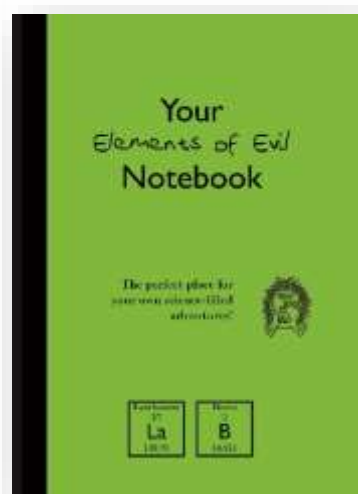
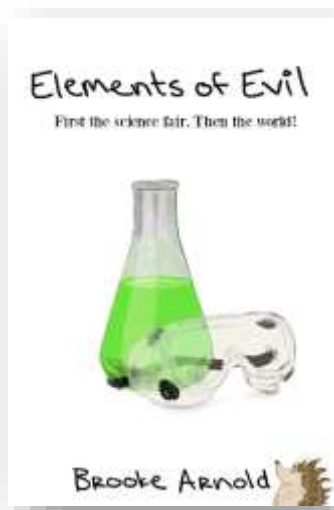


# Teacher's Guide

to

## *Elements of Evil*



## Letter from the Author

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Dear Teachers,

I've always thought Bernice is a good girl, despite how much of a troublemaker she is. From the beginning of the writing process I could feel that all she really wants to do is do the things she's good at, and be noticed for them. Feeling overlooked is tough, and it's even harder when the things you like to do aren't the things that everyone else is interested in. Especially when you're constantly surrounded by praise that isn't directed at you. That's even more true with siblings, since people naturally compare siblings (they can't help it).

Lucky for Bernice, she's surrounded by people who are willing and able to support her, even if she doesn't realize it. Her science teacher nurtures her passion for experiments and discovery, her uncle gives her helpful tips and interesting mail to look forward to, and her English teacher shows her how what you learn in one class can be useful in real life (which I was very excited to learn as a kid).

I've thought a great deal about how ironic it is that Bernice wants more than anything to be noticed by people, all the while not recognizing the people who go out of their way to help her succeed in whatever she tries: winning a science fair, learning about reading and writing, caring for her prickly pet. Admittedly, they might take a slightly different approach if they knew about some of the things she's up to, but the point is, Bernice has some great mentors, who know that she's unique and special and they do their best to help her reach her full potential, whatever it is. Everyone deserves that.

Happy reading! And thanks for all you do.

Brooke Arnold

# About the Book

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## *Description*

Bernice is a science-loving girl with an adorable hedgehog but also with a big problem: being overshadowed by her perfect older sister, Edith. Bernice decides that the science fair is the best place for her to make a stand, and also to do something that Edith has never done before—become a supervillain! But a supervillain needs a good nemesis and so Bernice must find hers just in time to make a big splash. First the science fair. Then the world! It's a book filled with secret codes, evil schemes and science in one girl's quest to become great.

## *In Your Classroom*

Some of the most important features of *Elements of Evil* are:

- ❖ Use of lab notes in a code that uses the periodic table
- ❖ A strong, female character who is interested in and uses science
- ❖ Experiments that can be performed in the classroom
- ❖ Quirky and comical first-person narrative
- ❖ Integration of literature and science

Integrating literature to your science discussion is a cross-curricular approach that can help create critical thinkers, encourage inquiry-based and discovery-focused learning, and prompt students to observe and ask questions.

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*When a third grade girl in our hallway exclaimed, "Brooke Arnold is so cool!" after a classroom visit, I knew she had reached our students. Elements of Evil is a cleverly written adventure by a talented, young author showing girls and boys the wonder and power of science. Her book and visit to our school provided the right chemistry to engage our readers!*

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— Chris Leggett, Library Media Specialist, Antonello ES, North Las Vegas —

