



EXPEDITIONARY
LEARNING

Grade 7: Module 4A: Unit 1: Lesson 5

Mid-Unit Assessment: Development of the Young Brain



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Long-Term Targets Addressed (Based on NYSP12 ELA CCLS)

- I can compare and contrast different media versions of informational text. (RI. 7.7)
- I can analyze impact of the techniques unique to each medium. (RI.7.7)
- I can analyze the main ideas and supporting details presented in different media and formats. (SL. 7.2)
- I can explain how ideas presented in different media and formats clarify a topic, text or issue. (SL. 7.2)

Supporting Learning Targets

- I can analyze the main idea and supporting ideas/details in “Development of the Young Brain.”
- I can compare the text and video of “Development of the Young Brain.”
- I can explain how the ideas presented in the video clarify my understanding of the adolescent brain.

Ongoing Assessment

- Homework: Summarizing Main Idea and Supporting Details (from Lesson 4)
- Mid-Unit 1 Assessment
- Analyzing the Main Idea and Supporting Details: Partner Practice



| Agenda | Teaching Notes |
|--|---|
| <ol style="list-style-type: none"> 1. Opening <ol style="list-style-type: none"> A. Preliminary Viewing of Video (5 minutes) 2. Work Time <ol style="list-style-type: none"> A. Practicing with a Partner (15 minutes) B. Mid-Unit Assessment (25 minutes) 3. Closing and Assessment <ol style="list-style-type: none"> A. None 4. Homework <ol style="list-style-type: none"> A. Complete the Homework: Summarize Your Learning. Also read Excerpt 1 of “The Digital Revolution and the Adolescent Brain Evolution.” Complete neurologist’s notebook #5. | <ul style="list-style-type: none"> • This lesson is the Mid-Unit 1 Assessment, which centers on SL.7.2 and RI. 7.7. Students view a video and analyze the main idea and supporting details. Students are given an opportunity to practice with a partner before the assessment begins. • Note that students watch the same video “Development of the Young Brain” for both their practice and the assessment. <ul style="list-style-type: none"> – Clip 1 00-1:30: Practice with a partner (Work Time A) – Clip 2 1:30-3:34 to assess SL.7.2 (main idea in diverse media) – Clip 3 3:34-4:50 to assess RI.7.7 (comparing text to video) • The next half of Unit 1 moves on to how brain science relates to the digital revolution. Use the “Summarize Your Learning” assigned for Lesson 5 homework as a way to identify struggling students who may need some additional instruction to understand the basics of brain development. This is necessary foundational learning that they will need to be successful throughout the remainder of this unit as well as Units 2 and 3. • Also for homework, students read the first excerpt of “The Digital Revolution and Evolution of the Adolescent Mind.” This text explores central questions of the module such as: How does the amount of time a teenager spends on screen change her brain? Can the brain adapt to the new digital environment? Will teenagers be able to learn vital social skills if they socialize increasingly online? Will the brain become so accustomed to artificially high levels of dopamine that the “real world” no longer holds its interest? Because this text grapples with these important questions while still being grounded in brain science, it is an important bridge between the texts about neuroscience in Unit 1 and the argument texts in Unit 2. (You may want to familiarize yourself with the entire text as it explores all the different facets of the issue of screen time and adolescent brain development. A link to the full text is provided in the Module Overview.) |



| Agenda | Teaching Notes (continued) |
|--------|--|
| | <ul style="list-style-type: none">• “The Digital Revolution and the Adolescent Brain Evolution” is a challenging text. Reading complex texts with the proper scaffolding can increase students’ intellectual stamina. In the homework from this lesson they have an opportunity to grapple with this complex text in a highly supported manner. To decrease any anxiety that students may have, explain that tonight’s homework will begin the second half of Unit 1 where they will learn more about the effects of digital media on the brain. This homework builds off of the ideas presented in the video today. The homework is a chance to challenge themselves to get the gist of a very difficult text. They should focus on getting the main idea and not worry about the details. Assure them that this homework is not part of an assessment and they will not be penalized for any wrong answers but you’re confident they can find the main idea. Continue to reinforce that complex text needs to be read multiple times.• The overall grading system and the date of return of this assessment have been left to your discretion. The more quickly an assessment is returned, the more useful the feedback is to the students.• In advance:<ul style="list-style-type: none">– Prepare the materials for the assessment, including the projector and cuing up the video. You may find the video here: http://www.nimh.nih.gov/media/video/giedd.shtml.– Determine pairs for Work Time A.• Post: Learning targets. |



