

NICK AND TESLA

AND THE HIGH-VOLTAGE DANGER LAB EDUCATORS' GUIDE

"SCIENCE BOB" PFLUGFELDER
AND STEVE HOCKENSMITH

A Mystery
with Gadgets
You Can Build
Yourself!



ABOUT THE BOOK

Nick and Tesla are bright 11-year-old siblings with a knack for science, electronics, and getting into trouble. When their parents mysteriously vanish, they're sent to live with their Uncle Newt, a brilliant inventor who engineers top-secret gadgets for a classified government agency. It's not long before Nick and Tesla are embarking on adventures of their own—inventing all kinds of outrageous MacGyverish contraptions to save their skin: 9-volt burglar alarms, electromagnets, mobile tracking devices, and more. Readers are invited to join in the fun as each story contains instructions and blueprints for five different projects.

In *Nick and Tesla and the High-Voltage Danger Lab*, we meet the characters and learn how to make everything from rocket launchers to soda-powered vehicles. Learning about science has never been so dangerous—or so much fun!

ABOUT THE AUTHORS



“Science Bob” Pflugfelder is a science teacher, author, maker, and presenter that knows how to share the world of science like never before. He is a regular guest on Jimmy Kimmel Live!, Live With Kelly and Ryan, The Dr. Oz Show, and Nickelodeon’s Nicky, Ricky, Dicky and Dawn. His television appearances also include The Today Show, Hack My Life, Good Morning America, Home & Family and others.



Steve Hockensmith is both a New York Times bestselling author (for *Pride and Prejudice* and *Zombies: Dawn of the Dreadfuls*) and a Best First Novel Edgar Award nominee (for his mystery *Holmes on the Range*). He has two young children and lives near San Francisco.

PRE-READING ACTIVITIES/TOPICS

1. The names of our two main characters are Nick and Tesla, an obvious reference to Nikola Tesla, an inventor and engineer best known for his work with electricity and electromagnetic energy. Teachers may wish to have students predict the significance of the characters' names given the novel's title and relevant information about Tesla.
2. The genre of the novel is mystery. Teachers may wish to discuss traits of an effective mystery (problem or question, suspense, answer or resolution) and use a basic plot chart to identify the "parts" of the plot in which each trait is emphasized (introduce problem in exposition/intro; suspense increases in rising action to the climax; answer to the problem in resolution of plot).
3. The main characters move from Virginia to California, taking the trip alone. Teachers may wish to use a map to show students these locations and discuss what it would be like to travel/fly across the country alone to a strange, unfamiliar city to live with a strange, unfamiliar relative. Teachers may wish to have students theorize about what this tells us about our main characters.

ONGOING ACTIVITIES

1. Several activities can be done throughout the novel study. Each activity is designed to help students become aware of the development of various aspects of the novel. With the exception of the last activity, which shouldn't be assigned until Chapter 3, all activities can be assigned beginning with Chapter 1. Any of these could also become part of a summative assessment.
2. Keep a log of the appearances of the black SUV. Note the chapter number and write a brief description of what is happening when the SUV is seen and who sees it. (This activity can be used to notice the increase in suspense and the use of foreshadowing.)
 - c. Draw a map of significant sites in the novel. Sites to consider:
 - d. 513 Chesterfield Avenue (Uncle Newt's house)
 - e. Landigran Place
 - f. Golden State Antiques and Collectibles
 - g. DeMarco's house and the woods surrounding it
3. Break down the novel by day instead of by chapter. (Chapters 1–6 all occur on the first day, evening; Chapters 7–12 all occur on the second day; Chapters 13–16 take place on the third and final day.) Have students keep a list of significant events occurring on each day.
4. Keep a log of quotations that are significant to the plot of the novel. These quotations might be particularly revealing about a character, increase suspense, exemplify the use of foreshadowing, etc. Students should copy the quote, note the page number, and then explain the quotation's significance.
5. Beginning in Chapter 3, have students document Uncle Newt's experiments and inventions. At the end of the novel, have students evaluate the feasibility of one of the experiments or inventions.

