Approaching Research in the NY Curriculum Modules
Introduction to Research Module for ELA/Literacy

Research is a near-perfect means of leveraging the integrative nature of the Common Core State Standards (CCSS) for ELA/Literacy. The process of research as demanded by the CCSS requires all six of the pedagogical shifts to be in play, while also demanding a volume of independent reading and engagement in an iterative writing process in order to create a product that demonstrates effective use of the standards and the shifts. As stated in the CCSS Key Design Considerations, regular engagement in the research process builds invaluable skills for college, career and citizenship:

“To be ready for college, workforce training, and life in a technological society, students need the ability to gather, comprehend, evaluate, synthesize, and report on information and ideas, to conduct original research in order to answer questions or solve problems, and to analyze and create a high volume and extensive range of print and non-print texts in media forms old and new. The need to conduct research and to produce and consume media is embedded into every aspect of today’s curriculum. In like fashion, research and media skills and understandings are embedded throughout the standards rather than treated in a separate section.”

How does the CCSS Envision Research and Writing to Present Knowledge?

The CCSS for ELA/Literacy emphasize an iterative process of productive inquiry with the Research to Build and Present Knowledge strand of the Writing standards. Rather than topic or thesis-driven research in which the sources are chosen and assessed on their capacity to support a claim, the CCSS envision research as an inquiry-driven process in which the sources shape the question or problem, narrowing or broadening the inquiry as needed, often necessitating additional sources which may shape the question or problem more, until such a point in which the sources, claims, and understandings are organized in support of a central claim that represents an evidence-based perspective on the topic or problem. Throughout this process, the researcher collaborates with peers, sharing constructive feedback and building an inquiry community.

Once the researcher has established a central claim, the researcher engages in an iterative writing process to capture this perspective. They plan, they write, they edit and revise; they try a new approach when needed. They attend to conventions and adhere to the style that is appropriate to the type of writing.
Please see the Research and Writing Process graphic on page 7 for a visual depiction of these processes and how specific CCSS for ELA/Literacy overlap and interact.

Module 9.3 Structure

Because engaging in research and writing with an end goal of presenting knowledge requires engagement in a process and contains variables inherent to inquiry, this module is different from the preceding modules in several significant ways.

Unit 1 models how to initiate a process of inquiry-based research using a text that is rich enough to provide multiple areas of investigation. Students read a seed text that will enable them to identify topics that spark inquiry and provide entry points into the research process they will engage in throughout the module. Educators could and should swap out the seed texts for others that can support a process of inquiry. Students begin the research process in this unit by surfacing topics and crafting inquiry questions to pre-search information. Through the latter half of the unit, students refine topics into several areas of investigation that can be reasonably supported through research, while also generating and refining more inquiry questions. This initiation of inquiry builds the foundation for the research work in Unit 2.

Unit 2 continues guiding students through the research process, following the same trajectory and using many of the tools, handouts, and checklists from Odell Education’s Research to Deepen Understanding units. Students will vet their areas of investigation from Unit 1 and craft a specific research question/problem that will anchor the research for all of Unit 2. Students continue to pose and refine specific inquiry questions, exploring areas they wish to investigate related to the research question/problem. They find and assess sources and use close reading skills developed in previous modules by annotating and taking notes on key sources. Students will organize researched material in ways that will support their analysis and integration of information. As their inquiry progresses, they evaluate and extend their research, synthesize their information, and eventually express their evolving evidence-based perspective in a final End-of-Unit Writing Assessment. While this unit provides model sources to demonstrate a path of inquiry and research skills, these model sources do not need to be reproduced, and other sources may be used in place of them. The process itself can be adapted for use with any topic or related source.

Unit 3 guides students through a writing process of presenting their evidence-based perspective from Unit 2 in a refined writing product. Students receive direct instruction and guidance through an iterative process of writing in which they plan, edit, revise and try new approaches to communicate their evidence-based perspective. Students will learn how to craft works cited pages that adhere to MLA style guidelines while avoiding plagiarism. At the end of this unit, students complete a research paper that represents the culmination of their work throughout the three units.
The module performance task requires students to publish and enhance their research paper using and leveraging the advantages of technology to communicate information dynamically and flexibly (W.9-10.6). Students incorporate graphics, tables, audio, and video into their published research product and are evaluated on the basis on their ability to enhance their evidence-based perspective using diverse media.

It is crucial to remember, as noted in the 9–12 ELA Prefatory Material, that the lessons in 9–12 ELA modules are detailed but not intended to be scripts. The lessons in this module provide an organized and granular structure for instruction that addresses the targeted standards. Teachers should exercise professional judgment and make real-time decisions to meet the needs of their students while staying true to the demands of the standards and the shifts. For example, if students needed more class or library time to locate and assess sources in Unit 2 and/or revise their writing in Unit 3, teachers should create the time and space to have students engage in the necessary practice of these skills, while holding them accountable for efficiency and growth.

Finally, it is important to note that librarians and media specialists will be invaluable resources in guiding students through the research and inquiry processes, and collaboration with this school staff is encouraged throughout this unit and module.

How this Module Differs from the Other Modules

By the nature of this module, students attend to and engage in iterative processes both in terms of research and writing, based on a research question/problem derived from a seed text. In this sense, this module is different from the modules that precede it in several significant ways:

1. **Increased Independence with Appropriate Accountability.** As students enter the stage in which they are exploring and tracking topics and initiating inquiry, students should be able to independently put into practice some of the strategies and practices taught in previous modules. This module is embedded with a high degree of accountability, with students expected to meet deliverables to track their progress in the research and writing process including independent searching, reading and researching homework and class work deliverables. These deliverables are often composed of Odell Education’s handouts and tools from Research to Deepen Understanding Core Proficiency units. In addition to providing accountability, the use of the handouts and tools helps to provide the necessary organization for students and teachers during the complex and iterative inquiry process.

2. **Specific Texts Are Not Defined in Units 2 and 3.** While the module places an emphasis on textual sources as the basis of claims, besides the seed text in Unit 1, the texts are not defined. This is because: 1) students need to pursue their own paths of inquiry based on research questions/problems (areas of investigation), credible and relevant sources, etc., and 2) the units focus on research and writing respectively, devoting instructional time to direct instruction on
research and writing rather than reading. Thus, this module’s instructional units that focus on research and writing processes are designed to be applicable to a wide variety of texts and topics, as long as the rigor of the standards is present. It should also be noted that while the texts are not defined, there is a modeled research thread, using a model research question/problem (area of investigation) and derived from the seed text, modeled throughout the module. The teacher can use the model sources associated with this model research question/problem to demonstrate specific research processes to students. The model sources can also be swapped for other rigorous, grade-appropriate sources and are not intended to teach specific content.

