EXPLORER ACADEMY

Educator’s Guide

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EXPLORER ACADEMY

THE DOUBLE HELIX
A NOVEL

That's nothing. Women are going to ways to follow every high-tech, action-packed adventure.

JOIN THE ADVENTURE!

THAT'S WHAT I LIKE...
Dear Teacher,

For those of you who have already brought the first two books in the Explorer Academy series to your classroom, it is our pleasure to welcome you and your students to Book 3, where the adventures are even more exciting, the stakes are higher, the dangers are closer, and the pace is quicker. For those of you for whom The Double Helix is your introduction to the series, hello. You’ll find that while the novels are sequential, the reading does not necessarily have to be. After you and your students complete Book 3, they will enjoy digging into the earlier titles and will find many AHA! moments as they more fully understand some of the references.

In The Double Helix, Cruz Coronado finds himself in a race with time. He must locate the next piece of the cipher from clues his mother left for him and then turn it over to the evil Nebula Pharmaceuticals as a ransom payment to secure his kidnapped father’s release. The urgency of his mission colors everything Cruz faces as he continues his education and explorations at Explorer Academy. Cruz must learn how to balance his many responsibilities to his family—rescuing his father, meeting his Aunt Marisol’s high expectations, and upholding his mother’s legacy—and his responsibilities to his teachers, friends, and school teammates.

Students in fourth through eighth grade will be breathless as they keep up with Cruz’s adventures and the thickening plot. And, because National Geographic publishes Explorer Academy, they will also be introduced to fascinating subjects and new ideas that extend what they are studying in their classrooms.

This guide is meant to help you integrate the novel into your curriculum in Language Arts: Reading, STEM subjects, Archaeology, Geography, Social Studies, Art, Critical Thinking, and more. These curriculum connections are called out at the start of each section of the guide. Common Core State Standards are also noted, listed at the end of each section.

Here’s to a terrific shared reading experience for you and your students. Please let us know how it goes.

Rebecca Baines
VP & Editorial Director, Kids Books
1. From the very beginning of The Double Helix, Cruz has some choices to make. Should he go with his Aunt Marisol to try to save his father or should he stay at Explorer Academy and continue his search for his mother’s cipher? Make a list of at least three other decisions he faces and the choices he makes throughout the book.

2. List the things that the OS band can do. What present-day devices can detect the same things that the band can?

3. Cruz promises his Aunt Marisol that he will not keep secrets from her. Does he keep that promise? Explain.

4. Why does Nebula want to destroy Cruz’s mother’s formula?

5. While Aunt Marisol is away, her replacement is Dr. Archer Luben. His specialty is space archaeology. What is space archaeology?

6. Dugan is asked to demonstrate the PANDA. Why was he picked?

7. Why did Cruz hide the cipher pieces? Where did he hide them? Why doesn’t he tell Emmett where they are hidden?

8. Why was Cruz visibly upset when he saw former Academy librarian Malcolm Rook in the Parc del Laberint d’Horta?

9. Have students identify the major locations in which The Double Helix takes place and show the routes followed from one area to the next.

10. What are Nebula’s plans for Cruz and his father once they obtain the cipher tiles?

RL 5.1, 5.2, 5.3, 5.4
Questions of Fact

Language Arts: Vocabulary

As they read The Double Helix, your students will find many vocabulary words and terms they are not familiar with. Have them keep a running list of those words. For each they should write a definition in their own words that demonstrates their comprehension. For the terms and other key references, they should write brief notes of what they mean and why they are important to the novel. At the end of each week of study, have your students participate in a Jeopardy-type game where one student gives the definition and another answers with “What is...?”

Students already familiar with The Explorer Academy series should add these words to their Explorer Academy vocabulary and terms list.

Here are some words from The Double Helix to get your students started:

Atrium
Contaminated
Coprolite
Esteemed
Forensics
Hologram
Paleobotany
Repellent
Tendrils
Virtual

RL 5.4
Questions for Discussion

Language Arts: Critical Thinking, Reading; Speaking and Listening; Social Studies: Ethics, Cooperative Learning

1. There are 23 explorers working individually and in 4 teams. The teams are: Cousteau, Magellan, Galileo, and Earhart. Working as a team has many advantages. Ask your students what they are. The explorers are also competitors, each vying to be the top explorer and win the North Star Award. Do your students see a conflict between the individual competition and working as a team? It is likely that students know about people who have individual goals that become a detriment to the success of the group. Such as a basketball player who shoots the ball all the time rather than passing off to someone else who can score an easy goal. Discuss these instances and the effect it has on the team’s success.