| Lesson Vocabulary | Materials |
|-------------------|---|
| None | <ul style="list-style-type: none"> • Video: “Development of the Young Brain” (http://www.nimh.nih.gov/media/video/giedd.shtml.) (see Teaching Notes) • Digital projector • Analyzing the Main Idea and Supporting Details: Partner Practice (one per student) • Analyzing the Main Idea and Supporting Details: Partner Practice (answers, for teacher reference) • Mid-Unit 1 Assessment: Analyzing “Development of the Young Brain” (one per student) • Mid-Unit 1 Assessment: Analyzing “Development of the Young Brain” (answers, for teacher reference) • Homework: Summarize Your Learning (one per student) • Excerpt 1 of “The Digital Revolution and the Adolescent Brain Evolution” (one per student) • Neurologist’s notebook #5 (one per student) • Neurologist’s notebook #5 (answers, for teacher reference) |

| Opening | Meeting Students’ Needs |
|--|-------------------------|
| <p>A. Preliminary Viewing of Video (5 minutes)</p> <ul style="list-style-type: none"> • Collect the Homework: Summarizing Main Idea and Supporting Details from Lesson 4. • Ask a student to read today’s learning targets: <ul style="list-style-type: none"> * “I can analyze the main idea and supporting details in ‘Development of the Young Brain.’” * “I can compare the text and video of ‘Development of the Young Brain.’” * “I can explain how the ideas presented in the video clarify my understanding of the adolescent brain.” • Explain to students that today they will analyze the main idea and supporting details in a video. Instead of finding a main idea of the whole video, they will be assessed on their ability to find the main idea and supporting details on a specific clip from the video. Assure them that the process of finding the main idea is the same. To prepare, they will watch the entire 4:50 minutes of video once to get an overall sense of the gist. • Play the full video “Development of the Young Brain” one time through. | |



| Work Time | Meeting Students' Needs |
|--|--|
| <p>A. Practicing with a Partner (15 minutes)</p> <ul style="list-style-type: none"> • Arrange students in pairs. • Distribute Analyzing the Main Idea and Supporting Details: Partner Practice. Ask a student to read the directions aloud. Clarify as needed. • Play the first clip of the video, stopping at 1:30. • Instruct students to work in pairs to find the main idea and answer the questions. • After a few minutes, refocus the whole group. Play the video a second time, again stopping at 1:30. • Invite the students to amend their thinking from the first viewing. • Ask groups to share out. Answer any misunderstandings or confusion that surfaces. • Direct students to return to their seats. | <ul style="list-style-type: none"> • Allowing students to discuss with a partner before writing or sharing with the whole class is a low-stress strategy to help them process in a risk-free situation. |
| <p>B. Mid-Unit Assessment (25 minutes)</p> <ul style="list-style-type: none"> • Tell students that the mid-unit assessment is about to begin. Explain that now they will work independently to find the main idea of a new clip from “Development of the Young Brain.” • Distribute the Mid-Unit 1 Assessment: Analyzing “Development of the Young Brain.” Instruct students to begin on Part I. • After a few minutes, play the second clip of video (from 1:30 to 3:34). • Give students a few minutes to begin filling out the chart. • After 3 minutes, play the second video clip again. Be sure to stop at 3:34. • Tell students to complete Part II and Part III. • After 5 minutes, refocus the whole class. • Ask students to read along silently as you read the transcript of the video found in Part IV of the assessment. • Then play the third video clip (starting at 3:34 and continuing to the end). • Play the third video clip one last time (starting at 3:34 and continuing to the end). • Instruct students to finish Parts IV and V. | <ul style="list-style-type: none"> • You may wish to play the video more than twice, depending on the needs of your students. |