CHAPTER QUESTIONS

Teachers may wish to use these chapter questions to check for comprehension either on an individual basis or through group (large or small) discussion. The questions range from those using basic recall skills to more complex, inferential questions.

CHAPTER ONE

1. What do we learn about Nick and Tesla in this chapter? How old are they? What do they like to do? Where do they live? How do you know all this information?
2. What kind of a person is Uncle Newt? Use adjectives to describe him, and then cite evidence from the chapter to support your choices.
3. On page 17, the kids notice “the ceiling [in the living room] over the trampoline was cracked and cratered, as if someone kept bouncing a little too high. A dented football helmet was lying nearby on the floor.” What do you think happened to the ceiling?
4. Why do Nick and Tesla travel to Uncle Newt’s? Is there anything unusual about this situation?

CHAPTER TWO

1. Compare and contrast Nick and Tesla. How are they alike? How are they different?
2. What makes Uncle Newt’s basement unusual?
3. Why didn’t Uncle Newt meet the kids at the airport?
4. Uncle Newt is described on page 28 as a “self-employed inventor” and “mad scientist.” Which is he and why? Consider the difference between the two labels.

CHAPTER THREE

1. Where are Nick and Tesla’s parents? What do the kids know about this area?
2. What evidence do the kids find that Uncle Newt may not keep a clean, well-stocked, kid-friendly kitchen?

3. Why is Uncle Newt’s neighbor upset with Nick and Tesla? Why is she concerned about the kids’ rocket? Is her concern justified? Why or why not?
4. What is the “Old Whoever Place”? At the very least, it can be described as “unwelcoming.” Identify three characteristics of the property that would contribute to this description.
5. What two items do Nick and Tesla want to retrieve from the “Old Whoever Place”?

CHAPTER FOUR

1. What does Tesla mean when she calls Nick “Little Mr. Sunshine” (page 59)?
2. According to DeMarco and Silas, what is going on at the Landrigan Place?
3. Nick says “Never tell Tesla Holt never” on page 61. What does he mean?
4. What plan do you think Tesla has for getting her pendant back?

CHAPTER FIVE

1. List the steps for Tesla’s plan for getting the rocket and her pendant. Compare the actual plan to your predicted plan. Which do you think would be more effective and why?
2. How does Nick feel about Tesla’s plan? How do you know?
3. What problem do Nick and Tesla encounter with the plan? In other words, what situation hadn’t they thought of and planned for?
4. What surprise does Nick find at the Landrigan Place?

CHAPTER SIX

1. How are the dogs’ names fitting, given their behavior toward Nick and Tesla?
2. Does Tesla believe Nick’s claim about the girl in the window? How do you know?
3. Why does Uncle Newt hang upside down to eat?
4. In what unusual ways does Uncle Newt use compost?

5. Uncle Newt considers himself “normal” and his neighbors odd. Do you agree? Why or why not?
6. Nick dreams about the girl. Who do you think she is?

CHAPTER SEVEN

1. Nick and Tesla return to the Landigran Place a second time. How is their second plan different from their first?
2. Tesla makes contact with the mysterious girl. What is the girl’s reaction to Tesla? Compare her reaction to Tesla with her reaction to Nick the day before.

CHAPTER EIGHT

1. What does Tesla mean when she thinks on page 115 “That’s actually a really good question.” What does the question help her to figure out about the men at the Landrigan Place?
2. Why does Vince decide to be nice to Nick and Tesla?
3. What inferences do the kids make about the identity of Mr. Snugg? What do they base their inferences on?
4. How do Nick and Tesla plan to help the girl they’ve seen in the window?

CHAPTER NINE

1. What is the plan for DeMarco and the van?
2. What is the drip bag Tesla had Elesha attach to the van?

CHAPTER TEN

1. How is the blacklight used?
2. Where did the kids find the van?
3. Besides ink, what intriguing item do the kids find at the site? What do you think Vince and/or Frank might be doing at this particular site? Why do you think that?
4. The black SUV is spotted. How is this sighting different than the other times the kids have seen it?