2. Cruz is attacked in the CAVE by someone from Nebula. But when the CAVE is examined, there is no one there. Have your class speculate on some possible explanations.

3. Cruz is faced with a moral dilemma. To rescue his father from Nebula, he must give them pieces of the cipher that are the key to his mother’s formula for a drug that has the potential to save the lives of millions of people. Nebula will then destroy the cipher. He is torn between giving up the cipher to save his father or continuing the search for the remaining pieces so that the formula can be realized. Ask students what choice he makes. What choice do they think he should make? What choice would they make? Students should explain their reasoning.

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4. Prescott bristled... he still didn’t know why the kid had to be dealt with before he turned 13.

The leader of Nebula emphasized that they must complete their mission before Cruz turns 13. What do your students think will happen when Cruz turns 13?

5. Ask how Cruz feels about Dugan. Make a class list of some of Dugan’s characteristics. Students should identify classmates who exhibit those traits. Discuss why Cruz has so many problems with Dugan. Does Cruz trust Dugan? Why? Why not? Does Cruz’s opinion of Dugan change in the course of the book? Explain.
Questions for Discussion - continued

6. Cruz’s roommate Emmett is a techno wizard and has gone to great lengths to protect their room from unwanted intrusions. Yet Nebula was able to break through those defenses and can track Cruz’s movements. How do your students think they managed to do that?

7. One of the technological advances that Cruz has at his disposal is a honey drone named Mell. What is its function? Is a device like Mell ethical? Talk with your students about situations where devices such as Mell could be misused.

8. Talk about Cruz’s relationship with Bryndis.

9. Emmett and Sailor put their friendship with Cruz at the forefront and risk not only the possibility of disciplinary action by the school but also their own safety. How do your students respond to this? Have them discuss in small groups the friends they have who will go out on a limb for them despite impending consequences. Have any of the groups reached conclusions about the varied nature of friendships?

10. Dugan surprises Cruz by telling him

11. Unanswered questions that puzzle Cruz include: who is the girl with the blue-gray eyes who saves him from a rockslide in Petra? And how did she know about Nebula? Who do your students think she is? Why do they think the author introduces this new character into the book?

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12. “Speaking of adventure,” came the whisper in his ear. Cruz turned to look up at Professor Luben, who was also looking up. “Interesting outcrop, don’t you think?”

Do your students think it is just a coincidence that Professor Luben suggested that Cruz explore a rock shelter and that Cruz falls and is trapped alone at the bottom of a shaft? Or does it make them suspicious of Professor Luben? They should explain their opinions.

13. What does the class think will happen in Book 4 of The Explorer Academy? Discuss likely scenarios.

RL 5.1, 5.2, 5.3; SL 5.1, 5.3
Language Arts: Writing, Music Appreciation

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1. For a while, Cruz focused on listening to the hum of the engines, hoping they might lull him to sleep. It didn’t work. If only he could hear Felipe play Bach’s Sonata No. 1 in G minor.

Cruz enjoys listening to his neighbor Felipe play the violin. He is especially fond of Bach’s Violin Sonata No. 1 in G minor. Listen with your students to the first movement of the sonata, the Adagio, played by 19-year-old Sumina Studer. What do your students think appeals to Cruz about the music? Students should write about how it makes them feel and about the images it creates in their minds. ([listen here](#))

Extend the music activity by listening to all four movements of the sonata played by violin virtuoso Itzhak Perlman. ([listen here](#))

Have a discussion about each movement with your class.

RL 5.7; W 5.1, 5.4; SL 5.1, 5.3, 5.4

Language Arts: Writing, Characterizations; Critical thinking; Speaking and Listening

2. In Explorer Academy Book 2, *The Falcon’s Feather*, the leader of Nebula mentions that there are two spies embedded on the Orion. One is a staff member and the other an explorer. Do your students know who they are? As they read *The Double Helix*, they may suspect who the spies are based on suspicious activity or suspicious statements. Students should make a list of the staff and students on the Orion. Next to each name they should note something the characters did or said that seems suspicious. Who do they suspect the culprits are? They should explain their answers and compare them with their classmates.