| Work Time (continued) | Meeting Students' Needs |
|---|-------------------------|
| <ul style="list-style-type: none">As they complete the assessment, distribute Excerpt 1 of “The Digital Revolution and the Adolescent Brain Evolution,” neurologist’s notebook #5, and Homework: Summarize Your Learning.Students who finish early may move on to the homework. | |

| Closing and Assessment | Meeting Students' Needs |
|--|-------------------------|
| (None) | |
| Homework | Meeting Students' Needs |
| <ul style="list-style-type: none">Complete the Homework: Summarize Your Learning. Also read Excerpt 1 of “The Digital Revolution and the Adolescent Brain Evolution.” Complete neurologist’s notebook #5. | |



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Grade 7: Module 4A: Unit 1: Lesson 5

Supporting Materials



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Analyzing the Main Idea and Supporting Details:
Partner Practice

Name:

Date:

Directions: With a partner, identify the main idea and supporting details of the first video clip.

| | |
|---|------------------------|
| Name of the Video: Development of the Young Brain 00–1:30 | |
| Author or Presenter: Jay Giedd, MD | |
| Speaker's main idea | |
| Supporting idea/detail | Supporting idea/detail |
| Supporting idea/detail | Supporting idea/detail |
| Supporting idea/detail | |



Analyzing the Main Idea and Supporting Details:
Partner Practice

1. What are two ways the brain of a teenager develops differently from the brain of a younger child?
(SL. 7.2)

2. According to Dr. Giedd, what determines which synapses (or brain connections) are reinforced and which are pruned? (SL. 7.2)

3. How could the video have explained and/or shown Dr. Giedd's "gardening metaphor" ("The brain can grow extra connections, sorta like branches, twigs, and roots, to use a gardening metaphor") to make what he is saying easier to understand? (RI. 7.7)



Analyzing the Main Idea and Supporting Details in Video:
Partner Practice
(Answers, For Teacher Reference)

Name: _____

Date: _____

Directions: With a partner, identify the main idea and supporting details of the first video clip.

Answers will vary.

| | |
|---|---|
| Name of the Video: Development of the Young Brain 00–1:30 | |
| Author or Presenter: Jay Giedd, MD | |
| Speaker’s main idea The adolescent brain grows and develops in a different way from that of young children. | |
| Supporting idea/detail Early in life, there is growth in the auditory and visual centers of the brain as the child is discovering the world around him/her. | Supporting idea/detail In adolescence, the key changes are in the front part of the brain—for reasoning and judgment. |
| Supporting idea/detail Even though the physical size of the brain is nearly complete, the brain is changing in important ways. | Supporting idea/detail The brain is branching, growing roots; and it’s also pruning. |
| Supporting idea/detail It’s pruning according to what is the most used in our environment. | |



Analyzing the Main Idea and Supporting Details in Video:
Partner Practice
(Answers, For Teacher Reference)

1. What are two ways the brain of a teenager develops differently from the brain of a younger child? (SL. 7.2)

Unlike the child’s brain, the frontal part of the teen’s brain is growing and developing. Also, it is not growing in physical size, but it is growing extra connections and pruning other connections.

2. According to Dr. Giedd, what determines which synapses (or brain connections) are reinforced and which are pruned? (SL.7.2)

The connections that are most useful to helping us adapt in our environment are the ones that are reinforced.

3. How could the video have explained and/or shown Dr. Giedd’s “gardening metaphor” (“The brain can grow extra connections, sorta like branches, twigs, and roots, to use a gardening metaphor”) to make what he is saying easier to understand? (RI. 7.7)

Answers will vary. Students may say an image of a tree with roots growing or branches being pruned would have been useful.



Mid-Unit 1 Assessment:
Analyzing “Development of the Young Brain”

Name:

Date:

Part I: My Current Thinking

What are the ways that the teen brain is growing and changing?