CHAPTER ELEVEN

1. Why did the kids leave the smooth ride of the street and head through the woods?
2. Reread DeMarco’s mother’s “greeting” to the boys on page 153. What do her comments reveal about DeMarco and Silas?
3. How has Tesla’s attitude toward DeMarco and Silas changed? (HINT: See her comment about them on page 154.)
4. What is Uncle Newt’s reaction to Tesla’s confession and explanation about the events of the past two days?
5. How does Tesla plan to make sure the people following the kids in the SUV don’t “come get us before we can go get him”?

CHAPTER TWELVE

1. How does Tesla try to find the identity of Mr. Snugg? What other options could she have used?
2. How do the kids think Mr. Snugg and Vince and Frank are connected to the Landrigan Place?
3. How do the kids know someone entered Uncle Newt’s house during the night?
4. Compare Nick and Tesla’s reactions to the knowledge that there had been an intruder in the house.

CHAPTER THIRTEEN

1. What were the adults’ reactions to the kids’ revelation of the girl they saw at the Landrigan Place? Why might it be difficult for the adults to believe in the intrigue and mystery the kids find so fascinating?
2. Use the drawing on page 187 to explain Silas’ proposed plan.
3. What is the actual plan for the kids’ third visit to the Landrigan Place? How is this plan different from the plans for the first two visits?
4. Are Vince and Frank renovating the Landrigan Place? Use evidence from pages 191–193 to support your answer.

5. What is the misunderstanding surrounding Mr. Snugg's identity?
6. Who is the girl in the window?

CHAPTER FOURTEEN

1. Who is the mysterious girl?
2. Who is Mr. Snugg?
3. Who are Vince and Frank?
4. What is the "Rapunzel routine" Tesla considers as an escape plan? How effective and/or feasible would this plan be?
5. Using the instructions on pages 207–209, answer DeMarco's question (p. 207): "What the heck could batteries, wire, and old nails be used for?"

CHAPTER FIFTEEN

1. How do the kids plan to use their latest invention?
2. How would Lily's prowess with the game Operation be helpful to the plan?
3. The SUV arrives just in time. Who is inside?

CHAPTER SIXTEEN

1. What is the pendant?
2. How does Tesla get the pendant back?
3. Who is the woman in the black SUV?
4. Describe Half-Moon Bay's crime rate based on the information the police sergeant shares.
5. Uncle Newt promises the kids that "it's going to be a nice, quiet, boring summer from here on out." Do you believe him? Why or why not?
6. Consider what has been said about Nick and Tesla's parents and their jobs throughout the novel. Do you believe that the parents are experts on soybeans and are in Uzbekistan working on a soybean project? Why or why not? What other employment might they have instead? What evidence can be used to support your inference?



TARGETED VOCABULARY

Vocabulary instruction is often subjective, and the methods for it are varied. The targeted list is organized by chapter, and the chapter lists are all related by concept. Some, for example, focus on characterization. Others focus on setting. Teachers can pick and choose, adding and/or deleting words based on their students' level and the teacher's school/district protocol for vocabulary instruction.

CHAPTER ONE

subdued (7)
grave (7)
keepsake (9)
absentmindedly (10)
ominously (13)
reclusive (15)

CHAPTER TWO

inspire (22)
cautiously (23)
wonderment (24)

CHAPTER THREE

warily (40)
glumly (41)
enunciating (42)
eccentric (46)
ponder (52)

CHAPTER FOUR

puzzle (59)
quizzically (62)
resolve (63)

CHAPTER FIVE

dubious (77)
distress (78)
scurried (79)
skulked (81)
feral (84)

CHAPTER SIX

whimpering (86)
disdainful (87)

CHAPTER SEVEN

exiled (105)
voracious (105)
sullenly (106)
emphatically (109)
sneered (111)

CHAPTER EIGHT

imposing (113)
skeptically (114)
reluctantly (116)
noncommittal (119)
luminous (121)

CHAPTER NINE

surreptitious (130)

CHAPTER TEN

eerie (137)
caravan (139)
wheezed (139)
veered (140)

CHAPTER ELEVEN

void (148)
careening (148)
triumphantly (151)
skullduggery (161)

