: CHARACTER CLUES

When: Before and during reading

Skill: Analyzing characters

Begin by writing this question on the board: “How do authors tell you about the characters in their stories?” Divide students into groups to discuss the question, designating one student to record the group’s ideas. Provide time for groups to share their ideas as you list them on chart paper. Share any ideas below that are not already listed on the chart:

- What the character says and how he/she says it
- Character’s actions and responses to events
- Details and descriptions from the narrator or from other characters
- What the character thinks or feels



After the discussion, give each student a copy of the “Character Clues” page. Have students fill in the first reading assignment and then complete the page as they read. Discuss students’ work together as a class. Repeat this activity throughout the reading of the book. As an end-of-reading activity, have each student use his completed organizers to write an essay that explains how the traits of one of the characters (chosen by the student) help Hank and the kids solve the mystery of Anna’s disappearance.

Jack and the Geniuses: At the Bottom of the World
Analyzing characters

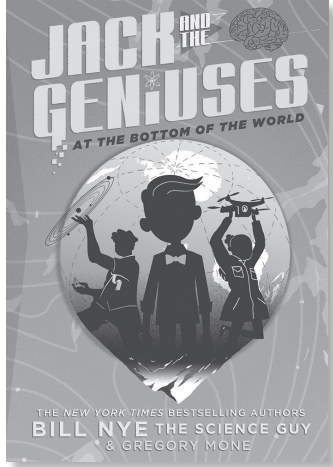
Name _____

CHARACTER CLUES

Reading assignment: _____
Complete the chart as you read.

Character	Clues from Text	Character Trait(s) Demonstrated
Jack		
Ava		
Matt		

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Jack and the Geniuses: At the Bottom of the World
Analyzing characters

Name _____

CHARACTER CLUES

Reading assignment: _____
Complete the chart as you read.

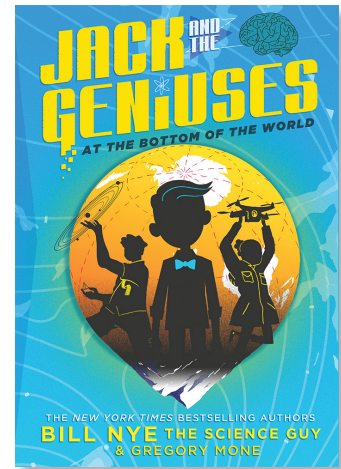
Character	Clues from Text	Character Trait(s) Demonstrated
Jack		
Ava		
Matt		

CLASSROOM ACTIVITY: IT'S ALL ABOUT ANTARCTICA

When: Before and after reading

Skill: Analyzing setting

After students have read Chapter 3, create a large chart as shown or project the chart provided on your whiteboard. Explain to students that setting not only includes the “where” and “when” of a story but also the background elements that make up the setting. Give each student several sticky notes. Direct students to write what they think are true of the different elements about Antarctica (one comment per note). After a time of sharing, have each student place his notes on the chart in the “What We THINK” column. As students read the book, periodically have them add notes to the “What We LEARN” column. After students complete the book, revisit the chart and talk about how the setting contributed to their enjoyment of the book.



Setting Elements	What we THINK	What we LEARN
Climate and weather		
Clothing		
Transportation		
Housing		
Rules and regulations		
Food and Drinks		

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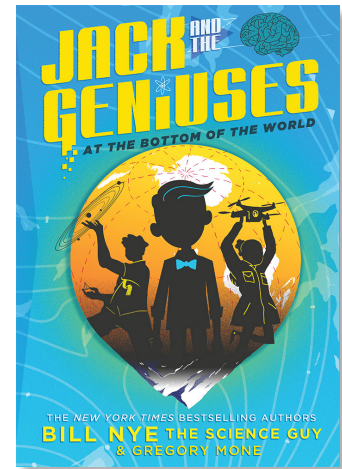
Setting Elements	What we THINK	What we LEARN
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Housing		
Rules and regulations		
Food and Drinks		

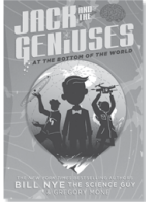
CLASSROOM ACTIVITY: A REASON FOR WRITING

When: During and after reading

Skill: Author's purpose

Jack and the Geniuses: At the Bottom of the World weaves information about science, technology, and engineering into an intriguing mystery. After Chapter 3, give each student a copy of the “A Reason for Writing” graphic organizer. Discuss the three different purposes shown on the page. Encourage students as they read to list examples or evidence from the text that supports one or more of the purposes. (Provide extra copies of the page for students who may need them.) At the conclusion of the book, provide time for students to give their opinions about the authors’ purpose(s), using text evidence from their charts.





Jack and the Geniuses: At the Bottom of the World
Author's purpose

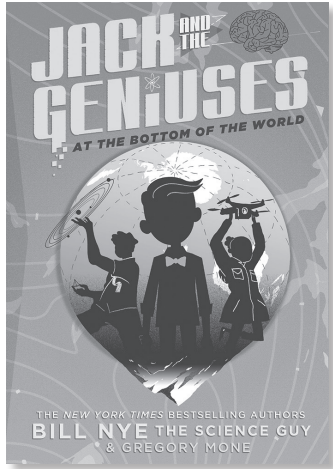
Name _____

A REASON FOR WRITING

Reading assignment: _____
Complete the graphic organizer as you read.

