



EXPEDITIONARY
LEARNING

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

Analyzing the Main Idea in Video: Understanding the Limbic System



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

- 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)
- I can analyze impact of the techniques unique to each medium. (RI.7.7)
- I can adjust my writing practices for different timeframes, tasks, purposes, and audiences. (W.7.10)

Supporting Learning Targets

- I can analyze the main ideas and supporting idea/details in “Insight into the Teenage Brain.”
- I can explain how the different aspects of a presentation contribute to my understanding.
- I can explain how ideas presented in “Insight into the Teenage Brain” clarify my understanding of the brain.
- I can summarize the main idea and supporting details in a well-explained paragraph.

Ongoing Assessment

- Thinking Logs



Agenda	Teaching Notes
<p>1. Opening</p> <p>A. Entry Task: Thinking Log (5 minutes)</p> <p>2. Work Time</p> <p>A. Analyzing Main Idea in Video (33 minutes)</p> <p>3. Closing and Assessment</p> <p>A. Exit Ticket: Thinking Log (7 minutes)</p> <p>4. Homework</p> <p>A. Using your neurologist’s notebook as a resource, complete the Homework: Summarizing Main Idea and Supporting Details.</p>	<ul style="list-style-type: none">• This lesson focuses on SL.7.2, a standard that students have not worked with in other modules. Although analyzing the main idea and supporting details is not a new skill, applying it to the video they watch in this lesson adds a new dimension. Students’ familiarity with the neurologist notebook will help them with their work on this new standard because it is structurally the same as the Main Ideas and Supporting Details note-catcher, which they use in this lesson (applied to video).• Play the video all the way through once before you begin analyzing the main idea and supporting details. This will be particularly important for your ELL and struggling students.• Building off Lesson 3, students will continue to do some RI.7.7 work and think about how images influence their understanding of text.• In addition to explaining more about the limbic system, the video in this lesson helps to balance the information the students have learned about the brain. Many of the articles they have read so far focus on the negative aspects of the adolescent brain (impulsive, risk-taking, unable to make wise decisions in an emotionally charged situation, etc.). Today’s lesson emphasizes the positive. As Dr. Galván says, the teen brain, with its built-in desire to seek out risks and rewards, is perfectly suited to the central task of adolescence—breaking away from caregivers.• Review Work Time A carefully to envision students’ work with the text and video, and consider how to manage the logistics smoothly.• Students add to their Thinking Logs for both the entry ticket and exit ticket. Be sure those are accessible.• For homework, students will return to their neurologist’s notebooks and write a summary. To give them more options to work from, do not collect neurologist’s notebook #4 (their homework from the previous lesson) and be sure to return any entries you collected in Lessons 2 or 3. The purpose of this homework is twofold: First, it will help students review the complex information on brain development they have learned so far; second, it will help them grapple with main ideas and supporting details before they are assessed on this skill in the mid-unit assessment in the next lesson.• Look ahead to the mid-unit assessment in the next lesson and prepare any necessary materials.



Agenda	Teaching Notes (continued)
	<ul style="list-style-type: none">• In advance:<ul style="list-style-type: none">– Preview the video and try filling in the note-catcher yourself. This will make the discussion in Work Time A more productive.– Review the Insight into the Teen Brain Teaching Guide, which you will use to guide students through Work Time A.– Ready the video: http://tedxtalks.ted.com/video/Insight-Into-the-Teenage-Brain;search%3Atag%3A%22tedxyouth-caltech%22. (Galvan, Adriana. "Insight Into the Teenage Brain." February 13, 2013. Online video. TEDxhttp://tedxtalks.ted.com/video/Insight-Into-the-Teenage-Brain;search%3Ateenage%20brain%20adriana%20g.)• Post: Learning targets, entry task.