RL 5.1, 5.3, 5.5; W5.1, 5.3, 5.4; SL 5.1, 5.3
Cooperative Learning; Science: the Senses

3. At the explorers’ Halloween party, Cruz and his teammates play a game with a mystery box. Blindfolded, Cruz has to put his hand into a box and identify an object in it just by touch. Let your students play the same game. Divide them up into two teams. Each team will gather ten objects to place in a mystery box for the other team to identify. Students should explain their reasoning as to the identity of each object. The team with the most correct answers is the winner.

SL 5.1, 5.3

Social Studies: Archaeology, Geography, Research, Art

4. Because of their impending visit to Barcelona, Spain, the Explorer Academy students were given a homework assignment on the archaeology of Spain and its parietal art. Assign to the class the same homework assignment from the book and research the parietal art of Spain. Their reports should include but not be limited to: where in Spain the art is located; when the art was drawn; and who drew it. A helpful website from National Geographic can be found here.

RL 5.1, 5.4, 5.7; W 5.2, 5.4, 5.7, 5.8, 5.9

Science: Technology, Archaeology; Language Arts: Speaking and Listening

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5. “I’m Archer Luben...my specialty is space archaeology.”

Using satellite imagery and infrared technology to identify potential archaeological sites in the ancient world is the specialty of American archaeologist and Egyptologist Sarah Parcak, who is the inspiration for the character Archer Luben. She has discovered hidden sites from ancient Rome to ancient Egypt, and she would tell you that there are thousands of archaeological sites still to be discovered around the world. Your students can read about Sarah Parcak and space archaeology at the Smithsonian website (click here).

and on her website: https://www.sarahparcak.com
Then have the class watch an interview of Sarah by TV personality Stephen Colbert in 2016. Students should write a review of the interview focusing not only on Ms. Parcak’s message but also on how Mr. Colbert conducted the interview, keeping in mind questions such as: did Colbert do his homework, was he well informed, and did he show respect to Ms. Parcak.

W 5.1, 5.4, 5.5, 5.8

**Social Studies: Geography, Ancient History; Science: Archaeology; Language Arts: Writing; Visual Literacy; Art and Design; Cooperative Learning**

6. Cruz and his friends travel to Jordan to search for the next cipher tile in Petra, the ancient Rose City of stone. A nomadic tribe called Nabataeans settled the Rose City. Have students research and learn more about the tribe. Questions to answer are: Who were the Nabataeans? When did they live? Why did they go from being a nomadic tribe to one that settled down to build a great city? Why is the city called the Rose City? Why is Cruz convinced that the third part of the cipher will be found in the Rose City?

[Click here](#) to view a short video of the Rose City.

Students should notice the road map on the right-hand side of the screen. Go up the trail by clicking on the white dots. They will be able to see what Cruz and his friends saw as they searched for the third piece of the cipher. Students should pair up to make a “Visit to the Rose City” travel poster.

W 5.2, 5.4, 5.7
Social Studies: Geography; Cooperative Learning

7. Aside from the search for the cipher, Cruz and his Explorer Academy fellow students travel all over the globe in search of knowledge that will prepare them to be leaders of society. Someone has to organize and plan the students’ travel. That job can fall on the shoulders of your students. Divide the class into five teams. Assign each team a country from the area that the Explorer Academy travels to (The Middle East or Asia). Each team will become travel agents tasked to create a sightseeing PowerPoint tour of cities in their country. The tour should include museums, gardens, architecture, hiking trails, and archaeological sites that are important to the history and culture of their country.

Each presentation can begin with:
“Today we are going to visit_______ located in_________.

W 5.3, 5.4, 5.7, 5.8; SL 5.1, 5.2, 5.5

Language Arts: Writing; Speaking and Listening

8. If The Double Helix were made into a movie, who would your students choose to be the film’s stars? Each student should act as the casting director for the movie. They can cast real actors, classmates, or teachers to play the roles. They should explain why each person was cast in a particular role. Students should be prepared to make a two-minute verbal “pitch” to the movie’s producer for their candidates.

RL 5.1, 5.2, 5.3, 5.7; W 5.1, 5.4; SL 5.1, 5.4

5TH GRADE COMMON CORE STATE STANDARDS KEY

RL – Reading Literature
W – Writing
SL – Speaking and Listening

This guide was created by Clifford Wohl, Educational Consultant