CHAPTER TWELVE

glowered (169)
sarcastic (169)
menace (171)
improvised (173)
nefarious (176)

CHAPTER THIRTEEN

muted (190)
jabbering (191)
sneered (199)

CHAPTER FOURTEEN

grim (201)
intensity (201)
disposable (204)

CHAPTER FIFTEEN

unconvinced (212)
gruff (215)
instinctively (215)
obedient (219)

CHAPTER SIXTEEN

harsh (223)
impressed (226)
anonymously (227)
traumatized (230)

CHAPTER SUMMARIES

ONE

Nick and Tesla arrive for the summer at their Uncle Newt's in Half-Moon Bay, California. Their parents are away on business and have sent the children to their reclusive, eccentric uncle's to live at least for the summer.

TWO

Nick and Tesla meet their unusual uncle.

THREE

Nick and Tesla build a rocket. A bungled launch sends the rocket—with Tesla's pendant from her parents—over the fence and onto the property of the Landrigan Place, an unwelcoming estate guarded by a pair of loud Rottweilers.

FOUR

Nick and Tesla try to contact the construction workers on the Landrigan property via the property's intercom at the closed gate. The man who answers threatens to call the police. Tesla comes up with a plan involving an artificial cat to retrieve both the rocket and the pendant.

FIVE

Nick and Tesla create an artificial cat to distract the dogs, enabling Nick to climb the fence to search and retrieve the pendant and rocket. Unfortunately, neither rocket nor pendant can be found. Instead, Nick sees a mysterious girl in an upper story window. She's holding a sign telling Nick to go away.

SIX

Nick and Tesla return to Uncle Newt's to find Uncle Newt eating his dinner while suspended from the ceiling. Uncle Newt eventually shows the children to their rooms, proudly showing them one of his latest creations: beds made of compost. Nick dreams of the girl he saw at the Landrigan Place, and Tesla vows to return to retrieve her pendant.

SEVEN

Nick and Tesla return to the Landrigan Place the next day. Nick distracts the dogs; Tesla climbs the fence. She sneaks to the back of the house and intentionally attracts the attention of the mysterious girl, who writes to tell her to go away. When Tesla asks her why, the girl writes "Mr. Snugg." After Tesla escapes over the fence, Tesla and Nick are caught.

EIGHT

Nick and Tesla are confronted and threatened with being charged for trespassing by Vince and Frank, the men supposedly renovating the Landrigan Place. Because Silas and DeMarco and the black SUV are in the cul-de-sac and within sight of what's going on, Vince chooses only to warn the kids. Tesla and Nick decide the only way to help the girl is to get more information about the men.

NINE

The kids enact the first part of a plan to learn more about the mysterious girl by playacting. DiMarco gets "hit" by the van as the van leaves the property. While Frank attempts to get the kids out of the way, Elesha attaches a bag of ink to the back of the van.

TEN

The kids use a black light to follow the trail of ink from the bag Elesha had attached to the van to an antiques store. They find broken bits of plastic. On the ride home, they notice the black SUV following them.

ELEVEN

All the kids ride their bikes through the woods in an attempt to elude the black SUV that's following them on the road. They end up at DeMarco's house; Tesla and Nick return to Uncle Newt's and devise a plan to secure the house against possible intruders.

TWELVE

The alarm is tripped and the kids prove an intruder set it off.

THIRTEEN

Nick, Tesla, Silas, and DeMarco enact yet a third plan to find the mysterious girl. Nick and Tesla find her locked in a room at the Landrigan Place and deduce that Vince and Frank are bad men.

FOURTEEN

Nick, Tesla, and DeMarco are caught by Frank and Vince and locked in the same room with the mysterious girl. They learn that the girl's name is Lily, she has been kidnapped, and is being held for a million dollar ransom.

FIFTEEN

Nick, Tesla, DeMarco, and Lily escape, only to find themselves trapped against the fence of the property by Jaws, Claws, Vince, and Frank. The black SUV arrives just in time. Inside is Silas and a woman Tesla assumes is a police officer.