3. Academic Vocabulary. As a result of the foci of Units 2 and 3, specific academic vocabulary that students are acquiring is not specifically called out in the lessons. However, students are encountering a wide range of academic and domain-specific vocabulary, as they search for, read, evaluate, and synthesize sources related to their inquiry. In addition, students are exposed throughout this module to academic vocabulary that is process-oriented—words articulating the act of reading closely and the research and writing processes—for example “objectivity,” “credible” and “plagiarism.” To hold students accountable to the acquisition of all vocabulary throughout the process, students track words they encounter throughout the stages of the research and writing process in a vocabulary journal. Students will use a variety of strategies to determine the meaning of unknown words and keep track of these words, their meanings, and the strategies used to determine the meaning in the vocabulary journal.

4. Accountable Independent Reading (AIR)/Volume of Independent Reading. In order to make time for students to read texts that support the research question/problem of their choosing, students will not be required to complete AIR in this module. Instead, students are independently reading a volume of texts that they can comprehend—predominantly informational in nature, but related to the research question/problem that interests the students and that they are evaluating for credibility and relevance. Students are held accountable to this volume as they proceed throughout the module via the specific deliverables and assessments.

5. Instruction of Research Process and Writing Process. Because this is instruction of a process incorporating many skills, there is a greater need to include direct instruction in this module, particularly in Units 2 and 3. As students practice and gain fluency with these processes through repeated instruction in later grades, this level of specific instruction in these processes may be less necessary. Additionally, students will be noting their research progress and next steps by reflecting in a Research Journal throughout Unit 2. Because the research process is iterative and cyclical, students will consistently be reflecting on the process and their next steps.

6. Assessment of Research Process and Writing Process. Whereas other modules’ lesson-level assessments may have measured a reading or writing standard, the key standards requiring assessment in Units 2 and 3 are W4, W5, W7, and W8. It is not possible to measure these standards in a single Quick Write, as these are standards explicitly related to engagement with
and in processes rather than demonstration of knowledge or skills. To this end, some of the lesson-level assessments will measure a student’s ability to engage in an aspect of the writing or research process in an authentic and rigorous way, with the student providing evidence of having completed the necessary steps in the process. For example, a student may be required to describe in writing how and why sources they have found are credible and relevant to their area of investigation. (CCSS.ELA-Literacy.W.9-10.8).

How this Module Uses Odell Education's Research to Deepen Understanding Units

Unit 2 guides students through a research process that is based on Odell Education’s Research to Deepen Understanding units. It follows the same trajectory and uses many of the tools, handouts, and checklists from Odell Education’s approaches and materials. However, this module is different in that it operates at the lesson level and follows through to research writing products that are informative and/or explanatory in nature.

How this Module Leverages Collaboration

While this module scaffolds towards independence and demands students do a large amount of their research and writing work on their own, this module also leverages the advantages of collaborative work. During various aspects of the inquiry process (e.g., generating inquiry questions and areas of investigation, evaluating and analyzing sources), students are working with their peers, forming small groups that support each other and are accountable to each other. Similarly, during the writing work in Unit 3, students work in heterogeneous groups to help with revising, editing, and trying new approaches to communicating their knowledge. The Common Core standards for Speaking and Listening that are addressed by many of the collaborative activities in this module have a particular application for students’ career readiness.¹

¹ See Conley, David T. Getting Ready for College, Careers, and the Common Core: What Every Educator Needs to Know for more information on the application of these standards to the career pathway.
How this Module Leverages Technology

Technology and “media forms old and new” are built into the CCSS key design considerations quoted above. This module recognizes that in the 21st century, vast amounts of information are at most students’ fingertips and that this volume of information brings with it its own challenges. Students receive direct instruction regarding assessing the credibility of sources with this challenge in mind. Students are also incorporating non-print media as an integral part of the module performance assessment, and are required as part of the research process to track credible, effective, and diverse media that can support their communication about the research question/problem.

This module also recognizes that technology can assist students in organizing their research and writing, and encourages teachers to use free online resources such as Google Docs as a means of achieving this end. In terms of the writing process, using review features such as track changes and comments in Microsoft Word are also useful for students sharing their revisions with their teachers and peers. Finally, teachers are encouraged to use cloud-based tools such as Google Drive to leverage collaboration among peers and research communities.

How this Module can Accommodate More Independent/Advanced Students Reading and Exploring Topics Independently

As mentioned before, this module comes with a high degree of accountability and detailed structure to guide students through the processes of research and writing in a rigorous manner. Some students may benefit more from a lighter touch and more independence as they proceed with these processes. As long as the standards are being met and students are engaging in inquiry as envisioned by the CCSS, educators should feel free to modify this curriculum to best suit the needs of their students.
Research and Writing Process Graphic

INQUIRY PROCESS

W7  W8  W9

Apply Reading Standards

WRITING PROCESS

W4  W5  W6

Grade-specific expectations for writing types are defined in standards 1-3

Demonstrates command of language standards 1-3

Assess/Analyze Sources

Generate Inquiry Questions

Gather Information

Conduct Pre-Suches

Build Research Frame

Draft

Plan

Try a new approach

Revise

Edit

Rewrite

Research Paper
Research to Build and Present Knowledge CCSS

Grades 9-10

W.9-10.7

Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.

W.9-10.8

Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.

W.9-10.9

Draw evidence from literary or informational texts to support analysis, reflection, and research.
Using Seed Texts as Springboards to Research

<table>
<thead>
<tr>
<th>Text(s)</th>
<th>Grandin, Temple, and Catherine Johnson. <em>Animals in Translation: Using the Mysteries of Autism to Decode Animal Behavior</em></th>
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</thead>
<tbody>
<tr>
<td>Number of Lessons in Unit</td>
<td>10</td>
</tr>
</tbody>
</table>

**Introduction**

In the first unit of Module 9.3, students continue to work on skills, practices, and routines introduced in Module 9.1 and Module 9.2: close reading, annotating text, and evidence-based discussion and writing, especially through text-dependent questioning, focused annotation, and an analysis of film and text. In addition, students begin the inquiry-based research process.