Part II: Informational Video Clip

Directions: Watch the second clip of the video carefully. Then fill in the chart below. You will watch the clip twice. (SL.7.2)

| | |
|---|------------------------|
| Name of the Video: Development of the Young Brain 1:30–3:30 | |
| Author or Presenter: Jay Giedd, MD | |
| Main idea | |
| Supporting idea/detail | Supporting idea/detail |
| Supporting idea/detail | Supporting idea/detail |
| Supporting idea/detail | |



Mid-Unit 1 Assessment:
Analyzing “Development of the Young Brain”

Part III: Multiple Choice

Directions: Please read the questions and choose the best answer below.

1. Why does Dr. Giedd cite the statistic that an average adolescent spends about 11.5 hours on some type of media per day and that’s up from 6.5 hours just five years ago? (SL.7.2)
 - a. to prove that children waste a lot of time on media devices
 - b. to illustrate his point that the activities of children have changed rapidly in recent years
 - c. to prove that more experiments are needed to see what happens when we multitask
 - d. to illustrate that kids spend a lot of time on media

2. Why does Dr. Giedd compare reading to the new flood of information that a child’s brain must process today? (SL. 7.2)
 - a. to prove that just as the human brain adapted to reading, the brain may be able to adapt to the new information
 - b. to prove that children are reading less and that’s a problem
 - c. to prove that if a child can learn to read, a child can handle all the new information easily
 - d. to prove that human beings are used to reading information

3. Which of these questions did Dr. Giedd NOT raise in this section? (SL.7.2)
 - a. What’s the impact of technology on the brain? For good and for bad?
 - b. Will the brain of a “digital native” be different from that of an older person?
 - c. What are the limitations of the brain’s ability to adapt?
 - d. What makes the brain “prune” or “branch”?



Mid-Unit 1 Assessment:
Analyzing “Development of the Young Brain”

Part IV: Comparing Text to Video

Clip 3:34–4:50

Directions: Please read the transcript of the clip below. Then wait for the teacher to play the video. After viewing the video, answer the question.

Announcer: So, what was the human brain originally developed to do? Well, Dr. Giedd says our brains are fundamentally designed to learn through example.

Giedd: This learning by example is very powerful and that parents are teaching even when they don't realize they're teaching, just by how they handle everyday aspects of their life. How they treat each other as spouses. How they talk about work. When they get stuck in traffic. How they manage their time and their emotions. And this is how most of the teaching is done. It's not when you sit down at these special moments and have a conversation. It's the everyday moments that really have a huge impact on how the brain forms and adapts.

Announcer: Through the work of Dr. Giedd and his colleagues, we've learned so much about the development of the adolescent brain. But researchers like Dr. Giedd may be entering a new golden age of research as these so-called digital natives lead us to new findings in the ever-evolving childhood brain.

1. How was watching the video different from reading the text?

2. Were the videos images effective? Why or why not?

3. What other images might reinforce the content of this video?



Mid-Unit 1 Assessment:
Analyzing “Development of the Young Brain”

Part V: Clarifying My Thinking

How did the video you watched today clarify your thinking about the developing adolescent brain?



Mid-Unit 1 Assessment:
Analyzing “Development of the Young Brain”
(Answers, For Teacher Reference)

Name: _____

Date: _____

Part I: My Current Thinking

What are the ways that the teen brain is growing and changing?

Answer will vary.

Part II: Informational Video Clip

Directions: Watch the second clip of the video carefully. Then fill in the chart below. You will watch the clip twice. (SL.7.2) **Answers will vary.**

| | |
|---|---|
| Name of the Video: Development of the Young Brain 1:30–3:30 | |
| Author or Presenter: Jay Giedd, MD | |
| Main Idea <i>(Answers will vary.)</i> The human brain is being challenged by multimedia devices and the new way we get information. Because of our history of adaptation, we can be hopeful that our brains will adapt to these dramatic changes. | |
| Supporting idea/detail The way we get information and interact with one another has changed dramatically in the past 10 years. | Supporting idea/detail It’s hard for researchers to study the effects of these changes because they happen so quickly. |
| Supporting idea/detail So far it seems the brain is adapting well. | Supporting idea/detail Because the brain adapted well to other shifts in the past (like reading), we can be hopeful our brains will adapt to this change as well. |
| Supporting idea/detail There are limitations to how much our brains can adapt so it will be interesting to see how this adaptation occurs. | |



Mid-Unit 1 Assessment:
Analyzing “Development of the Young Brain”
(Answers, For Teacher Reference)

Part III: Multiple Choice

Directions: Please read the questions and choose the best answer below.