Lesson Vocabulary	Materials
dopamine, striatum	<ul style="list-style-type: none">• Thinking Logs (begun in Lesson 2)• Domain-Specific Vocabulary anchor chart (begun in Lesson 1)• Model Domain-Specific Vocabulary anchor chart (for teacher reference)• Brain Development anchor chart—student version (begun in Lesson 2)• Document camera• Analyzing the Main Idea and Supporting Details in Video note-catcher (one per student and one for display)• “Insight into the Teenage Brain” TedX Talk featuring Dr. Adriana Galván (video; http://tedxtalks.ted.com/video/Insight-Into-the-Teenage-Brain;search%3Atag%3A%22tedxyouth-caltech%22)• Technology to display video• “Insight into the Teen Brain” Teaching Guide (for teacher reference)• Model Analyzing the Main Idea and Supporting Details in Video note-catcher (for teacher reference)• Comparing Text to Video (one to display)• Model Brain Development anchor chart (for teacher reference)• Brain Development anchor chart (begun in Lesson 2)• Homework: Summarizing Main Idea and Supporting Details (one per student)



Opening	Meeting Students' Needs
<p>A. Entry Task (5 minutes)</p> <ul style="list-style-type: none">• Post the entry task in advance:<ul style="list-style-type: none">* “Please retrieve your Thinking Logs and fill out the entry under Lesson 4, “What You Should Know about Your Brain.”• After students have completed the task, cold call several of them to share their thinking about the questions:<ul style="list-style-type: none">* “Dr. Willis says that when you stimulate neuron pathways over and over again, they become stronger. As she says, ‘Practice makes permanent.’ What implications does this have for the kinds of activities that teens do repeatedly?”* “What else are you wondering about the adolescent brain’s development?”• Be sure that students understand that while the brain shapes behavior, behavior can shape the brain. This will likely be a major premise on which they build their position paper in Unit 3. If need be, pull quotes from their previous reading to review this information.	



Work Time	Meeting Students' Needs
<p>A. Analyzing Main Idea in Video (33 minutes)</p> <ul style="list-style-type: none"> • Refer the class to the Domain-Specific Vocabulary anchor chart. Add <i>dopamine</i> to the chart and ask a student to use his or her reading from last night to define it, referring to Model Domain-Specific Vocabulary anchor chart (for teacher reference) as needed. • Next, ask students to refer to their Brain Development anchor chart—student version. Ask a student to reread all the information in the “limbic system” column. Explain that the video the class will watch today will be talking a lot about the <i>striatum</i>, which is part of the limbic system. • Distribute and use a document camera to display the Analyzing the Main Idea and Supporting Details in Video note-catcher. Point out that this note-catcher is nearly identical to the neurologist’s notebook. Students have had lots of practice with main idea and supporting idea/details. • Ask a student to read the learning targets. Then ask: <ul style="list-style-type: none"> * “How will analyzing the main idea in a video be different from a text?” • Listen for students to say things like: “It will be harder because you won’t be able to reread” or “It will be easier because it’s easier to listen to someone talk.” • Ask: <ul style="list-style-type: none"> * “How will analyzing the main idea in a video be the same?” • Listen for students to understand that in both text and video the main idea must be a big, general summary statement, and it might not be apparent after just one read or watch. • Clarify for students that you will be playing the video several times and that this first time they should watch for “the gist.” • Play “Insight into the Teenage Brain” TedX Talk featuring Dr. Adriana Galván all the way through once. (This will take 10 minutes). • Invite students to turn and talk and try to identify what the main idea is. Because this is likely to change, they should write their idea in the margin of their note-catcher. • Tell students that the class will now watch the video again. You will periodically pause the video so that students can add to the note-catcher. 	<ul style="list-style-type: none"> • Careful attention to learning targets throughout a lesson engages, supports, and holds students accountable for their learning. Consider revisiting learning targets throughout the lesson so that students can connect their learning with the activity they are working on. • If possible, give English Language Learners an opportunity to preview the video before the lesson, as a “first view” for gist.



