



Text Complexity Analysis of

How Cells Take Out the Trash (*title*)

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Recommended Complexity Band: 9-10

Qualitative Measures

Meaning/Purpose: (*Briefly explain the levels of meaning (Literary Text) or purpose (Informational Text.)*) At first glance, it appears the author's purpose is just to describe different ways that cells remove waste. But a closer look reveals that the author also wants to emphasize that the study of different ways cells dispose of waste could help researchers develop new approaches to keep cells healthy, and prevent or treat disease.

Text Structure: (*Briefly describe the structure, organization, and other features of the text.*) The text is broken up into different sections (with headings) that describe various ways a cell gets rid of waste. Each section ends with information about ways in which researchers are using the study of cellular waste removal in hopes of discovering new approaches to keeping cells healthy, and ways to prevent or treat disease. This aspect of each section feels a bit disjointed and may come as a surprise to students.

Language Features: (*Briefly describe the conventions and clarity of the language used in the text, including the complexity of the vocabulary and sentence structures.*) There are frequent uses of non-literal language (e.g., *garbage disposal, cell's janitorial services, recycling plant, gobble up viruses, spitting out garbage*) that increase the complexity of the text. There are also numerous domain-specific words (e.g., *cells, proteins, proteasome, organelles, lysosome, enzymes, cancer cells, aggregates*).

Knowledge Demands: (*Briefly describe the knowledge demands the text requires of students.*) Students will need to have a good understanding of cellular biology and the functions of cell organelles. They need to understand the different types of cell transport in order to make the connection between homeostasis and the movement of materials into and out of the cell. The article references diseases associated with cell waste, which adds some complexity to the text.

Text Description

Briefly describe the text: This informational text is designed to support reading in the content area. The text focuses on cellular waste and describes different ways a cell gets rid of waste. The text also briefly addresses how further study of the ways cells dispose of waste could lead to new approaches for preventing or treating disease.

Quantitative Measures

Complexity Band Level (provide range): 9-10 and 11-12

The text falls into the above grade bands according to a quantitative reading measure. It falls in the midrange of the 9-10 band and at the lower end of the 11-12 band.

Considerations for Reader and Task

Below are factors to consider with respect to the reader and task.

Potential Challenges this Text Poses:

Students who struggle with basic parts of the cell may not have a deep understanding of how cells get rid of waste and all of the processes involved. These concepts may need to be addressed before and during students reading of the text.

There are numerous domain-specific words that teachers would need to make sure students understand. A few include: cells, proteins, proteasomes, ubiquitin, Alzheimer's, cancer cells, organelles, lysosomes, enzyme, aggregate, exocytosis, and plaque. Some of these words would be part of a unit on the cell and cell organelles, while others would need to be discussed within the context of the article.

Recommended Placement

Briefly explain the recommended placement of the text in a particular grade band: The quantitative measure places this article at the 9-10 and 11-12 bands. In regard to qualitative measures and reader and task factors, the more complex aspects of the text involve the large numbers of domain-specific vocabulary, frequent use of non-literal language, and the degree of subject matter knowledge students will need to understand the text. In sum, this text is appropriately complex, and best suited, for the 9-10 band.