In this unit, students read Chapter 1 of Temple Grandin and Catherine Johnson’s, *Animals in Translation*. The text serves two primary functions: first, students analyze how Temple Grandin develops and refines her central ideas as they read; and second, the text is a seed text that students use to uncover and explore potential research topics that emerge from it. Students identify and track these topics, which become springboards to the inquiry-based research process that continues in the following unit. Additionally, students are introduced to posing and refining inquiry questions about their topic for the purpose of guiding their initial research.

There is one formal assessment in this unit. At the end of the unit, students write a multi-paragraph response articulating how a central idea is developed and refined in Chapter 1 of *Animals in Translation* (RI.9-10.2, W.9-10.4). Students also express, in writing, 2–3 areas of investigation and describe how and where each area emerged from the Grandin text (W.9-10.9). These areas of investigation are the foundation for the research process that fully develops in 9.3.2.

**Note:** This unit suspends Accountable Independent Reading (AIR). Students are held accountable for building a volume of independent reading as they independently read *Animals in Translation* in homework assignments. Additionally, students are expected to read outside sources as they explore potential areas of investigation.
Literacy Skills & Habits

- Read closely for textual details
- Annotate texts to support comprehension and analysis
- Engage in productive evidence-based discussions about text
- Collect and organize evidence from texts to support analysis in writing
- Analyze text and multi-media
- Make claims about the development and refinement of central ideas in a text
- Use vocabulary strategies to define unknown words
- Identify potential topics for research within a text
- Use questioning to guide research
- Conduct pre-searches to validate sufficiency of information for exploring potential topics

Standards for This Unit

<table>
<thead>
<tr>
<th>CCS Standards: Reading—Informational</th>
</tr>
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</table>
| RI.9-10.1a | Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.  
  a. Develop factual, interpretive, and evaluative questions for further exploration of the topic(s). |
| RI. 9-10.2 | Determine a central idea of a text and analyze its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text. |
| RI.9-10.3 | Analyze how the author unfolds an analysis or series of ideas or events, including the order in which the points are made, how they are introduced and developed, and the connections that are drawn between them. |
| RI. 9-10.4 | Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the cumulative impact of specific word choices on meaning and tone (e.g., how the language of a court |
opinion differs from that of a newspaper).

<table>
<thead>
<tr>
<th>RI.9-10.5</th>
<th>Analyze in detail how an author’s ideas or claims are developed and refined by particular sentences, paragraphs, or larger portions of a text (e.g., a section or chapter).</th>
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</thead>
<tbody>
<tr>
<td>RI.9-10.7</td>
<td>Analyze various accounts of a subject told in different mediums (e.g., a person’s life story in both print and multimedia), determining which details are emphasized in each account.</td>
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</table>

**CCS Standards: Writing**

<table>
<thead>
<tr>
<th>W.9-10.4</th>
<th>Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)</th>
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</thead>
<tbody>
<tr>
<td>W.9-10.7</td>
<td>Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.</td>
</tr>
<tr>
<td>W.9-10.8</td>
<td>Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.</td>
</tr>
<tr>
<td>W.9-10.9</td>
<td>Draw evidence from literary or informational texts to support analysis, reflection, and research.</td>
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</table>

**CCS Standards: Speaking & Listening**

| SL.9-10.1 | Initiate and participate effectively in a range of collaborative discussions (one-on-
one, in groups, and teacher-led) with diverse partners on grades 9–10 topics, texts, and issues, building on others’ ideas and expressing their own clearly and persuasively.

**CCS Standards: Language**

<table>
<thead>
<tr>
<th>L.9-10.4. a,c,d</th>
<th>Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grades 9–10 reading and content, choosing flexibly from a range of strategies.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>a. Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word’s position or function in a sentence) as a clue to the meaning of a word or phrase.</td>
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<tr>
<td></td>
<td>c. Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, or its etymology.</td>
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<tr>
<td></td>
<td>d. Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).</td>
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</table>

**Note:** Bold text indicates standards that will be assessed in the unit.

**Unit Assessments**

**Ongoing Assessment**

<table>
<thead>
<tr>
<th>Standards Assessed</th>
<th>RI.9-10.1a, RI.9-10.2, RI.9-10.3, RI.9-10.5, RI.9-10.7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description of Assessment</td>
<td>Varies by lesson but may include short written responses to text-dependent questions focused on the development and refinement of a central idea, or the development of factual, interpretive and evaluative questions for further exploration of research topics.</td>
</tr>
</tbody>
</table>
End-of-Unit Assessment

<table>
<thead>
<tr>
<th>Standards Assessed</th>
<th>RI.9-10.2, W.9-10.4, W.9-10.9</th>
</tr>
</thead>
</table>

**Description of Assessment**

**Part 1:** How does Grandin develop and refine a central idea in the text? In a response of 3–4 paragraphs, identify a central idea from Chapter 1 of *Animals in Translation* and trace its development and refinement in the text. Use at least four details from the text in your response.

**Part 2:** Articulate in writing 2–3 areas of investigation and describe how and where each area emerged from the Grandin text. Consult the Topic Tracking Tool and Exploring a Topic Tool as well as notes from the Grandin text.