Work Time (continued)	Meeting Students' Needs
<ul style="list-style-type: none"> • Begin showing the video again. Use the “Insight into the Teen Brain” Teaching Guide for suggested pause points and prompts. Refer to the Model Analyzing the Main Idea and Supporting Details in Video note-catcher (for teacher reference) as needed to support students with their note-catchers. • Halfway through the video, display Comparing Text to Video. This will help students compare a text to the video version of the text (RI 7.7.) and build off the work they did in Lesson 3, Use this as the text version of the video and lead a brief discussion to compare the text version to the video version. • At the conclusion of the video, ask the students to identify two pieces of information to add to their Brain Development anchor chart. See Model Brain Development anchor chart (for teacher reference) for suggestions, but be sure that the class Brain Development anchor chart reflects the class discussion as well. As students fill in information on their own copy of the anchor chart, fill in the class anchor chart. 	
Closing and Assessment	Meeting Students' Needs
<p>A. Exit Ticket (5 minutes)</p> <ul style="list-style-type: none"> • Direct students to return to their Thinking Logs and complete the exit ticket entry in Lesson 4. <ul style="list-style-type: none"> – What did Dr. Galván’s experiments prove about how teens react differently to dopamine levels than adults or children? How might this explain teen behavior? – What else are you wondering about the adolescent brain’s development? • If time permits, invite students to share out their thinking. Alternatively, this may be a good point at which to collect students’ thinking for a formative assessment. • Distribute Homework: Summarizing Main Idea and Supporting Details. Clarify any questions. 	
Homework	Meeting Students' Needs
<ul style="list-style-type: none"> • The Mid-Unit 1 Assessment will be tomorrow. You will analyze the main idea and supporting details in a video. To help you practice, return to your neurologist’s notebook entries and summarize one of the articles that you have read on the Homework: Summarizing Main Idea and Supporting Details. 	



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Supporting Materials



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Model Domain-Specific Vocabulary Anchor Chart
(For Teacher Reference)

* Note: This chart is added to over several lessons. This is the entry for Lesson 4.

Word	Definition
dopamine	One of the main neurotransmitters in the brain. Extra dopamine is released during pleasurable activities. It increases the feelings of pleasure and activates more neurons.



Analyzing the Main Idea and Supporting Details in Video Note-catcher

Title Insight into the Teen Brain		Author/Presenter Dr. Adriana Galván	
Main Idea			
Background or context		Supporting idea/details	
Supporting idea/details	Supporting idea/details	Supporting idea/details	
Conclusion (So what does this all mean?)			



Insight into the Teen Brain Teaching Guide
(For Teacher Reference)

Teacher Directions: While you are watching the video for the second time, consider pausing at the times outlined below. If you find students aren't getting the ideas listed here, you may want to rewind the video and watch the section for a third time.

- Pause at **1:03** and model how to summarize the background information. Consider writing: *“Brain changes every day. Brain matures into your twenties—which is good.”* Resume the video.
- Pause at **1:41** and model, again, how to summarize the information. Consider writing: *“The teen brain is perfect for the central job of adolescence—breaking away from parents and seeking new things. Teen brain is good at reacting to emotions and social clues when making decisions.”* Resume the video.
- Pause at **1:53**. Ask:
“What does putting that question on the overhead do to us as readers? Why is that different from just saying it?” Listen for students to say that it focuses our attention on it, it makes it stand out for us, or it helps us remember it.
- Write the question down in the “main idea” box on the note-catcher. Resume the video.
- Pause at **2:40**. Ask:
“This information about the prefrontal cortex supports what we have read elsewhere about the prefrontal cortex. But how does she relate it to the main idea, which is something about the way teens make decisions?” Listen for students to say that an underdeveloped prefrontal cortex means that teens may make impulsive decisions without considering long-term consequences.
Write down the students' answer on the note-catcher, referring to the teacher model as necessary. Resume video.
- Pause at **3:23**. Ask:
“What have we learned about the striatum? How does this relate to what we already know about the limbic system?” Listen for students to understand that the striatum gets dopamine and is very excitable. They already know that the limbic system is part of the “emotional” and “reactive” parts of the brain, so it makes sense that it is excitable.
- Summarize students' answers on the note-catcher. Refer to the teacher model as needed.
- Resume video.



Insight into the Teen Brain Teaching Guide
(For Teacher Reference)

- Pause at **4:11** and say:

“So far Dr. Galván has been describing the experiment they performed. They brought people in, put them in an fMRI machine, and gave them a reward. Now we are going to read the description of the experiment so we can compare the text version of the information to the presentation.”

