



## Lesson Summary

### *Hawking Discussion*

#### Overview:

In this lesson, students choose and discuss ideas from the *Hawking* biography video that are particularly meaningful to them. This discussion strategy is structured in a way that requires all students to participate as active speakers and listeners; both the typically quiet and active speakers will have equal footing. Organized and deliberate classroom discussions can help students practice the skills of collaborative conversations in which they listen to other's ideas, build on them, and express their own ideas clearly. The [Next Generation Science Standards](#) (NGSS) integrate scientific practices with cross-cutting concepts and disciplinary core ideas. Engagement in practices is language intensive and requires students to participate in classroom science dialogue. The practices offer rich opportunities and demands for language learning while advancing science learning for all students. Practice 8 of the Science and Engineering Practices in the NGSS is "Obtaining, Evaluating, and Communicating Information". This practice is at the center of this activity. Beyond integrating elements of speaking and listening, collaborative conversations can be used to help students debrief new information or organize their thoughts. The topics and amount of direction students receive in selecting discussion points can vary depending on content goals, experience, and prior knowledge.

#### Objective

- Understand specific scientific achievements and aspects of Stephen Hawking's life by engaging in collaborative dialogue with peers.

#### Suggested Time

- Two to three class periods

**Multimedia Resource:** [The Life and Research of Stephen Hawking \(21:29\)](#)

## The Lesson

#### Steps Outlined:

1. Introduce the *Hawking* biography video to students, explaining that they will be choosing an idea or section from the film that resonates or stands out for them. These ideas or sections will be the basis of a small group discussion of each student's selection. Examples might be sections on Stephen Hawking's overall life, his specific scientific achievements (Black Holes, the Big Bang theory, Hawking radiation, either separately or all three together), ALS (amyotrophic disease)



and its effect on Hawking and his work and/or personal life, or the use of technology to help Hawking do his work and communicate.

2. Distribute note cards for recording purposes.
3. Allow students to view the video and choose an idea or section they are interested in, writing this on their notecards. Encourage them to take notes on their idea or section as they watch the video. Since the video is relatively short, consider showing it a second time to the students so they can fully complete their notes.
4. Once the viewing is complete, ask students to note their reasoning for selecting the idea or section.
5. Have the students finalize their notes, perhaps on a second note card. Are the most important points of their topic clearly stated? Students do not need to have complete, in-depth information, but “just the basics”.
6. Divide students into groups of three, labeling one student A, one B, and the other C. Care might need to be given to see that the group does not contain students who all chose the same topic. Invite A’s to read their notes on their chosen idea or subject. Then ask students B and C to discuss the idea or subject for 3 -5 minutes. This is their opportunity to ask specific questions about the chosen topic. Examples of questions might include:
  - a. Why do they think this selection might be important?
  - b. If specific achievements of Hawking were discussed, how did the scientific community receive or respond to his work?
  - c. How did Hawking’s ALS affect his work and/or personal life?
  - d. If the topic was controversial, why was this?

After 3 -5 minutes, ask the Group A students to read their notes once again, with additions or clarifications from the discussions if they choose. Thus the Group A student has the “the last word.” This process continues with each student sharing and the remaining pair discussing.

**Variations:**

- Before having students form groups of three, have those students with the same or similar topics join together to go over their notes. This can be done in partners or larger groups depending on how many students chose the same topic. This can be an opportunity to clarify specific points or to add information that was missed originally.

Adapted From: Facing History and Ourselves. “Save the Last Word for Me.” Accessed April 19, 2013. <http://www.facinghistory.org/resources/strategies/save-last-word-me>



**Curricular Standards:**

[Next Generation Science Standards](#)

- HS- ESS1 Earth's Place in the Universe
- Practice 8 of the Science and Engineering Practices in the NGSS “Obtaining, Evaluating, and Communicating Information”

[Common Core State Standards for ELA](#)

- Anchor Standards for WRITING: 9
- Anchor Standards for SPEAKING AND LISTENING: 1, 3, 4