

BREAKTHROUGH:

HOW ONE TEEN INNOVATOR IS CHANGING THE WORLD

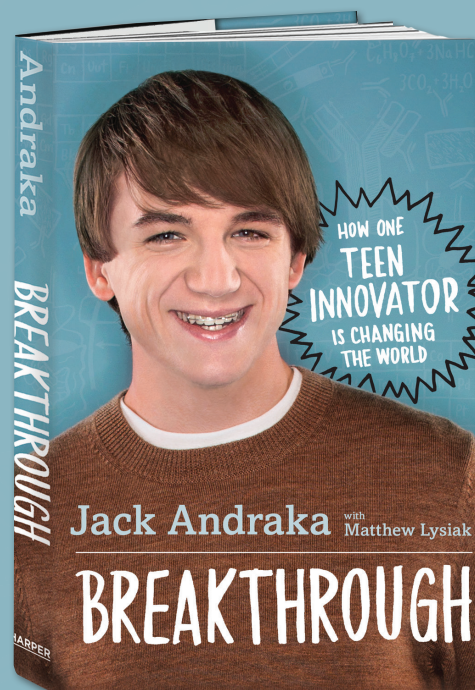
DISCUSSION GUIDE

BOOKTALK

Meet Jack Andraka, a fifteen-year-old scientist who created an early detection test for pancreatic, ovarian, and lung cancers that has the potential to be over four hundred times more effective than the medical standard and cost only three cents. Not only did he invent this test, but Jack also overcame depression and homophobic bullying while working on his project. Winning many prestigious awards for his science projects, Jack continues to search for research paths that will lead to other discoveries to change the world.

DISCUSSION QUESTIONS

1. How do Jack's parents encourage and support his interest in science?
What role does his brother, Luke, play in Jack's work as a scientist?
2. Why do students at Jack's middle school shun him for his success?
How does Jack respond to their treatment?
3. What events occur that lead to Jack's attempted suicide?
What could Jack have done to help himself overcome his depression?
4. Who are the people in Jack's life who help him accept himself for who he is? What do those people do to help Jack?
5. How does Jack deal with his uncle Ted's cancer and ultimate death? What impact does his uncle's death have on Jack? What advice does his uncle give Jack that he internalizes? How does that advice help Jack succeed?
6. How does Jack respond to all of the media attention? What are some of the highlights of Jack's appearances and trips as a result of his successful cancer test?



EXTENSION ACTIVITIES

The Chemistry of Anesthesia

Jack is fascinated with his mother's job as a nurse anesthetist. In small groups, ask students to research anesthesia and to use technology to graphically explain what occurs in the body as the anesthesia begins to put a person in a deep sleep. Ask students to include a listing of pharmaceuticals used, the length of the sleep and how it is controlled, and the risk factors involved. Have students prepare a display with their findings and ask other classes to come and visit the classroom displays.

What Is Cancer?

On page 88, Jack begins a search to understand what pancreatic cancer is and how it works. The first thing he researches is the pancreas and how it functions in the body. Ask students to select a cancer that attacks one of the major organs of the body and to follow Jack's example to understand the following: how the cancer attacks the organ, how the loss of the organ's function affects the body, the prognosis of beating the cancer, statistics about the specific organ cancer, and the possible avenues of treatment. Have students present their findings to the class and then work with school PTA or other school organizations to establish an awareness campaign for the public.

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