SIXTEEN

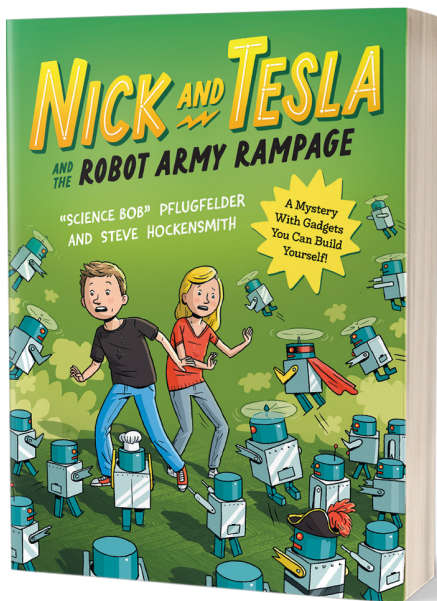
Vince and Frank are arrested; Lily and her dog, Mr. Snugg, are reunited with Lily's parents, and Tesla's pendant is returned to her by Agent McIntyre, the woman in the SUV. The kids learn that Agent McIntyre is a friend of their parents' charged with keeping an eye on them. Despite Uncle Newt's assurances to the contrary, the kids are still suspicious about the reason they are living with him for the summer. They choose, however, to simply accept their situation, looking forward to working with Uncle Newt in their lab.

EXTENDED WRITING/RESEARCH TOPICS/OPPORTUNITIES

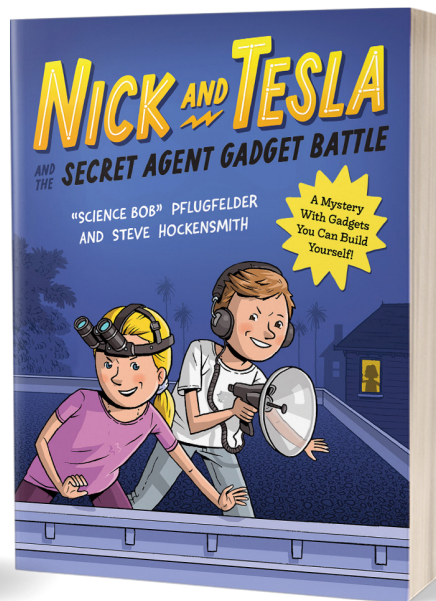
The CCSS ask students to conduct basic research. The ability to formulate a question and use credible sources are two important components. A third is the actual ability to write unified informative and argumentative pieces. The following are several general topics that can be used as interdisciplinary writing assignments for both English Language Arts and science objectives. Depending on how the topics are worded, they can be used as either informative writing topics or argumentative topics.

1. How sanitary or harmful would it be to eat cake licked by a cat? (page 42)
2. Is there such a thing as a "sugar buzz"? (page 42)
3. What is mold? How is it helpful and/or harmful to humans? (page 44)
4. How are dogs trained to become guard dogs? Are Rottweilers as mean as they are depicted in the novel? (Chapter 5)
5. What is a zero-g environment? (page 89)
6. What are black holes? (page 93)
7. What is composting? Would composting really be able to be used the way Uncle Newt uses it? (page 94)
8. What are black lights? How do they work? What are they used for today? (Chapter 10)

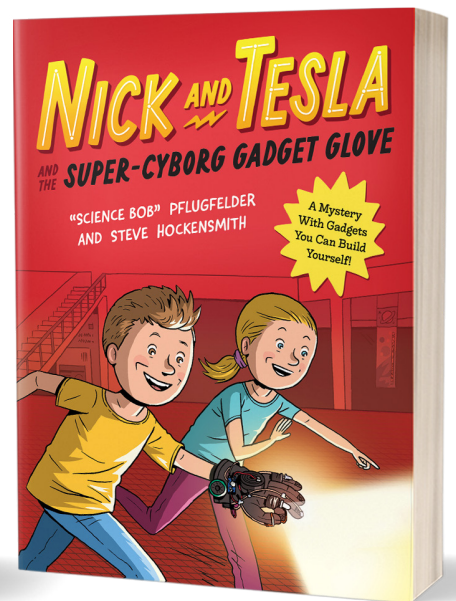
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