NOTE TO TEACHERS

Izzy Newton and the S.M.A.R.T. Squad engages girls with relatable characters and captivating science. In this first book of the series, Absolute Hero, spunky heroine Izzy Newton confronts her social angst and leads her friends in applying basic scientific concepts to solve a mystery. Readers will identify with this sixth-grader’s struggle for self-confidence and find inspiration in her sense of adventure, loyalty to family and friends, and tenacity in solving a problem that had confounded even the adults. Educators will appreciate the diversity of the girls and their guardians, the subtle but persistent use of the scientific process, and the numerous scientific principles deftly sprinkled throughout.

ABOUT THE BOOK

When middle school mishaps happen, five friends form the S.M.A.R.T. Squad and use their collective skills and the power of science to bring order to their school.

Science reigns supreme with this squad of young brainiacs. Join Izzy Newton and her friends in the first adventure of this fun new middle-grade fiction series from National Geographic Kids.

A crowded new school and a crazy class schedule is enough to make Izzy feel dizzy. It may be the first day of middle school, but as long as her best friends Allie Einstein and Charlie Darwin are by her side, Izzy knows it’ll all be okay. However, first-day jitters take an icy turn when Izzy’s old pal Marie Curie comes back to town. Instead of a warm welcome, Marie gives her former pal the cold shoulder. The problems pile up when the school’s air-conditioning goes on the fritz and the temperature suddenly drops to near freezing. The adults don’t seem to have a clue how to thaw out the school. Cold temperatures and a frigid friendship? Izzy has had enough of feeling like an absolute zero. She rallies the girls to use their brainpower and science smarts to tackle the school’s chilly mystery ... and hopefully to fix a certain frozen friendship along the way. Will the girls succeed and become the heroes of Atom Middle School?

ABOUT THE AUTHOR

Valerie Tripp is a children’s book author, best known for her work with the American Girl series. She grew up in Mount Kisco, New York with three sisters and a brother. She graduated from Yale University in the first co-educated class and has a Master’s of Education degree from Harvard University. Since 1985 she has lived in Silver Spring, Maryland. She has been a writer for reading textbooks for three decades, especially for The SuperKids Reading Program.

Tripp wrote all the books in the Felicity, Josefina, Kit, Molly, and Maryellen series, and many of the books in the Samantha series. She has also written four of the five “Best Friends” character stories. Film dramatizations of the lives of Samantha, Felicity, Molly, and Kit have been based on her stories. Tripp wrote the Hopscotch Hill School series, as well as the 9 books in the Welliewisher series. She has worked as a writer and editor for Sterling Publishing Company and is the editorial director of Boys Camp Books.
TEACHING IDEAS:
Izzy Newton and the S.M.A.R.T. Squad is an excellent addition to Language Arts courses, especially those in the young adult contemporary fiction genre and seeking to build girls’ confidence in exploring science careers. The book is particularly appropriate for late elementary and middle schoolers, and the diverse characters and quick-paced mystery will appeal to a wide variety of readers from a range of backgrounds and reading levels. The subtle use of scientific principles and the scientific method provide ample opportunity for class discussions about basic scientific principles in everyday life, while the main character’s struggles with her own self-image and social confidence render her sympathetic to all readers. In addition, the racial diversity of the characters and their variety of households offer rich territory for discussion and analysis of what makes a family, what a scientist looks like, and who gets to wield the tools of science and discovery.

DISCUSSION AND WRITING IDEAS:
1. Based on the characters in Izzy Newton and the S.M.A.R.T. Squad, what is the author’s view of who can use scientific vocabulary and employ the principles of science?
2. Based on the history of notable scientists, what do many of them have in common? Why do you think these particular types of people have been recognized for scientific achievements?
3. Marie calls Izzy the “absolute hero” for her role in solving the mystery. Izzy corrects her, saying “It was all of us working together.” Significant discoveries are never the work of a single person, instead coming from teams of scientists or sometimes individuals building on the work of those who have come before them. What are some of the positives and negatives of recognizing a single person for a scientific breakthrough? What would it be like if multiple scientists responsible for breakthroughs were recognized rather than singling out one?
4. In this story, sixth-grade girls share science knowledge with each other in casual conversation. In your experience, does this seem realistic? Why or why not?
5. After reading about kids who use science to solve mysteries, what did you learn? Which ideas could you apply to investigate something in your own life?
6. Occam’s Razor is the scientific principle that basically states that the simplest explanation is usually the best. Think of an example where this is true. Can you also think of a situation when you or others did the opposite--settled on a complicated explanation? Why do you think that happened and did the simplest explanation eventually win out? Why or why not?
7. Allie’s grandmother tells the girls that “well behaved women seldom make history.” How do Izzy and her friends react to this saying? Imagine if Izzy and her friends were extremely cautious, didn’t break or bend any rules, and only did what they were told. What are all of the ways in which the story would be different?

