

THINKING  
LIKE A  
SCIENTIST

Supporting Questions  
For the Frame

## STAGE A

### 1. Who is the author?

### STAGE B—Text:

Following the model on page 79, insert the specific, aligned CCSS for the lesson.

Then, select complex texts aligned with the rigor of learning expected in the identified CCSS.

Formulate text-specific questions aligned with the complexity of the texts. Questions may include the following two questions:

- ▶ What scientific questions of high cognitive demand are raised by this text?
- ▶ What scientific dilemma is related to the text?

2. What scientific expertise does the author have?

4. What do I predict will be the author's message?

3. What areas of scientific research form the backdrop of this text?

## Exhibit 7.11—Reading Like a Scientist Subtext Guide



### Stage C

*What scientific question or dilemma should be explored further?*

How could this question be researched further?



### Stage C

Describe a *thought experiment* (writing a thought about a possible experiment design) that can be developed to answer the question or resolve the dilemma.



### Stage D

*How is the answer to this scientific question likely to impact my life or the lives of others?*



### Stage D

How might the resolution of this scientific dilemma impact my life or the lives of others?

## Stage A

Using the “**context frame for science**” (Exhibit 7.10), read the questions in **Stage A** that are located on each side of the frame.

Beginning with number 1, respond to the question, “Who is the author?” Write your response directly on the context frame in the space under number 1. Consider the supporting questions below in your responses:

**1. Who is the author?** (top of the frame): Why do I believe the author is qualified to write on this topic or issue?

- How does the author assure the reader of his or her commitment to the topic or issue?
- What primary sources does the author cite to ground the text?
- How does the reader know the author is honest and ethical?

**2. What scientific expertise does the author have?**

- What connection does the author have with the topic or issue?
- What research on the topic or issue did the author present to support his or her work?
- What conclusions has the author drawn from research and knowledge on the topic or issue supported by other researchers, projects, or organizations?
- What articles by the same author should be investigated to verify the author’s credentials?
- What articles can be found that criticize or are unsupportive of this text?

- What causes me to believe the knowledge contained in this text is relevant to the field?
- How does the author of this text identify his or her bias on the topic or issue?
- What group or person is funding the primary research?
- Does the author have a commercial interest in the sale or development of the research?

**3. What areas of scientific research form the backdrop of this text?**

- Can I determine if the research mentioned in the text is the original work?
- What primary research supports the progression of projects?
- Is there research from other laboratories or institutions on the same topic or issue?
- What connections does the research have to other fields of study?
- What does the research validate about the expansion of the field?
- What theories have been posed and proven as a result of this research?

**4. What do I predict will be the author’s message?**

- What new information will I gain from the author’s research?
- How can I apply this research to support my current thinking on the topic or issue?
- How will the author’s message change my life?
- What will the author provide that is missing from my life?

## Stage B

Following the model on page 79, insert the specific, aligned CCSS for the lesson.

Then, select complex texts aligned with the rigor of learning expected in the identified CCSS.

Formulate text-specific questions aligned with the complexity of the texts. Consider the additional supporting questions below in your response:

### What scientific questions are raised by this text?

- What explicit message is the author, through the research, attempting to present?
- What implicit message is the author attempting to present?
- Why is either message important to the reader in the present?
- How will the research impact my daily life?
- What can happen in the short term if the research proves to be valid?
- What will the long-term economic consequences be if the research is successful?
- What will the long-term health benefits be?

### What scientific dilemma is related to the text?

- Did the author convey to the reader the consequences of implementing the research?
- Did the form of the text enhance the reader's ability to understanding the dilemma of the research?
- How might the author of the research present the results of the research in a different medium?
- How does the text explore the possible consequences of not adopting and implementing the research?
- How does the text explore and explain the possible negative consequences of adopting and implementing the research?

Now that we have completed the first two stages in the Four-Stage Model for Text Investigation by thinking critically about the context and text in Stages A and B, the adolescent reader must now *engage* with the text by *inferring* connections, developing scientific questions, and describing a thought experiment (writing a thought about a possible experiment design). The next two stages—**Stage C**, the impersonal subtext, and **Stage D**, the personal subtext—produce the reader's personal meaning.

## Stage C

Using the, "**subtext guide for reading like a scientist (Exhibit 7.11)**, read the questions in **Stage C** that are located inside the boxes.

Beginning with **Stage C**, respond to the questions. Write your response directly on the subtext guide in the space under Stage C. Then move to the next question. Consider the supporting questions below in your response:

### What scientific question or dilemma should be explored further? How could this question be researched further?

- Describe the connections between your question and a need for additional research.

### Describe a thought experiment (writing a thought about a possible experiment design) that can be developed to answer the question or resolve the dilemma.

- What other people's thought experiments have you heard about?

## Stage D

### How is the answer to this scientific question likely to impact my life or the lives of others?

- Would the impact on life be positive? How?
- Would some people consider the impact to be negative? Why?

### How might the resolution of this scientific dilemma impact my life and the lives of others?

- What additional future impact could occur?