



**2017 National Science Teacher's Association Outstanding Science Trade Book
2016-17 Alabama Camellia Children's Book Award reading list**

If you **JUMP** in Space. . .

Most spiders spin a web and passively wait for prey to come to them. Jumping spiders, by contrast, actively hunt by jumping to catch their food. What if a jumping spider was sent to the International Space Station? When it jumped, it would simply float. No one knew if the spider could hunt in a weightless environment.

This nonfiction picture book for elementary kids chronicles the amazing voyage of Nefertiti, the Spidernaut to the International Space Station and back. She's a *Phidippus johnsonii*, or Johnson jumping spider, native to western United States. Her colorful anatomy—red, black and teal—made for stunning photography and video. In 2012, Nefertitti clocked a record-breaking 100 days in space, during which time she circled Earth about 1584 times, traveling about 41,580,000 miles.

Astronaut Sunita Williams, Captain U.S. Navy said, "It was a suspense story for me as it happened. I didn't know if she would survive when I unpacked her for the first time, or when I packed her up and sent her back home to Earth."

This is an astonishing story of change: through the dark and cold, in spite of being weightless and isolated, this incredible spider adapted and learned to hunt. Against all odds, she survived to return to Earth, where she had to re-adapt to Earth's gravity. Nefertiti's story of survival brings hope that we, too, can adapt to a changing world.



DISCUSSION QUESTIONS

Science/History Related Questions

- Investigate the different types of spiders: jumping spiders, orb weavers, and so on. Discuss the habitat for each type of spider.
- Watch the video of Nefertiti learning to jump in space. bit.ly/NefertitiHunting. Write an observation of the video.
- Review the science of microgravity and zero gravity. For more, see bit.ly/NASAMicrogravity
- Read about Amr Mohammed, the Egyptian teen who proposed the experiment with a jumping spider in space. <http://bit.ly/MeetAmr>
- Read and discuss the information about designing a habitat for insects in space. Using the diagram on page p. 9, make a life-size model of the habitat. Discuss the limitations of the habitat in terms of size, food & water for the insects, light, and temperature. Watch the video describing the habitat: <http://bit.ly/SpiderHabitat>. Given the limitations of the habitat, design an experiment to send to space.
- The spider illustrations are anatomically correct. Choose one illustration and label the body parts of the spider.

Literary Related Questions

- The word, "spidernaut" is a made up word. Discuss how the word was created, by combining two words, spider and astronaut. Does the word make sense to you? What's the advantage of using such a made up word? Make up other words by combining two words.
- Discuss the difference in nonfiction and fiction stories. Use Nefertiti's story as inspiration for a fiction story. Your story might have a main character such as Amr Mohammed, the astronaut Sunita Williams, or another astronaut.
- The illustrator, Valeria Tisnes, is from Columbia in South America. She studied in the U.S., and has specialized in technical illustrations of animals. The spider illustrations are anatomically correct. Discuss the difference in illustrating animals and taking photos of the animals. For example, the video recordings from space were taken at a low resolution because of technology, and to limit bandwidth used. A book illustrated with photos was impossible. How does illustration make it possible to bring to life a story like this?