1. Why does Dr. Giedd cite the statistic that an average adolescent spends about 11.5 hours on some type of media per day and that’s up from 6.5 hours just five years ago? (SL.7.2)
 - a. to prove that children waste a lot of time on media devices
 - b. to illustrate his point that the activities of children have changed rapidly in recent years**
 - c. to prove that more experiments are needed to see what happens when we multitask
 - d. to illustrate that kids spend a lot of time on media

2. Why does Dr. Giedd compare reading to the new flood of information that a child’s brain must process today? (SL. 7.2)
 - a. to prove that just as the human brain adapted to reading, the brain may be able to adapt to the new information**
 - b. to prove that children are reading less and that’s a problem
 - c. to prove that if a child can learn to read, a child can handle all the new information easily
 - d. to prove that human beings are used to reading information

3. Which of these questions did Dr. Giedd NOT raise in this section? (SL.7.2)
 - a. What’s the impact of technology on the brain? For good and for bad?
 - b. Will the brain of a “digital native” be different from that of an older person?
 - c. What are the limitations of the brain’s ability to adapt?
 - d. What makes the brain “prune” or “branch”?**



Mid-Unit 1 Assessment:
Analyzing “Development of the Young Brain”
(Answers, For Teacher Reference)

Part IV: Comparing Text to Video

Clip 3:34–4:50

Directions: Please read the transcript of the clip. Then wait for the teacher to play the video. After viewing the video, answer the question.

Announcer: So, what was the human brain originally developed to do? Well, Dr. Giedd says our brains are fundamentally designed to learn through example.

Giedd: This learning by example is very powerful and that parents are teaching even when they don't realize they're teaching, just by how they handle everyday aspects of their life. How they treat each other as spouses. How they talk about work. When they get stuck in traffic. How they manage their time and their emotions. And this is how most of the teaching is done. It's not when you sit down at these special moments and have a conversation. It's the everyday moments that really have a huge impact on how the brain forms and adapts.

Announcer: Through the work of Dr. Giedd and his colleagues, we've learned so much about the development of the adolescent brain. But researchers like Dr. Giedd may be entering a new golden age of research as these so-called digital natives lead us to new findings in the ever-evolving childhood brain.

1. How was watching the video different from reading the text?

Answers will vary.

2. Were the images effective? Why or why not?

Answers will vary. It is likely the students will say no because the children were playing kickball, which doesn't really reinforce the idea that children learn by example or by watching their parents.

3. What other images might reinforce the content of this video?

Answers will vary.



Mid-Unit 1 Assessment:
Analyzing “Development of the Young Brain”
(Answers, For Teacher Reference)

Part V: Clarifying My Thinking

How did the video you watched today clarify your thinking about the developing adolescent brain?

Answers will vary.



Excerpt 1 of “The Digital Revolution and the Adolescent Brain Evolution”

Directions: Please read the excerpt below. Use the column on the right to guide your thinking. Then complete neurologist’s notebook #5.

| From “Introduction” | Gist Notes and Vocabulary |
|--|--|
| <p>The way adolescents of today learn, play, and interact has changed more in the past 15 years than in the previous 570 since Gutenberg’s popularization of the printing press. The Internet, iPads, cell phones, Google, Twitter, Facebook, and other modern marvels unleash a virtual gusher of information to the plugged-in teen brain.</p> | <p>This paragraph articulates the main idea.</p> |
| <p>In 2010, U.S. adolescents spent an average of 8.5 hours per day interacting with digital devices, up from 6.5 hours in just 2006. Thirty percent of the time they are simultaneously using more than one device, bringing daily total media exposure time to 11.5 hours. These numbers are a moving target and vary by survey, socioeconomic status, ethnicity, and geography, but all indications are that the amount of screen time has been dramatically increasing and is likely to continue to do so as the technology improves and becomes even more widely available.</p> | <p>This paragraph lists lots of evidence. Use the last sentence to help you sum it up.</p> |
| <p>The pace of “penetration” (i.e., the amount of time it takes for a new technology to be used by 50 million people) is unprecedented. For radio, technological penetration took 38 years; for telephone, 20; for television, 13; for the World Wide Web, 4; for Facebook, 3.6 years; for Twitter, 3 years; for iPads, 2 years; and for Google+, 88 days.</p> | <p>This paragraph is the opposite of the last paragraph. The summation is first, and then the author lists examples as evidence.</p> |



