

ADVENTURES IN MAKERSPACE

A CODING MISSION

WRITTEN BY
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AND
BLAKE HOENA
ILLUSTRATED BY
ALAN BROWN



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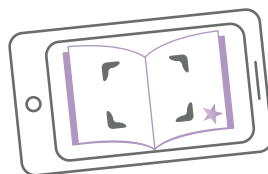
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MEET THE SPECIALIST



ABILITIES:

*speed reader, tech titan,
foreign language master,
traveler through literature
and history*

MS. GILLIAN
TEACHER - LIBRARIAN



MEET THE STUDENTS



MATT
THE MATH MASTER



ELIZA
THE ENGINEERING EXPERT



CODIE
THE CODING WHIZ



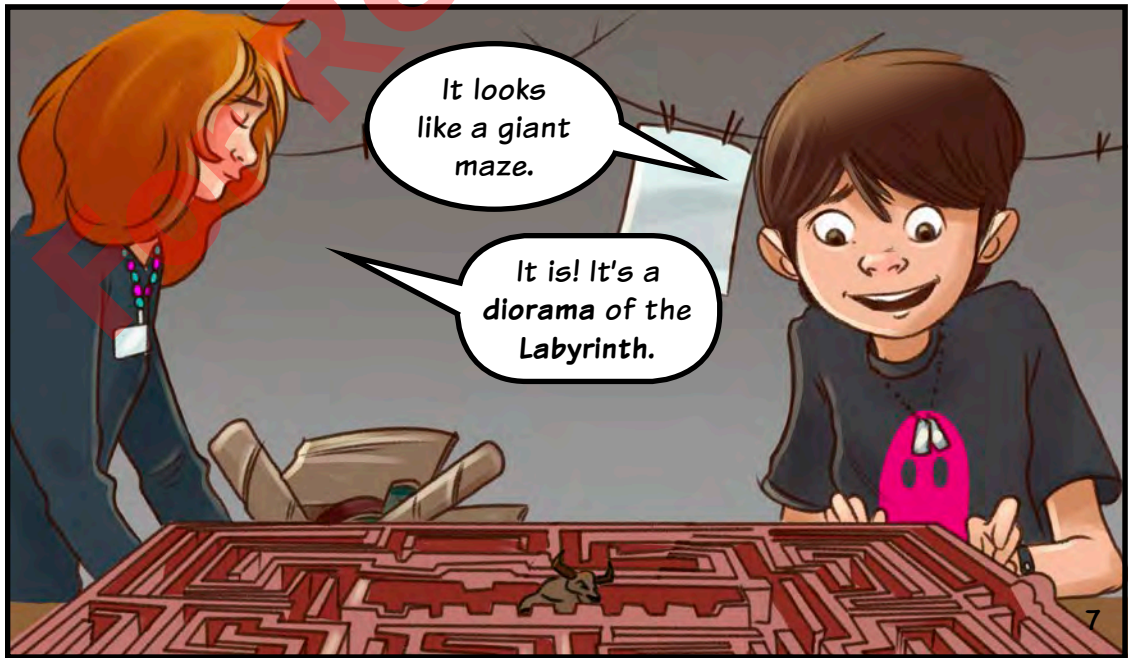
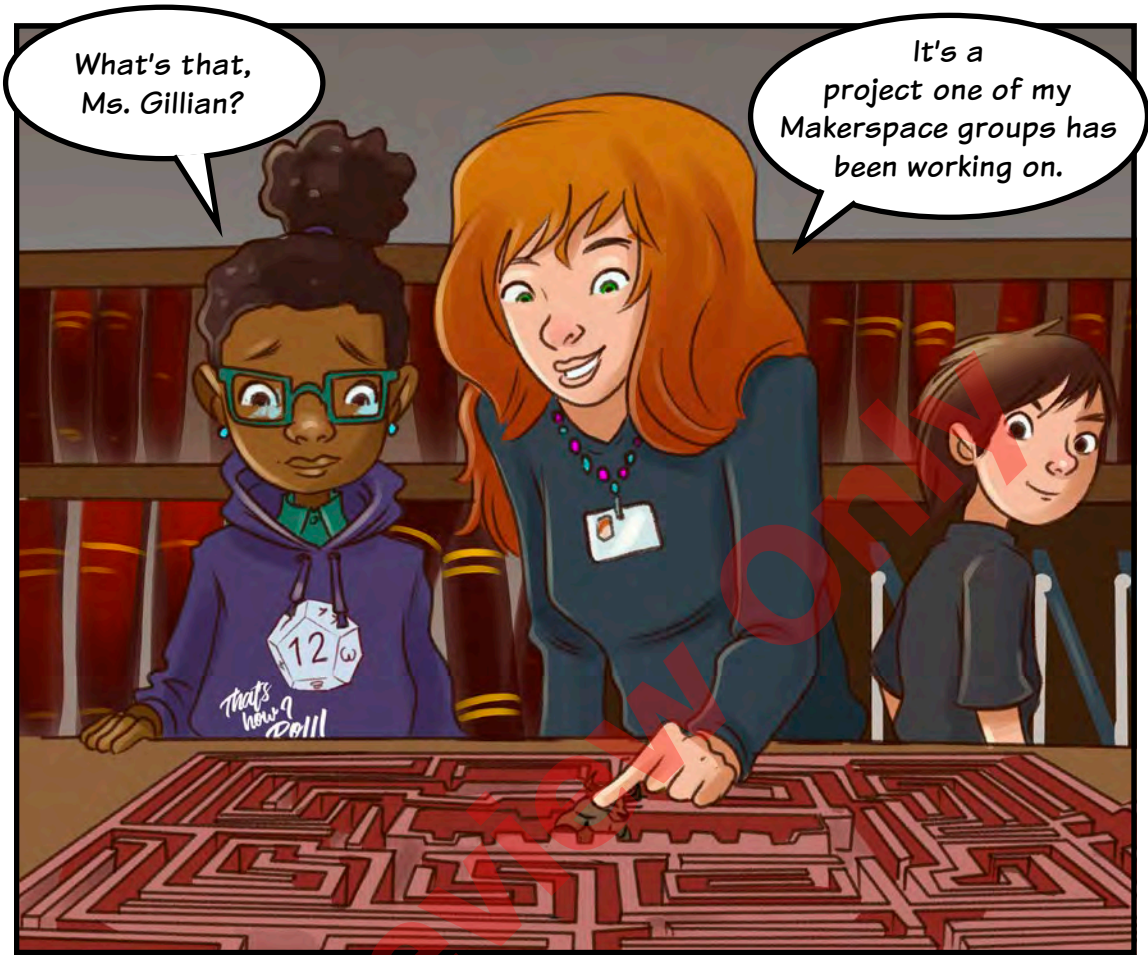
CYRUS
THE SCIENCE GENIUS