Unit-at-a-Glance Calendar

<table>
<thead>
<tr>
<th>Lesson</th>
<th>Text</th>
<th>Learning Outcomes/Goals</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><em>Animals in Translation</em> Chapter 1 pp. 1-4</td>
<td>In this first lesson of the unit and module, students are introduced to the module’s focus: inquiry-based research to deepen understanding. Students will begin reading and analyzing Chapter 1 of <em>Animals in Translation</em>, focusing on Grandin’s emerging central idea (that her autism poses both difficulties and advantages) through analysis of specific textual details.</td>
</tr>
<tr>
<td>2</td>
<td><em>Animals in Translation</em> Chapter 1 pp. 4–8</td>
<td>Students continue to read and analyze Chapter 1 of <em>Animals in Translation</em>, focusing on Grandin further develops her claims about autism and understanding animal behavior. Students begin tracking potential research topics that surface in Grandin’s text using the Topic Tracking Tool.</td>
</tr>
<tr>
<td>3</td>
<td><em>Animals in Translation</em> Chapter 1 pp. 9–14</td>
<td>Students continue to analyze chapter 1 of <em>Animals in Translation</em>, focusing on how Grandin unfolds her analysis of behaviorism. Students continue to track potential topics for research. Students are introduced to posing inquiry questions based on research topics to guide their research.</td>
</tr>
<tr>
<td>4</td>
<td><em>Animals in Translation</em></td>
<td>Students continue to read and analyze Chapter 1 of <em>Animals in Translation</em>.</td>
</tr>
<tr>
<td>Day</td>
<td>Text</td>
<td>Activity</td>
</tr>
<tr>
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</table>
| 5   | *Animals in Translation*  
Chapter 1 pp. 16–20 | Students continue to read and analyze Chapter 1 of *Animals in Translation* and examine the ways in which Grandin develops her central idea (that autism has made understanding animals easy). Students continue to track topics in the text and generate inquiry questions. Students are also introduced to the process of refining inquiry questions to focus or narrow their research. |
| 6   | *Animals in Translation*  
Chapter 1 pp. 20–23 | Students finish reading and analyzing Chapter 1 *Animals in Translation*, focusing on how Grandin unfolds an analysis of problems in the cattle industry. Students continue their research by considering larger topics and inquiry questions generated in previous lessons and choosing areas of investigation for further research. |
| 7   | *Animals in Translation*  
Chapter 1, *Temple Grandin* (film) | Students watch an excerpt from the HBO film, *Temple Grandin*, and analyze which details are emphasized in both the film and the text of *Animals in Translation*. Students begin to develop inquiry questions based on their proposed areas of investigation. |
| 8   | Texts will vary based on students’ areas of investigation and pre-searches | Students engage in a pre-search activity in order to begin gathering sources for further research in future lessons. This activity is designed to develop students’ ability to independently find reliable, relevant sources while navigating a wide range of potential research sources. Students refine or rewrite their inquiry questions based on their findings. Students are also introduced to the Vocabulary Journal. |
| 9   | *Animals in Translation*  
Chapter 1 | Students engage in several evidence-based discussions to further clarify both their understanding of the Grandin text, as well as their potential areas of investigation. Students then individually develop an evidence-based claim about the development and refinement of a central idea in Chapter 1 of *Animals in Translation*. |
10 | Animals in Translation  
Chapter 1  

For the End-of-Unit Assessment, students complete a two-part writing assignment. First, students compose a multi-paragraph response tracing the development and refinement of a central idea from chapter 1 of Animals in Translation. Second, students articulate in writing how and where two or three areas of investigation emerged from Animals in Translation.

Preparation, Materials, and Resources

Preparation

- Read and annotate Chapter 1 of Animals in Translation
- Review the Short Response Rubric
- Review all unit standards and post in classroom
- Review relevant excerpts from the film Temple Grandin
- Consider creating a word wall of the vocabulary provided in all lessons

Materials/Resources

- Chart paper
- Copies of the text Animals in Translation Chapter 1
- Temple Grandin film excerpts
- Writing utensils including pencils, pens, markers, and highlighters
- Methods for collecting student work: student notebooks, folders, etc.
- Access to technology (if possible): interactive whiteboard, document camera, and LCD projector
- Copies of handouts and tools for each student: see materials list in individual lesson plans
- Copies of the Text Analysis Rubric and Checklist
- Copies of the Short Response Checklist and Rubric
## 9.3.2 Unit Overview

### Engaging in an Inquiry-Based, Iterative Research Process

<table>
<thead>
<tr>
<th>Text(s)</th>
<th>Students choose texts for research based on their research question/problem.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model Research Sources:</strong></td>
<td></td>
</tr>
<tr>
<td>• “The Brains of the Animal Kingdom” by Frans de Waal (Source #1)</td>
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<tr>
<td>• “Animal Minds: Minds of Their Own” by Virginia Morrell (Source #2)</td>
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<tr>
<td>• “Think You’re Smarter Than Animals? Maybe Not” by Alexandra Horowitz and Ammon Shea (Source #3)</td>
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<tr>
<td>• “Monkeys Can Perform Mental Addition” (Source #4)</td>
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<tr>
<td>• “Animal Intelligence: How We Discover How Smart Animals Really Are” by Edward Wasserman and Leyre Castro (Source #5)</td>
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</tr>
</tbody>
</table>

### Number of Lessons in Unit

| 12 |

### Introduction

In this unit, students continue the research process begun in Unit 1. Students begin to deeply engage in this iterative, non-linear process with the goal of deepening students’ understanding of topics of interest. Students continue to learn how to use the inquiry-based research process to gather, assess, read, and analyze sources, while organizing and synthesizing research to make claims about a specific research question or problem.

Students are formally introduced to the research process by creating a Research Portfolio and overviewing the Student Research Plan, a roadmap for students to reflect on their research progress and next steps. Students vet areas of investigation developed in Unit 1 to focus on a specific research question/problem. From there, students learn how to develop specific inquiry questions and choose credible, relevant, and accessible sources by planning for searches, assessing sources, and annotating and taking notes effectively. Through these inquiry steps, students create an initial research frame that guides independent searches. Using the reading skills developed in previous modules and the source assessment skills introduced in this unit, students conduct independent research by using inquiry.
questions to explore and deepen their understanding of their specific research question/problem. As the research process continues, students continually revisit the research frame to analyze their research direction and focus, while assessing and making changes as necessary. As this cyclical and iterative research process evolves, students begin to organize and synthesize their data, make claims about inquiry paths, and eventually craft the research question/problem itself.

There is one formal assessment in this unit; however, students continually reflect on their research progress by journaling about their research progress and next steps using a Research Journal. The End-of-Unit Assessment asks students to develop an Evidence-Based Perspective by writing a one-page synthesis of their personal conclusions and perspective derived from the research (W.9-10.7, W.9-10.9).

Note: This unit suspends Accountable Independent Reading (AIR). Students are held accountable for building a volume of independent reading as they read multiple sources and refine and deepen their understanding of their inquiry topic (research question/problem).

Literacy Skills & Habits

- Assess sources for credibility, relevance, and accessibility.
- Conduct independent searches using research processes including planning for searches, assessing sources, and annotating and recording notes.
- Develop, refine, and select inquiry questions for research.
- Develop and continually assess a research frame to guide independent searches.
- Collect and organize evidence from research to support analysis in writing.
- Make claims about inquiry questions, inquiry paths, and a research question/problem using specific textual evidence from the research.

Standards for This Unit

<table>
<thead>
<tr>
<th>CCS Standards: Reading</th>
<th>RI.9-10.1.a</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.</td>
</tr>
<tr>
<td></td>
<td>a. Develop factual, interpretive, and evaluative questions for further exploration of the topic(s).</td>
</tr>
</tbody>
</table>
RI.9-10.7 | Analyze various accounts of a subject told in different mediums (e.g., a person’s life story in both print and multimedia), determining which details are emphasized in each account.