Purpose	Example/Evidence	Pg. #
To persuade or convince the reader to agree with a certain point of view		
To inform or teach the reader or provide information		
To entertain the reader		

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Jack and the Geniuses: At the Bottom of the World
Author's purpose

Name _____

A REASON FOR WRITING

Reading assignment: _____

Complete the graphic organizer as you read.

Purpose	Example/Evidence	Pg. #
To persuade or convince the reader to agree with a certain point of view		
To inform or teach the reader or provide information		
To entertain the reader		

LET'S DISCUSS!

Chapters 1-4

- What is so unusual about the building across the street? (Chapter 1)
- What does Jack mean when he says that he and his siblings are “autonomous”? (Chapter 2)
- Why is it important to find a way to filter the salt out of ocean water? (Chapter 3)
- What do you learn about Antarctica and McMurdo Station in this chapter? (Chapter 4)

Chapters 5-8

- What do you learn about Anna in Chapter 5?
- What suspects are introduced to readers in Chapters 5 and 6?
- What do Hank and the kids learn about Anna’s disappearance from Levokin? (Chapter 7)
- Why do the kids go to the science lab at the station after reading Anna’s email? (Chapter 8)

Chapters 9-12

- What do you think Britney means when she tells Jack “...genius is overrated”? (Chapter 9)
- What is special about the creatures Anna asks Sophie to take care of? (Chapter 10)
- How does Jack figure out where Anna hid the map? (Chapter 11)
- How do Hank and the kids make sure everyone at the station will be at the karaoke contest when they leave to search for Anna? (Chapter 12)

Chapters 13-17

- On page 173 of Chapter 13, Jack says, “in a strange way we were starting to feel like a family.” What evidence from the book so far supports the idea that Hank and the kids are a family?
- What happens to Hank and the kids as they are on their way to find Anna? (Chapter 14)
- What convinces Jack that Danno is the villain? (Chapter 15)
- Why does Jack say at the end of Chapter 16 that he admires Anna most of all?
- What do you predict about the trip Hank and the kids will take next? Why? (Chapter 17)

WRITING PROMPTS

Chapters 1-4: Jack, Ava, and Matt live almost entirely on their own, even though they are kids. What would be the benefits of this lifestyle? What would be the disadvantages?

Chapters 5-8: Jack and his siblings do a lot of detective work when they get to the station. Describe the traits that a good detective needs to have, giving at least two reasons for each trait.

Chapters 9-12: Write a paragraph that explains why the setting of Antarctica is perfect for a mystery.

Chapters 13-17: Which character in this book is your favorite? Write a letter to this character explaining why he/she is your fave.

End of book: How do the illustrations in this book help tell the story?



COMMON CORE STANDARDS COVERED

CCSS.ELA-LITERACY.RL.3.1

Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.

CCSS.ELA-LITERACY.RL.3.3

Describe characters in a story (e.g., their traits, motivations, or feelings) and explain how their actions contribute to the sequence of events

CCSS.ELA-LITERACY.RL.3.4

Determine the meaning of words and phrases as they are used in a text, distinguishing literal from nonliteral language.

CCSS.ELA-LITERACY.RL.3.7

Explain how specific aspects of a text's illustrations contribute to what is conveyed by the words in a story (e.g., create mood, emphasize aspects of a character or setting)

CCSS.ELA-LITERACY.RL.4.1

Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.

CCSS.ELA-LITERACY.RL.4.3

Describe in depth a character, setting, or event in a story or drama, drawing on specific details in the text (e.g., a character's thoughts, words, or actions).

CCSS.ELA-LITERACY.RL.4.4

Determine the meaning of words and phrases as they are used in a text, including those that allude to significant characters found in mythology (e.g., Herculean).

CCSS.ELA-LITERACY.RL.5.1

Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.

CCSS.ELA-LITERACY.RL.5.3

Compare and contrast two or more characters, settings, or events in a story or drama, drawing on specific details in the text (e.g., how characters interact).

CCSS.ELA-LITERACY.RL.5.4

Determine the meaning of words and phrases as they are used in a text, including figurative language such as metaphors and similes.

CCSS.ELA-LITERACY.RL.5.7

Analyze how visual and multimedia elements contribute to the meaning, tone, or beauty of a text (e.g., graphic novel, multimedia presentation of fiction, folktale, myth, poem).

CCSS.ELA-LITERACY.RL.6.1

Cite textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.

CCSS.ELA-LITERACY.RL.6.3

Describe how a particular story's or drama's plot unfolds in a series of episodes as well as how the characters respond or change as the plot moves toward a resolution.

CCSS.ELA-LITERACY.RL.6.4

Determine the meaning of words and phrases as they are used in a text, including figurative and connotative meanings; analyze the impact of a specific word choice on meaning and tone

CCSS.ELA-LITERACY.RL.6.5

Analyze how a particular sentence, chapter, scene, or stanza fits into the overall structure of a text and contributes to the development of the theme, setting, or plot.