THE LABYRINTH

FOR CODIE AND HER FRIENDS, IT IS ANOTHER BUSY DAY AT EMERSON ELEMENTARY. THEY ARE ON THEIR WAY TO ONE OF THE MOST EXCITING PLACES IN SCHOOL. IT IS AN AREA OF THE LIBRARY THAT MS. GILLIAN CALLS THE MAKERSPACE.



MS. GILLIAN SET UP THE MAKERSPACE FOR STUDENTS TO WORK TOGETHER ON PROJECTS. THE SPACE IS FULL OF SUPPLIES FOR CODING, EXPERIMENTING, BUILDING, AND INVENTING. IT IS THE ULTIMATE PLACE TO CREATE!



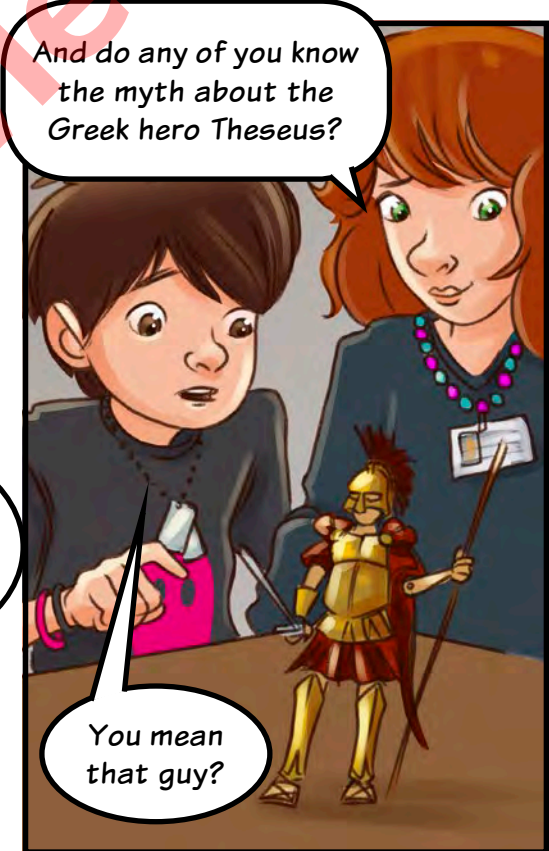


Isn't that where the Minotaur lived?

The Mino-who?



The Minotaur. His lair was at the center of the Labyrinth.



And do any of you know the myth about the Greek hero Theseus?

You mean that guy?

THE MINOTAUR IS A MONSTER FROM ANCIENT GREEK MYTHS. IT HAS THE HEAD OF A BULL AND THE BODY OF A MAN.

Didn't Theseus enter the Labyrinth to slay the Minotaur?