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### CCS Standards: Writing

**W.9-10.2** | Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.

**W.9-10.4** | Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

**W.9-10.7** | Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.

**W.9-10.8** | Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.

**W.9-10.9** | Draw evidence from literary or informational texts to support analysis, reflection, and research.

---

### CCS Standards: Speaking & Listening

**SL.9-10.1** | Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 9–10 topics, texts,
and issues, building on others’ ideas and expressing their own clearly and persuasively.

**CCS Standards: Language**

<table>
<thead>
<tr>
<th>L.9-10.4. a,c,d</th>
<th>Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grades 9–10 reading and content, choosing flexibly from a range of strategies.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>a. Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word’s position or function in a sentence) as a clue to the meaning of a word or phrase.</td>
</tr>
<tr>
<td></td>
<td>c. Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, or its etymology.</td>
</tr>
<tr>
<td></td>
<td>d. Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).</td>
</tr>
</tbody>
</table>

**Note:** Bold text indicates standards that will be assessed in the unit.

**Unit Assessments**

<table>
<thead>
<tr>
<th>Ongoing Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Standards Assessed</strong></td>
</tr>
<tr>
<td><strong>Description of Assessment</strong></td>
</tr>
</tbody>
</table>
## End-of-Unit Assessment

<table>
<thead>
<tr>
<th>Standards Assessed</th>
<th>W.9-10.7, W.9-10.9</th>
</tr>
</thead>
</table>

### Description of Assessment

- Students submit a completed Research Portfolio with the four sections organized including 1. Defining an Area of Investigation, 2. Gathering and Analyzing Information, 3. Drawing Conclusions, 4. Discarded Material
- The Research Journal is also located in the Research Portfolio.
- Students write a one-page synthesis of their personal conclusions and perspective derived from their research. Students draw on the research outcomes, as developed in the Organizing Evidence-Based Claims Tools to express their perspective on their respective research question/problem.

## Unit-at-a-Glance Calendar

<table>
<thead>
<tr>
<th>Lesson</th>
<th>Text</th>
<th>Learning Outcomes/Goals</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Students choose texts for research based on their individual research question/problem.</td>
<td>Students are formally introduced to the research unit and construct a Research Portfolio to house all research previously conducted in Unit 1 and the research materials distributed and gathered in this unit. Additionally, students vet their 2–3 possible areas of investigation (from Unit 1, Lesson 10) to craft a rich and interesting research question/problem to explore throughout the unit.</td>
</tr>
<tr>
<td>2</td>
<td>Students choose texts for research based on their individual research question/problem.</td>
<td>Students engage in a research process check-in where they overview the Student Research Plan. The Student Research Plan serves as a guide to the research process and a place to reflect on next steps. Students review inquiry questions from Unit 1 and generate, vet, and refine specific inquiry questions for their research question/problem using a Specific Inquiry Questions Checklist.</td>
</tr>
<tr>
<td>3</td>
<td>Students choose texts for research based on students learn how to select inquiry questions, plan search location, and choose key words and phrases to conduct effective</td>
<td></td>
</tr>
<tr>
<td></td>
<td>their individual research question/problem.</td>
<td>and efficient research. Additionally, students learn how to formally assess sources by analyzing a source’s relevance to the inquiry question and its credibility.</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>4</td>
<td>Students choose texts for research based on their individual research question/problem.</td>
<td>Students continue to learn how to assess sources more extensively by identifying credible, relevant, and accessible sources to prepare for conducting searches independently. In a classroom with technology access, students learn how to assess the sources they found in the previous lesson’s activities and homework by answering in-depth questions to assess their potential sources.</td>
</tr>
<tr>
<td>5</td>
<td>Students choose texts for research based on their individual research question/problem.</td>
<td>Students learn how to close read important sources for selected inquiry questions through annotation and taking notes. Students learn how reading closely for information is different than annotating and taking notes on literary texts.</td>
</tr>
<tr>
<td>6</td>
<td>Students choose texts for research based on their individual research question/problem.</td>
<td>Students construct a frame to guide their research by establishing inquiry paths that allow students to explore various aspects of their research question/problem. Students organize, categorize, and refine their inquiry questions by inquiry path and independently develop a detailed, organized Research Frame.</td>
</tr>
<tr>
<td>7</td>
<td>Students choose texts for research based on their individual research question/problem.</td>
<td>Students begin conducting searches independently using the Research Frame and associated search tools. This lesson is the first of three lessons during which students conduct sustained, independent research during class. While researching, students consider how to use inquiry questions to drive research while continually assessing sources for credibility and usefulness in</td>
</tr>
<tr>
<td>8</td>
<td><strong>Students choose texts for research based on their individual research question/problem.</strong></td>
<td>Students continue to conduct searches independently using the Research Frame as a guide, with the associated search tools. This lesson is part two of the independent search process and builds on the previous lesson by focusing students on determining if the research they did is sufficient to address established inquiry paths and questions, and adjusting the search accordingly. Additionally, students are reading sources closely, analyzing details and ideas, and taking notes for each source to determine how it addresses inquiry questions and paths.</td>
</tr>
<tr>
<td>9</td>
<td><strong>Students choose texts for research based on their individual research question/problem.</strong></td>
<td>Students continue to conduct searches independently. This lesson is the last in a series of three lessons focused on conducting searches independently. This lesson focuses on all criteria of the research process addressed in the Conducting Independent Searches Checklist. In the lesson’s closing, students evaluate their collective independent searches from lessons 7–9 using the Independent Searches Self-Evaluation Tool.</td>
</tr>
<tr>
<td>10</td>
<td><strong>Students choose texts for research based on their individual research question/problem.</strong></td>
<td>Students analyze and synthesize their research to make claims about inquiry questions within an inquiry path or the inquiry path question itself. Students complete at least two Forming Evidence-Based Claims Tools for all inquiry paths on the Research Frame. These initial claims are the foundation for the Evidence-Based Perspective students will develop in Lessons 11 and 12.</td>
</tr>
<tr>
<td>11</td>
<td><strong>Students choose texts for research based on their individual research question/problem.</strong></td>
<td>Students synthesize their claims (Forming Evidence-Based Claims Tools) from the previous lesson to develop comprehensive claims about each inquiry path in the Research Frame using an Evidence-Based Claims Tools. This work directly prepares students for developing and writing an Evidence-Based Perspective (End-of-Unit Assessment) in the following lesson. Students build on the claims created in the previous lesson to develop comprehensive claims that reflect a deeper understanding of the inquiry paths and the</td>
</tr>
</tbody>
</table>
Students choose texts for research based on their individual research question/problem. Students complete the End-of-Unit Assessment by conducting a final review of the Research Portfolio and writing an Evidence-Based Perspective based on the research outcomes from the unit. Students submit the final Research Portfolio and the Evidence-Based Perspective. The Evidence-Based Perspective is assessed using a rubric based on the Research Portfolio content.