Display **Comparing Text to Video** and read aloud. Ask:

“Why shouldn’t I put this information in a ‘supporting idea/details’ box?” Listen for students to understand that this is too specific for the note-catcher. This is an example, not a supporting idea of the main idea. When she explains the results of the experiment—that will be an important point.

- Resume video.
- Pause at **5:01**. Ask questions that will help the students with RI.7.7, such as:
 - “How was hearing the description of the experiment different from reading it?”
 - “How did her voice or hand gestures reinforce what she was saying?”
 - “What images were useful to you?”
 - “What is the effect of including the image and the graph? What does that do to your understanding?”
 - “What other images might have been useful while she was talking?”
 - “Why do you think she put the teenager in red and not white on the graph?”
- Do not add students’ answers to chart. Resume the video.
- Pause at **6:37**. Ask students to turn and talk:
 - “What is the important take-away point from this experiment? How does it relate to the main question?”
- After a few minutes, invite pairs to share out. Write students’ answers on the note-catcher.
- Resume video.
- Pause at **8:05**. Ask:
 - “She is summing up her findings. What is she saying?”
- Write students’ answer on the note-catcher.
- Resume video but pause quickly at **8:09**. Notice the signaling question for the students. She is moving into her conclusion.
- Resume video.



Insight into the Teen Brain Teaching Guide
(For Teacher Reference)

- **Pause at 9:34.** Notice the take-home points posted on the screen do not answer the focusing question displayed at the beginning of the video. They also do not correspond with what the presenter is saying. The image does not add to our understanding but instead distracts us.
- **At the end of the video, invite students to take a moment and craft what should go in the conclusion box and a main idea.**
- **If time permits, invite students to share with a partner first. Then ask students to share out their ideas.**
- **Invite students to amend their note-catchers before they turn them in.**



Model Analyzing the Main Idea and Supporting Details in Video: Note-catcher
(For Teacher Reference)

Title Insight into the Teenage Brain		Author/Presenter Dr. Adriana Galván
Main Idea <i>How does the teen brain make decisions? It makes decisions based, in part, on its sensitivity to new and exciting information. Being biased to seek out new thrills can be a positive thing.</i>		
Background or context <i>Brain changes every day Brain matures into your twenties—which is good The teen brain is perfect for the central job of adolescence—breaking away from parents and seeking new things Teen brain is good at reacting to emotions and social clues when making decisions</i>		Supporting idea/details <i>Prefrontal cortex isn't fully developed, so kids are prone to make decisions without regard to long-term consequence.</i>
Supporting idea/details <i>Striatum is important to the risk and reward system (or the limbic system.) It lights up with dopamine when people get something they like.</i>	Supporting idea/details <i>Through an experiment, she found the teen brain activity goes “crazy” relative to the adult brain when it gets something it likes. Therefore, the teen brain becomes biased toward seeking a reward.</i>	Supporting idea/details <i>The thing that is special about the teen brain is that it is more sensitive to reward and novel information. Then the prefrontal cortex comes online and makes the adult brain less sensitive to reward.</i>
Conclusion So what does this all mean? <i>Sensitivity to reward and emotion can lead teens to make foolish decisions but also can lead to new adventures and meeting new people. With more knowledge, we can tap into this positive side of teen decision making.</i>		



Comparing Text to Video

Excerpt from “Insights into the Teenage Brain”

And what is something that people find rewarding? Sugar!

So what we did was we asked people to come to the lab. We asked a group of teenagers and a group of adults, and while they were in the MRI we hooked them up to a straw. We fed them squirts of sugar water every so often.

And first we asked them if they liked it; maybe they weren't going to like the sugar as much as we thought. But they actually did.

This is a rating scale asking them, “How much do you like the sugar?” And the average response is in red for the teenage group, and the adult is shown in white.

And you can see that everybody liked it. But it was the teenage group that showed this exaggerated sensitivity. They really liked it. So we started to wonder whether there was something neurobiological that represented this difference.

Galvan, Adriana. "Insight Into the Teenage Brain." February 13, 2013. Online video. TEDx<http://tedxtalks.ted.com/video/Insight-Into-the-Teenage-Brain;search%3Ateenage%20brain%20adriana%20g>.