# Discussion Questions

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- ❖ Why did Bernice's superhero interviews fail? What makes a hero?
- ❖ Why do you think Bernice chooses to become a supervillain? What is her reasoning? Would you do the same?
- ❖ Bernice obviously loves her pet hedgehog and writes her journal to him. Do you have any pets? Why might animals make good supervillain minions and friends?
- ❖ Who are your favorite characters so far and why?
- ❖ The book opens with Mr Science getting everyone excited about the science fair. Have you ever entered the science fair? What was your project? How was your experience?
- ❖ Bernice uses books (like *Supervillains: All You Need to Know*) to help her gather research about how to become a supervillain. How have you used books to gather research so that you could accomplish what you wanted to do?
- ❖ What is the scientific method and why is it important?
- ❖ How does Bernice use the scientific method to find and test the best experiments for her pranks?
- ❖ How does Mr Science use the scientific method to figure out what the prankster is up to?
- ❖ What do you think about Mr Morales, Ms Chu and Mr Murphey?
- ❖ At this part in the story, Bernice is thinking through many possible people to become her nemesis. Who do you think would be a good nemesis for Bernice and why?
- ❖ What do you think of Uncle Alec?
- ❖ Bernice gets the idea for the stink bomb when she is cleaning out the fridge. Have you ever had a great idea when doing an ordinary task? (Give some examples from history)

- ❖ Why does Bernice choose Edith to be her nemesis?
- ❖ What do you think of Bernice’s final supervillain prank at the science fair?
- ❖ The newspaper calls Bernice “The Cracked Chemist.” What do you think of that name? Have you ever had someone assign a nickname to you?
- ❖ What do you think is the next step for Bernice in subsequent books?

**Using *Elements of Evil* in your classroom can correspond with these Common Core literary standards:**

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.5.6

Describe how a narrator's or speaker's point of view influences how events are described.

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.4.6

Compare and contrast the point of view from which different stories are narrated, including the difference between first- and third-person narrations.

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-Literary.RST.6-8.2

Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.

CCSS.ELA-Literary.RST.6-8.4

Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6-8 topics.

# Activities

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## Making the color of a liquid disappear

- ❖ Bernice makes the color disappear in Mr. Morales's drink.
- ❖ Fill two cups with water. In one of the cups, pour drops of povidone-iodine, which will make the water a dark brown color. Crush a vitamin C tablet and put the crushed tablet into the second cup. Take one spoonful of the vitamin C mixture and stir it into the povidone-iodine mixture. It will only take a couple of stirs for the brown color to disappear.
- ❖ *Can correspond with Next Generation Science Standards (NGSS) MS-PS1-2: Analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction has occurred.*



## Supercooling

- ❖ Bernice supercools a sports drink beverage as one of her pranks.
- ❖ If you have a freezer available at school, put a bottle of liquid in the freezer until it is supercooled, approximately 2 to 3 hours. You can check this by putting a glass of tap water in the freezer with your bottle of liquid. You want to wait until the tap water is frozen, but the bottle of pure water (or other liquid) is not. Then take the bottle out of the freezer and shake it for an instant slushy.

## Electromagnet

- ❖ Bernice uses an electromagnet in creating her stink bomb.
- ❖ Wrap copper wire around a nail and tape one end of the wire to one end of a D battery and the other end of the copper wire to the other end of the D battery. Then you can use paperclips or other small metal objects to show the students how the electromagnet can pick up these metal objects.
- ❖ *Can correspond with NGSS 3-PS2-4: Define a simple design problem that can be solved by applying scientific ideas about magnets*

## The scientific method

- ❖ Ask students to find specific examples from the story of how Bernice follows the steps of the scientific method. What questions does she ask? What background research does she do? What are her hypotheses? How does she test her hypotheses and analyse her data?

### Invisible ink

- ❖ Try three types of invisible ink with your students: lemon juice and heat, baking soda and grape juice, and UV ink. Talk about the reasons why these different types of ink work.
- ❖ *Can correspond with Next Generation Science Standards (NGSS) MS-PS1-2: Analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction has occurred.*



### Paper airplanes

- ❖ You may not have a wind tunnel like Bernice did (or maybe you do!) but regardless, you can talk about some of the principles of aerodynamics and have a paper airplane making contest for students to test these principles.



### Codes

- ❖ *Elements of Evil* is full of codes using the periodic table. Have students decode the various paragraphs from the book.

### Newton's laws of motion

- ❖ In *Elements of Evil*, Bernice accidentally runs into a door and tells Edith that she is just doing some physics with her face, testing Newton's laws.
- ❖ Talk about Newton's laws of motion with your students and have them think of ways to test these laws for themselves.

### Bubbling fry sauce

- ❖ Bernice surprises the lunch lady by mixing mayonnaise and baking soda which then react when mixed with vinegar-rich ketchup.
- ❖ Make your own bubbling fry sauce and have students test how differing amounts of baking soda change the intensity of the reaction.
- ❖ *Can correspond with Next Generation Science Standards (NGSS) MS-PS1-2: Analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction has occurred.*