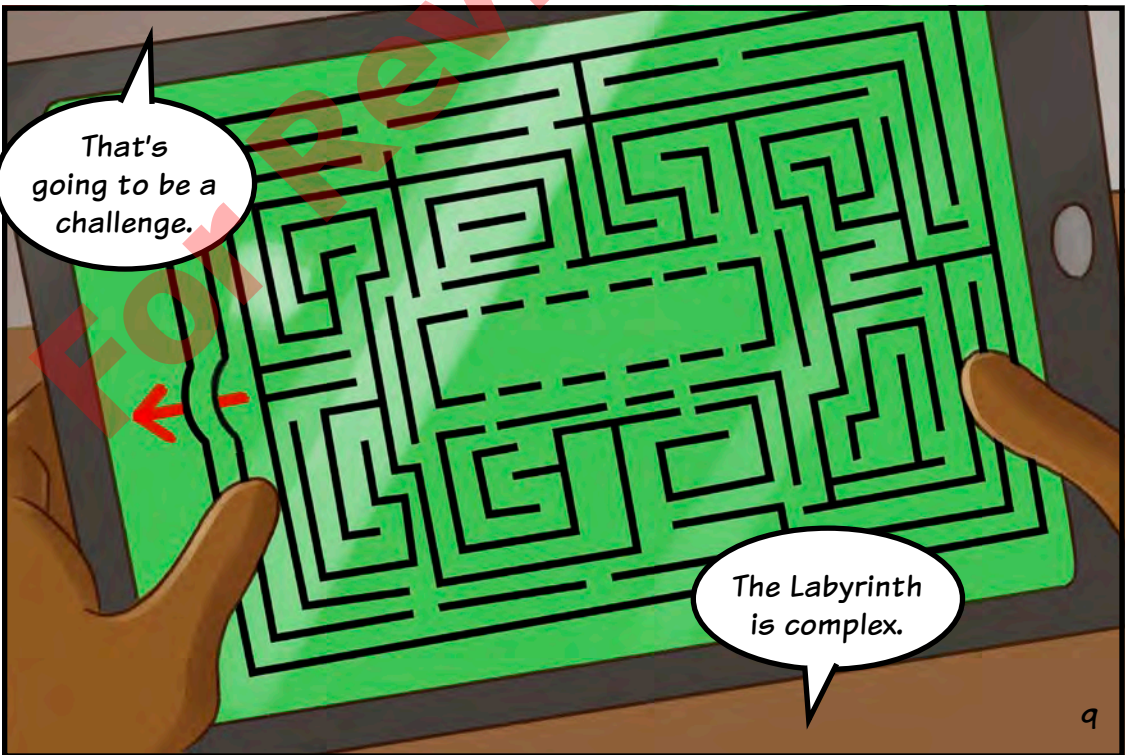
Yes, he did! Then, Theseus had to find his way back out of the maze.

Hey, Codie, why are you taking a picture of the Labyrinth?



For our next project, I think we should write a *code* that solves this maze for Theseus.

That's going to be a challenge.



The Labyrinth is complex.



Let me get something that might inspire you.

The book *Lives* was written two thousand years ago by a Greek scholar named Plutarch. It tells about the lives of mythical characters like Theseus.

But how will an old book help us?

Let me show you.





For Review

ANOTHER MAKERSPACE MISSION BEGINS!

POOF!

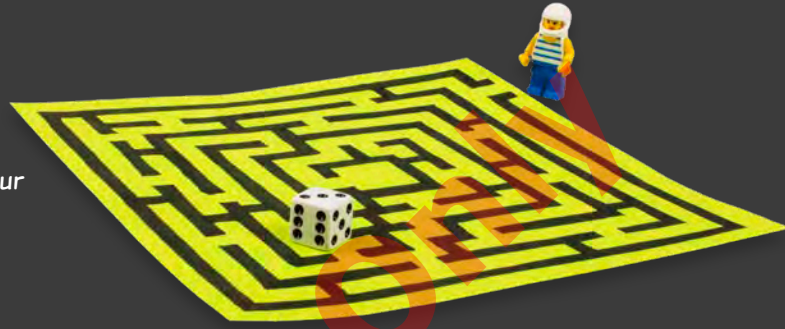


SOLVE A MAZE!



WHAT YOU NEED

- 1 six-sided die
- Theseus
(a toy figure to mark your place in the maze)
- Paper and pencil
- A maze



In this story, the students use different algorithms to try to get out of the Labyrinth. Algorithms are important in coding. They tell a computer how to solve a specific problem.

Test out two of Codie's algorithms to see which works best for your maze.

RANDOM MOUSE ALGORITHM

Randomly pick a direction to turn.

1. Place Theseus at the start of the maze.
2. Move him forward until he needs to decide which way to turn or runs into a wall.
3. Make a tally mark on your paper.
4. Roll the die. If it shows 1, 2, or 3, take the left path; if it shows 4, 5, or 6, take the right path. (If there are three possible directions, turn left on a roll of 1 or 2, go straight on a 3 or 4, and turn right on a 5 or 6.)
5. Repeat steps two through four until you reach the end of the maze. If you have not reached the end after one hundred turns, stop.

WALL-FOLLOWER ALGORITHM

Follow the left wall through the maze.

1. Place Theseus at the start of the maze.
2. Move him forward until there is a left turn or he runs into a wall.
3. Make a tally mark on your paper.
4. Turn Theseus ninety degrees so that he always follows the wall on his left.
5. Repeat steps two through four until you reach the end of the maze. If you have not reached the end after one hundred turns, stop.

Note: You can also try this algorithm using the right wall.

Compare the tally marks for each algorithm. Which one used the fewest steps or got you farthest through the maze?