### Preparation, Materials, and Resources

#### Preparation

- Identify and contact the media specialist/librarian/person best positioned to assist students with conducting research
- Reserve computer lab or classroom with technology and Internet access for all students
- Print and annotate model sources (see page 1)

#### Materials/Resources

- Binders or Electronic Folders (for the Research Portfolio)
- Access to technology (if possible): interactive whiteboard, document camera, and LCD projector
- Copies of handouts and tools for each student: see materials list in individual lesson plans
- Highlighters
- Smart Board/Document Camera (optional)
- Copies of model source “Animal Minds: Minds of Their Own” for each student
### Unit Overview

**Synthesizing Research through the Writing Process**

<table>
<thead>
<tr>
<th>Text(s)</th>
<th>Student texts (research sources) will vary*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>*By Unit 3, students will have chosen texts for research based on their individual research question/problem.</td>
</tr>
</tbody>
</table>

| Number of Lessons in Unit  | 8                                          |

**Introduction**

In this unit, students engage in the writing process with the goal of synthesizing and articulating their evidence-based research perspective in writing. The end product of this unit is a final draft of a research paper that articulates the conclusions gleaned from research throughout Module 9.3. In order to do this, students must synthesize and draw independent conclusions from information across multiple texts and articulate their research findings in an organized, cogent, and formal informational essay. As part of this process, students engage in a writing cycle in which they self-edit, provide peer reviews, and continually revise their work. Students receive direct instruction on a myriad of topics related to the writing process, including:

- Creating outlines
- Organizing topics and claims in a logical manner
- Drafting effective introductions, body paragraphs, and conclusions
- Creating cohesion within and between paragraphs
- Using colons and semicolons
- Adhering to MLA citation conventions
- Writing in a formal, objective tone

No new texts are introduced in this unit, which breaks from the pattern established in previous units. Instead, students will focus on analyzing the sources they collected for their Research Portfolio in Unit 9.3.2, delving more deeply into them as needed throughout the writing process.
The formal assessment for this unit is the final draft of the research paper. In the final lesson of this unit—after students have had the opportunity to outline, draft, revise, and edit their paper—students submit their final papers for assessment against the Research Paper Writing Rubric as well as the Informative and Explanatory Writing Checklists: Module 9.3.3, which students used throughout the unit to guide their writing.

**Literacy Skills and Habits**

- Collect and organize evidence from research to support analysis in writing
- Analyze, synthesize, and organize evidence-based claims
- Write effective introduction, body, and conclusion paragraphs for an informational/explanatory research paper
- Use proper citation methods in writing
- Edit for a variety of purposes, including using semi-colons, colons, and correct spelling
- Use formal style and objective tone in writing
- Write coherently and cohesively

**Standards for This Unit**

<table>
<thead>
<tr>
<th>CCS Standards: Writing</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>W.9-10.2.a-f</strong></td>
<td><strong>Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.</strong></td>
</tr>
<tr>
<td></td>
<td>a. Introduce a topic; organize complex ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.</td>
</tr>
<tr>
<td></td>
<td>b. Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience’s knowledge of the topic.</td>
</tr>
<tr>
<td></td>
<td>c. Use appropriate and varied transitions to link the major sections of the text,</td>
</tr>
</tbody>
</table>
create cohesion, and clarify the relationships among complex ideas and concepts.
d. Use precise language and domain-specific vocabulary to manage the complexity of the topic.
e. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.
f. Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).

| W.9-10.4 | Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. |
| W.9-10.5 | Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience. (Editing for conventions should demonstrate command of Language standards 1–3 up to and including grades 9–10 on page 55.) |
| W.9-10.7 | Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation. |
| W.9-10.8 | Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation. |
| W.9-10.9 | Draw evidence from literary or informational texts to support analysis, reflection, and research. |
## CCS Standards: Speaking & Listening

| SL.9-10.1 | Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 9–10 topics, texts, and issues, building on others’ ideas and expressing their own clearly and persuasively. |

## CCS Standards: Language

| L.9-10.2.a-c | Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.  
| | a. Use a semicolon (and perhaps a conjunctive adverb) to link two or more closely related independent clauses.  
| | b. Use a colon to introduce a list or quotation.  
| | c. Spell correctly. |
| L.9-10.3.a | Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening.  
| | a. Write and edit work so that it conforms to the guidelines in a style manual (e.g., *MLA Handbook*, Turabian’s *A Manual for Writers*) appropriate for the discipline and writing type. |
| L.9-10.6 | Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression. |

**Note:** Bold text indicates targeted standards that will be assessed in the unit.
Unit Assessments

**Ongoing Assessment**

<table>
<thead>
<tr>
<th>Standards Assessed</th>
<th>W.9-10.2.a-f, W.9-10.4, W.9-10.5, W.9-10.8, W.9-10.9, L.9-10.2.a-c, L.9-10.3.a</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description of Assessment</td>
<td>Varies by lesson but may include drafted portions of the essay with a focus on the specific goal of individual lessons—e.g., introduction development, cohesion within and between paragraphs, proper citation methods, and incorporation of peer and teacher feedback.</td>
</tr>
</tbody>
</table>

**End-of-Unit Assessment**

<table>
<thead>
<tr>
<th>Standards Assessed</th>
<th>W.9-10.2.a-f</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description of Assessment</td>
<td>Students will be assessed on the final draft of their research paper and its alignment to the criteria of an informative/explanatory text. The final draft should examine and convey complex ideas and clearly incorporate students’ evidence-based claims as well as appropriately cite sources. The final draft should accurately organize and demonstrate thoughtful analysis of the evidence gathered through research.</td>
</tr>
</tbody>
</table>

