



# Text Complexity Analysis of

Drag-and-Drop DNA (title)

National Science Foundation (author)

**Recommended Complexity Band:** 11-12

## Qualitative Measures

**Meaning/Purpose:** (Briefly explain the levels of meaning (Literary Text) or purpose (Informational text.) The purpose of the passage is to inform the reader of a new process to make drugs that fight cancer. DNA sequences are used to manufacture custom molecules that hunt and kill the cancer cells. The passage also exemplifies how science must be supported monetarily through grants—in this case, a public agency (NSF) facilitates small and large private companies.

**Text Structure:** (Briefly describe the structure, organization, and other features of the text.) The text structure uses problem/solution and process. It identifies the problem of cancer and describes the process of creating drugs that kill cancer cells. Additionally, it describes the process by which public agencies can help private companies further technology and cures for cancer.

**Language Features:** (Briefly describe the conventions and clarity of the language used in the text, including the complexity of the vocabulary and sentence structures.) The language is clear but complex. There are some compound sentences, but the article is not overwhelmed with them. There are many domain-specific words and academic terms; see reader and task considerations for specific examples.

**Knowledge Demands:** (Briefly describe the knowledge demands the text requires of students.) Students should know that DNA is a self-replicating molecule and have an idea for how small nanoscale objects are. A well-developed vocabulary is needed because of the advanced non-domain specific vocabulary present in the passage.

## Text Description

### Briefly describe the text:

This informational text is intended to support reading in the content area. It informs readers of how cutting edge nanotechnology is being combined with supercomputing and drug production. The new process it describes uses unique algorithms to search for DNA sequences that will self-assemble molecules tailored to locate, attach, and kill cancer cells. The passage also is a good example of how public agencies can support private-sector entities through various grants.

## Quantitative Measure

**Complexity Band Level** (provide range): Above 11-12

The text falls in the above grade band according to quantitative reading measure.

## Considerations for Reader and Task

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

### Potential Challenges this Text Poses:

The main challenges in this text come from its use of complex vocabulary (*proprietary, optimizes, concurrently, fabrication*) in addition to domain-specific vocabulary terms (*interface, algorithms, nanotechnology*). Besides the complex vocabulary, the actual process of making the drugs is sprinkled in different areas of the text, so students will have to hunt for the information about that process. Monetary support for the scientific research is also intermingled throughout the text. Students will get more out of the article if they have some background knowledge on nanotechnology, DNA, and computer terminology.

## Recommended Placement

**Briefly explain the recommended placement of the text in a particular grade band.**

This passage should be appropriate for 11-12 grade readers with proper scaffolding. The complex domain-specific and academic vocabulary adds to the difficulty of the text.