

# Special pencil grip invention helps Colorado student write more easily

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Fourth-grader Natalie Quintana, 9, a student at French Elementary, works through a maze with a customized pencil grip that was created for her by Curtis Esch, a Project Lead the Way teacher at Janitell, and Jaimie Hunsicker, an occupational therapist, in Colorado Springs, Colorado, August 29, 2017. Photo by: Dougal Brownlie/Colorado Springs Gazette/TNS

**COLORADO SPRINGS, Colorado** — By the end of the school day, Natalie Quintana is worn out from writing.

Natalie is 9 years old. She was born with a condition called arthrogyrosis. It means that some of her joints do not move as much. Her hands can get tired very easily. This makes it hard for Natalie to move a pencil across paper.

Seventh- and eighth-grade students at Janitell Middle School created a gripping tool for Natalie's right hand. The grip is making a big difference.

"It helps me write," said Natalie. She likes that it supports her hand and does not keep her arm up, she said. "So I write better."

Natalie is a fourth-grader at French Elementary School. Her disability affects her arms and legs, leaving her fingers and wrists curved in. She wears braces to help keep her legs straight in her wheelchair.

### **Writing Is Tiring For Natalie**

Jaimie Hunsicker works in Natalie's school district. She said the awkward positioning of Natalie's hand and arm raises her shoulder. Writing makes Natalie very tired.

They are worried about Natalie getting tired as she gets older and has to write more at school, said Hunsicker. That is why they are trying to deal with this now, she said. The grip is to help her avoid getting tired.

Even though she has limits, Natalie feels good about things. She loves to read and write. She wants to be a meteorologist when she grows up.

Michelle Castillo is Natalie's mom. The pencil grip seems to make her want to do more, Castillo said. "It's great they were able to do something for her," she said.

### **Regular Pencil Grips Didn't Work**

Over the summer, Natalie practiced with the purple grip tool. It has a ring for her thumb and space for two fingers to rest on top.

Using a pencil in the grip, she has been finding her way through mazes on paper. She also has been doing other fun things.

Hunsicker was trying to find a way to help Natalie for a while.

They tried several grips from stores, but they did not work, she said.

Hunsicker was talking about the problem at dinner one night. Her daughter, an eighth-grader, suggested talking to her teacher, Curtis Esch.

He teaches a class in which students create things. It is part of a national program in math and engineering.

### **Project Gets Students Connected**

Esch welcomed the problem as a real-life way to get students into a project.

"It was a huge connection to the real world," Esch said. "It was amazing we were able to help a real person" instead of learning about something that was made up for the class, he said.

Students in the class learn about how devices for people with disabilities are made. They learned about boots for children who have trouble moving and using muscles. They looked at toys that help children with disabilities improve how they move.

The 30 students in Esch's class last year offered ideas for a pencil grip for Natalie. About one-third of the class turned in a drawing of a grip, Esch said.

### **Final Grip Is A Success**

Students made grips out of clay. Natalie tested each one. A computer program and a special printer led to the final grip, which is still being perfected.

The students used the process real-life engineers use each day, Esch said. "You go round and round until you get it perfect," he said.

The students are still trying to make it better, Esch said. They are also going to work on other ways to help children with special needs, he said.

Hunsicker said Natalie is still practicing and getting used to her new grip. She gets to decide whether or not to use it in class.

Natalie said she likes it a great deal.

"I feel happy," she said.

## Quiz

1 Read the following selection from the introduction [paragraphs 1-5].

*She was born with a condition called arthrogryposis. It means that some of her joints do not move as much.*

Based on this selection, choose the statement that is TRUE.

- (A) Natalie has a hard time moving her joints.
- (B) Natalie will never be able to move better than she can now.
- (C) Natalie cannot take medication for her condition.
- (D) Some of Natalie's joints can move better than others.

2 Which sentence from the article BEST supports the idea that the new pencil grip makes writing easier for Natalie?

- (A) Even though she has limits, Natalie feels good about things.
- (B) The pencil grip seems to make her want to do more, Castillo said.
- (C) It has a ring for her thumb and space for two fingers to rest on top.
- (D) Using a pencil in the grip, she has been finding her way through mazes on paper.

3 How did Curtis Esch become involved with making a special pencil grip for Natalie?

- (A) Jaimie Hunsicker asked him if he and his class could help.
- (B) Curtis Esch's students had heard about Natalie's condition and wanted to help.
- (C) Curtis Esch wanted to create a project to help people with disabilities.
- (D) Natalie's parents spoke to Curtis Esch because he teaches an engineering class.

4 HOW did students in Esch's class design a special pencil grip for Natalie?

- (A) by talking to Natalie about her condition, arthrogryposis
- (B) by learning about boots for children who have trouble moving their muscles
- (C) by looking at toys that help children with disabilities
- (D) by using a computer program and a special printer