SUGGESTED ACTIVITIES:
1. Have students write the steps of the scientific method (found on p. 179 of Izzy Newton and the S.M.A.R.T. Squad: Absolute Hero). Discuss how Izzy and her friends applied them to solve their mystery. Ask students to think of a mystery they'd like to solve and have them imagine the steps they'd take. Have them conduct a real or imagined experiment, complete with data, and conclusion.
2. Communicating the relevance of scientific findings to a non-scientific audience can sometimes be challenging. Even experienced scientists can sometimes struggle to effectively connect with audiences outside their scientific disciplines. Have students share their fictitious scientific processes (from #1) with each other, taking care to clearly explain each step and make sure their listener understood their conclusions and the significance.
3. Izzy and her friends make plans for their secret room and the school rooftop with its 360-degree view (unobstructed in all directions). They dream of building wind turbines, tending a beehive, using a telescope, and planting a vegetable garden. Ask students to sketch out their own secret rooftop hangout, with these things or any others they’d like to make and do.
4. Ask students to identify one science fact or principle they learned from the story that they would like to know more about. Have them look it up online or in a book and then communicate their findings to a partner or a small group. What does it mean? Why it is interesting? Ask them to think of ways in which it is relevant to their own life?
5. One of Izzy’s strengths is persuasive speaking when she has something important to say. For example, she presented her arguments for getting a cat to her parents with such conviction that they finally agreed. Her forensics teacher also urges her to speak about something that matters to her. Have students think of something they feel strongly about, think of several good supporting arguments, and then present these to a partner or small group. Then have them think of something they don’t care about at all (you might...
assign topics, based on your knowledge of the students) and have them present arguments for those as well. Ask them to evaluate their classmates two different arguments based on how much they were motivated to agree with them. Discuss the results. Ask them to evaluate their own persuasive speeches—whether one was easier, and why.

6. Ask students to design an activity or project for a school STEM team. It can be a project that they could actually do, or an imaginative project they’d like to do, along with some of the simple steps to make it happen.

7. Have students make a 3-D model of their own rooftop getaway—including a beehive, a wind turbine, a garden, and whatever else they want. Think about where these should be placed in relation to each other, and why.

BEYOND THE BOOK:

1. Women and people of color have typically been excluded from recognition for their contributions, especially in STEM fields. One recent example, the popular movie and book Hidden Figures, describes Black women whose mathematical calculations sent U.S. astronauts to the moon. Until recently very few people even knew their names. How might Izzy’s scientific interests be viewed by her friends, her family members, and her teachers if she lived in the early or mid 20th century?

2. Izzy and her friends solve a problem the adults aren’t able to. When is experience valuable? When is experience necessary? When is it beneficial to forget about expertise and try something new and different?

3. Can anyone come up with solutions, inventions, or new ideas? Why or why not? What are some good ways to think creatively? Can innovative thinking be taught? Why or why not? And if so, how?

4. Izzy Newton, Allie Einstein, and Charlie Darwin each share their name with a famous scientist: Isaac Newton, Albert Einstein, and Charles Darwin. Compare the girls’ general fields of interests with their historical namesakes to see how they align. How might the world be different if any one of these famous scientists had not existed and their major discoveries never been made?

5. Mr. Delmonico has only one rule: Be kind. What does it mean to be kind? What does kindness feel like—as the giver and the recipient? When can it be difficult to be kind—and what are some strategies for making the right choices? Why does being kind matter? Think of some examples of how the school would be different if Mr. Delmonico told students not to waste their time being kind.

6. What’s more important: being smart or being kind? If you could be really good at one but not the other, which would you choose and why?

7. Charlie has two moms. Allie is being raised by her grandmother. Some people believe that a mom and dad living in the same household is superior to any other family configuration; they may even call any other family configuration a “broken” home. Why do you think some people might think or say this? Imagine you are Charlie or Allie and think of what you would say to someone who suggested that your home was “broken” or somehow inferior.
VOCABULARY:

**STEM:** Science, Technology, Engineering, and Math

**STEAM:** Science, Technology, Engineering, Arts, and Math

**Physics:** the study of energy and what things are made of

**Occam’s razor:** logical principle that states that the simplest explanation is usually the best.

**Absolute zero:** the coldest possible temperature

**Au revoir:** “goodbye” in French

**Every action has an equal and opposite reaction:** a law of physics

**Forensics:** public discussion and debate or scientific examination of physical evidence

**Black hole:** a large mass that has been so intensely shrunken that even light can’t escape it

**Singularity:** the center of a black hole

**Gele:** a decorative headcovering traditionally worn in African

**Skew lines:** two lines that never intersect and are not parallel

**Inert:** inactive

**Hypothesis:** An educated guess

**Scientific method:** a series of steps scientists have been using to learn and solve problems since the 17th century

**Newton’s first law:** an object at rest stays at rest and an object in motion stays in motion

**Condenser and exhaust fans:** essential parts of an air-conditioner

**LED:** light-emitting diode. LED bulbs last longer, emit less heat, and use less wattage than incandescent bulbs.