Model Brain Development Anchor Chart
(For Teacher Reference)

Note: This chart is filled out in different lessons. The bolded items are added in this lesson.

Other developmental information	Prefrontal cortex	Neurons	Limbic system	So what?
<p>The brain needs sleep to take things from your short-term memory to your long-term memory (Knox)</p> <p>Your brain does not fully develop until the mid-20s (Scholastic)</p>	<p>Also called the “frontal lobe” (Knox)</p> <p>This area helps with insight and understanding the effect of your behavior on someone else (Knox)</p> <p>Matures later than other parts of the brain (Scholastic)</p> <p>Right behind your forehead (Scholastic)</p> <p>Helps with thinking ahead and sizing up risk and reward (Scholastic)</p>	<p>“White matter” is called myelin, and it coats the nerves and makes them “communicate” more effectively (Knox)</p> <p>In order for your brain to make a decision, tiny specialized cells “talk” with each other through a series of neurotransmitters, like a circuit in a computer. Then the whole network puts out a response, which becomes your outward behavior. (Scholastic)</p>	<p>Develops earlier than the PFC (Scholastic)</p> <p>Plays a central role in your emotional response (Scholastic)</p> <p>Associated with decisions made in feeling (Scholastic)</p> <p>When teens make decisions in emotionally charged situations—this one weighs in heavily (Scholastic)</p>	<p>So <u>if</u> the PFC is not as efficient, <u>then</u> teens may make decisions without fully realizing long-term consequences. <u>If</u> they do that, <u>then</u> this can be good (they take daring risks) and bad (they take dangerous risks).</p>



Model Brain Development Anchor Chart
(For Teacher Reference)

Note: This chart is filled out in different lessons. The bolded items are added in this lesson.

Other developmental information	Prefrontal cortex	Neurons	Limbic system	So what?
		<p>Information travels from neuron to neuron by way of their axons and dendrites (Scholastic)</p> <p>The space between one neuron’s axon and the other neuron’s dendrites is called its synapse (Scholastic)</p> <p>To make the connection better, the axons wrap themselves in myelin through a process called myelination (Scholastic)</p> <p>Also, if a synapse isn’t used often, it is pruned through synaptic pruning. Then that energy is redirected into more active synapse. (Scholastic)</p> <p>Synaptic pruning occurs based on the choices, the behavior, and the environment of an individual (Scholastic)</p>	<p>The limbic system in the teen brain is more sensitive to risk and reward and gets a bigger shot of dopamine in rewarding situations. So the teen brain is more biased toward seeking out new and novel information. (Galván)</p>	<p>So <u>if</u> synapses are being pruned or strengthened by the activities that teens spend their time on, <u>then</u> teens can shape their brain. And <u>if</u> activities shape one’s brain, <u>then</u> one should be mindful about the activities that one is doing. As Dr. Willis says, “Practice makes permanent.”</p>



Homework: Summarizing Main Idea and Supporting Details

Name: _____

Date: _____

Directions: Read the model below. Choose one of the articles from this unit. Reread it. Then, using the neurologist’s notebook entry you completed for that text as a guide, write a one-paragraph summary of one of the articles we have read.

<p>Model Text:</p>	
<p>In her Tedx Talk titled “Insight into the Teen Brain,” Dr. Galván explores what drives teens to make decisions. She explains that, through a series of experiments, researchers found that adolescents react differently to rewarding situations than adults. They have a much stronger reaction and their brain activity goes “crazy.” According to Dr. Galván, this means that teens are more sensitive to novel or rewarding situations and their brains are biased toward seeking these experiences. She points out that this is a good thing for adolescents because they need to break away from adults and seek new things. Their brains, which seek risks and rewards, will help them decide to do that.</p>	<p>Notice that the first sentence identifies the title, the author, and a very general main idea.</p> <p>Then the author sums up the major supporting ideas.</p>
<p>My Summary of _____ (anything but the Tedx Talk)</p>	<p>Helpful sentence stems</p> <p>explains (author) + states + (information)</p> <p>points out reports says</p> <p>According to + (author) + (information) ...</p> <p>This means that ...</p>