Excerpt 1 of “The Digital Revolution and the Adolescent Brain Evolution”

| From “Introduction” | Gist Notes and Vocabulary |
|---|--|
| <p>The pace and pervasiveness of these changes, i.e., the digital revolution, raise several questions relevant to adolescent health—relevance that extends to children, teens, parents, teachers, and society at large. What are the implications, for good or ill, of the dramatic changes in the way adolescents spend their time? How can the technology be harnessed to optimize the positive and minimize the negative? Might the unprecedented rate of change itself overwhelm adaptive mechanisms?</p> | <p>The author lists lots of questions. How can you sum up this idea?</p> |
| <p>The digital revolution gives us unique insight how experience shapes the brain, and, in turn, how these brain changes may change our experience. Consideration of the neurobiology and evolutionary history of the adolescent brain may provide some context to explore these questions.</p> | <p>This one is done for you on the note-catcher.</p> |

- **Gutenberg’s popularization of the printing press**—Johannes Gutenberg invented the machine that made printing pages automatic. This meant that reading material became more widely available and therefore more people learned to read.
- **socioeconomic status**—One’s socioeconomic status is determined by how much money one has.
- **unprecedented**—If something is unprecedented, nothing like it has happened before.
- **pace and pervasiveness**—Restated as “how quickly and how much things have changed for a lot of people.”
- **adaptive mechanisms**—These are the things a human or animal does to adapt to its environment.

Geidd, Jay N., M.D. "The Digital Revolution and Adolescent Brain Evolution." National Center for Biotechnology Information. National Institute of Health, 5 Aug. 2012. Web. <<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3432415/>>



Neurologist's Notebook #5:

Excerpt 1 of "The Digital Revolution and the Adolescent Brain Evolution"

Name:

Date:

Directions: Use this note-catcher to get the gist of the reading. Remember that the main idea and supporting idea/details are often not just a single sentence of the text; rather, they may involve multiple sentences.

| | |
|---|-------------------------|
| Main idea: | |
| Brief background: There is no background in this excerpt. | Supporting idea/detail: |
| Supporting idea/detail: | Supporting idea/detail: |
| Supporting idea/detail: The "digital revolution" is a chance to see how well humans adapt to a radical new environment. Looking at the neurobiology of the teen brain and the way it has adapted in the past may be helpful to understand how it will react. | |



Neurologist’s Notebook #5:

Excerpt 1 of “The Digital Revolution and the Adolescent Brain Evolution”
(Answers, For Teacher Reference)

Directions: Use this note-catcher to get the gist of the reading. Remember that the main idea and supporting details are often not just a single sentence of the text; rather, they may involve multiple sentences.

| | |
|--|--|
| <p>Main idea: Modern teens learn, play, and interact in ways that are much different from any teenager who has lived in the past 500 years.</p> | |
| <p>Brief background: There is no background in this excerpt.</p> | <p>Supporting idea/detail: The thing that is different today is the amount of screen time that teenagers spend on digital devices. It is a lot of time.</p> |
| <p>Supporting idea/detail: Also, a lot of people use devices almost as soon as they come out.</p> | <p>Supporting idea/detail: This much rapid change brings up a lot of questions. Will this be a good thing for the teen brain?</p> |
| <p>Supporting idea/detail: The “digital revolution” is a chance to see how well humans adapt to a radical new environment. Looking at the neurobiology of the teen brain and the way it has adapted in the past may be helpful to understand how it will react.</p> | |