**Unit-at-a-Glance Calendar**

<table>
<thead>
<tr>
<th>Lesson</th>
<th>Text</th>
<th>Learning Outcomes/Goals</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Research Portfolio Texts</td>
<td>Students determine a central claim from their <strong>Research Frame</strong> and Evidence Based-Perspective writing assignment and begin to construct an outline for their research paper. Students organize their claims and supporting evidence for each claim. Students also analyze the evidence that supports each claim to complete their <strong>Outline Tool</strong>.</td>
</tr>
<tr>
<td>2</td>
<td>Research Portfolio Texts</td>
<td>Students participate in a peer review of their outlines to ensure readiness to begin drafting their research paper. Students learn the components of an effective introduction. Students write the first draft of the introduction of the research paper.</td>
</tr>
<tr>
<td>3</td>
<td>Research Portfolio Texts</td>
<td>Students learn how to effectively integrate information into writing selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation. Students learn MLA conventions for in-text citation as well as for the works cited page. Students draft their works cited page and integrate proper citations into their papers.</td>
</tr>
<tr>
<td>4</td>
<td>Research Portfolio Texts</td>
<td>Students continue to draft their research paper while focusing on cohesion—both within and between paragraphs. Students receive instruction around topic development and writing conclusion paragraphs.</td>
</tr>
<tr>
<td>5</td>
<td>Research Portfolio Texts</td>
<td>Students learn how to identify and incorporate formal style and objective tone into their writing. Students use their first drafts to participate in peer review and teacher conferences.</td>
</tr>
<tr>
<td>6</td>
<td>Research Portfolio Texts</td>
<td>Students continue to refine and revise their research papers. Students will focus on editing for flow and cohesiveness of the entire research paper. Students continue to provide peer feedback and conference with the teacher.</td>
</tr>
<tr>
<td>7</td>
<td>Research Portfolio Texts</td>
<td>Students continue to edit and revise their research papers. Students are introduced to a new language standard, L.9-10.2, and practice incorporating semi-colons and colons into their writing. Students continue the peer review process for grammar and spelling.</td>
</tr>
<tr>
<td>8</td>
<td>Research Portfolio Texts</td>
<td>Students work in-class to finalize their research papers—editing, polishing, and rewriting as necessary. Students are evaluated on the final draft’s alignment to the criteria established in the Research Paper Writing Rubric: Informative/Explanatory.</td>
</tr>
</tbody>
</table>
**Preparation, Materials, and Resources**

**Preparation**

- Review the Informative/Explanatory Writing Checklists (refer to 9.3. Unit 3).
- Review all unit standards and post in classroom.
- Consider creating a word wall of the vocabulary provided in all lessons.

**Materials/Resources**

- Chart paper
- Writing utensils including pencils, pens, markers, and highlighters
- Methods for collecting student work: student notebooks, folders, etc.
- Access to technology (if possible): interactive whiteboard, document camera, LCD projector, computers for individual students (for word processing)
- Copies of the Research Paper Writing Rubric: Informative/Explanatory
- Copies of the Informative and Explanatory Writing Checklists: Module 9.3 Unit 3
Introduction

In this lesson, students continue to learn how to assess sources more extensively. Students were introduced to the practice in Lesson 3 by beginning to identify credible and relevant resources. In this lesson, they go deeper and learn why it is important to assess sources and how to identify credible, relevant, and accessible sources to prepare for conducting searches independently.

The teacher models the next steps in assessing sources using the Assessing Sources Handout and returning to the Potential Sources Tool from Lesson 3. In a classroom with technology access, students learn how to assess the sources they found in the previous lesson’s activities and homework by answering in-depth questions. Independently, students use the Assessing Sources Tool to assess one source for credibility, relevance, accessibility and interest. For homework, students continue looking for three more sources based on selected inquiry questions from Lesson 2. Students rate the sources on the Potential Sources Tool using the Assessing Sources Handout and Tool. Additionally, students record new vocabulary from these preliminary searches in the Vocabulary Journal.

Standards

<table>
<thead>
<tr>
<th>Assessed Standard(s)</th>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>W.9-10.8</td>
<td>Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Addressed Standard(s)</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>W.9-10.7</td>
<td>Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>L.9-10.4.a, c, d</td>
<td>Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grades 9–10 reading and content, choosing flexibly from a range of strategies. a. Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word’s position or function in a sentence) as a clue to the meaning of a word or phrase.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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Assessment

The learning in this lesson will be captured through a Quick Write at the end of the lesson. Students will answer the following prompt:

- Choose two sources from your Potential Sources Tool and, using the Assessing Sources Tool work, discuss your evaluation of them. Why did the sources earn their specific rates for accessibility, credibility, and relevance? Explain using information from your sources, your inquiry questions, and the criteria outlined on the Assessing Sources Handout.

- Based on today’s work, what are your next steps? Are you going to need to find more sources? What sources do you need to look for? What holes remain in your research so far?

This assessment will be evaluated using the Assessing Sources Tool.

High Performance Response(s)

A high performance response may include the following:

- Source #3: “Think You’re Smarter Than Animals? Maybe Not,” by Alexandra Horowitz and Ammon Shea, The New York Times, August 20, 2011. I was able to find this article from The New York Times. When I read the first few lines it became clear that the article is relevant to my research because the authors begin by making the statement: “Humans have long been fascinated by animal intelligence” which relates to my area of investigation regarding animal intelligence. I know that The New York Times is a well-known newspaper that people trust and the writers have extensive credentials and use research to support their writing. I even Googled The New York Times, and I found out that it has been publishing since 1851. Additionally under the title of the article, it offers information about the two authors. Both of them have published before and Alexandra Horowitz has written a book about dogs and their intelligence. When I read the first part closely, I saw that this article is actually a review of a few studies that analyze animal behavior. This type of article, a review of studies, can lead me to other sources as well. I am not sure I can get these other studies online, but I will try. I concluded that this review is very relevant to my research. I will certainly rate it high for all categories because I understood the text, it’s extremely relevant to my research question/problem, and the authors are credible as revealed in their background on animal intelligence.
intelligence.

- Source #4: “Monkeys Can Perform Mental Addition,” a science news report. At first I was not sure if this article was credible. There is no author. But then I read carefully what is written under the title and I realized that the source is probably credible because they are researchers from Duke University. I think that usually one can trust universities because universities have a stake in producing quality research. The title is what drew me to this report at first; it directly suggests that animals, in this case, monkeys, can perform intelligent acts, like addition. I was also interested in reading on because in my question, I ask about how scientists can measure animal intelligence. Overall, I rank this source high for credibility and accessibility. It seems short, and the information is limited, so for richness I will only rank it medium.

- Next Steps: I will try to find some of the sources that these two articles reference. I may need some help in the library. If I cannot find these, I will continue to search for sources that discuss actual experiments that show how scientists measure intelligence. I think that these types of sources will help me write a strong essay. I should also make a greater effort to find essays that may disagree with the idea that you can compare animal to human intelligence to have a different perspective.

Vocabulary

Vocabulary to provide directly (will not include extended instruction)
- credentials (n.) – evidence of authority
- extensive (adj.) – far-reaching, broad, comprehensive, or thorough

Vocabulary to teach (may include direct word work and/or questions)
- accessibility (adj.) – easy to approach, enter, read, or use

Lesson Agenda/Overview

Student-Facing Agenda  
Standards & Text:
- Standards: W.9-10.8, W.9-10.7, L.9-10.4.a, c, d
- Text: “Animal Minds: Minds of Their Own” by Virginia Morell (paragraphs 1–2)
2. Homework Accountability
3. Assessing Sources: Next Steps
4. Assessing Sources Independently
5. Quick Write
6. Closing

2. 10%
3. 30%
4. 40%
5. 10%
6. 5%

Materials

- Student copies of the Potential Sources Tool (refer to 9.3.1 Lesson 8)
- Copies of the Assessing Sources Handout for each student
- Copies of the Assessing Sources Tool for each student
- Copies of the article “Animal Minds: Minds of Their Own” by Virginia Morell (excerpt) for each student

Learning Sequence

<table>
<thead>
<tr>
<th>How to Use the Learning Sequence</th>
<th>Type of Text &amp; Interpretation of the Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>10%</td>
<td>Percentage indicates the percentage of lesson time each activity should take.</td>
</tr>
<tr>
<td>no symbol</td>
<td>Plain text indicates teacher action. Bold text indicates questions for the teacher to ask students. Italicized text indicates a vocabulary word.</td>
</tr>
<tr>
<td>▼</td>
<td>Indicates student action(s).</td>
</tr>
<tr>
<td>◀</td>
<td>Indicates possible student response(s) to teacher questions.</td>
</tr>
<tr>
<td>🔙</td>
<td>Indicates instructional notes for the teacher.</td>
</tr>
</tbody>
</table>

Activity 1: Introduction to Lesson Agenda

Begin by reviewing the agenda and the assessed standard for this lesson: W.9-10.8. Students learn how to assess the sources they found in the previous lesson’s activities and homework by answering in-depth questions to assess their potential sources. Independently, students use the Assessing Sources Tool to assess one source for credibility, relevance, accessibility, and interest.

- Students look at the agenda.
Activity 2: Homework Accountability 10%

Instruct students to take out their Potential Sources Tool from the homework assignment from Lesson 3. Direct students to form pairs and discuss the results of the research they conducted at home by explaining the inquiry question selected, the search location, and key words/phrases used to find the three potential sources that are credible and relevant.

◆ Student responses will vary by individual research question/problem but may sound like the following:
  - I selected the inquiry question: How do animals show their “thinking” in experiments?
  - I couldn’t figure out a specific location to search so I searched on Google for the following key phrase: animals and thinking.
  - I could not find any relevant or credible sources, so I tried searching Google by typing in the actual inquiry question and found three potential sources.

Activity 3: Assessing Sources: Next Steps 30%

Introduce the Quick Write assessment (1. Choose two sources from your Potential Sources Tool and, using the Assessing Sources Tool work, discuss your evaluation of them. Why did the sources earn their specific rates for accessibility, credibility, and relevance? Explain using information from your sources, your inquiry questions, and the criteria outlined on the Assessing Sources Handout. 2. Based on today’s work, what are your next steps? Are you going to need to find more sources? What sources do you need to look for? What holes remain in your research so far?) Explain that this is the lesson assessment and the focus for this activity.

◆ Students read the assessment and listen.

① Display the Quick Write assessment for students to see.

Explain to students that the previous lesson’s work focused on planning for searches and beginning to examine sources for relevancy and credibility. Explain that today’s work focuses on assessing sources more deeply to ensure that sources are accessible, credible, relevant, and worth researching. Explain that it is important to assess sources first before reading them closely so students do not waste time on reading sources that do not contribute to a deeper understanding of the research question/problem.

◆ Students listen.

Instruct students to keep out their Potential Sources Tools from the previous activity and lesson. Distribute the Assessing Sources Handout and ask students to read it.
Ask students to do a Turn-and-Talk about the Potential Sources Tool and the Assessing Sources Handout by considering the following questions:

**What details are similar in the tool and the handout?**

**What details are different?**

**How do these differences inform your understanding of assessing sources?**

Lead a share-out to ensure that students realize that the Assessing Sources Handout leads to a deeper or more extensive assessment of the sources.

Students responses may include the following:

- The Potential Sources Tool asks for general information or first impressions.
- The Assessing Sources Handout asks for many more details about every section. For example in the Potential Sources Tool, all I have to do is just write the date, but in the Assessing Sources Handout I also have to think about how the date of publication is relevant to my research.
- Another type of detail that the Assessing Sources Handout goes more in depth is the “scope and richness” part. I think that requires me to read the text a lot closer than just a quick scan or read.

Consider defining the word *extensive* (“far-reaching, broad, comprehensive, or thorough”) for students.

Distribute the Assessing Sources Tool to each student and instruct them to put the Potential Sources Tool aside for now. Instruct students to have the Assessing Sources Tool and Assessing Sources Handout side by side on their desks.

Explain to students that the Assessing Sources Tool is a replica of the Assessing Sources Handout and is a place for students to record their assessment of sources using the Assessing Sources Handout. Model how to use the Assessing Sources Tool by using the article from the previous lesson, “Animal Minds: Minds of Their Own” by Virginia Morrell. Distribute an excerpt from the article to each student.

- Students listen and examine the article excerpt.

Read aloud the first two paragraphs of the article (from “In 1977 Irene Pepperberg, a graduate student” to “about the world and act on it?”) and instruct students to consider the top section (Assessing a Source Text’s Credibility) of the Assessing Sources Tool as they listen. Remind them that even though...
they have already recorded some of the information in the Potential Sources Tool, the Assessing Sources Tool requires a deeper assessment of the source.

- Students follow along with the read aloud and consider the top section of the Assessing Sources Tool.

Model for students how to complete the top section of the Assessing Sources Tool using the excerpt just read aloud by writing the following notes on a Model Assessing Sources Tool. Show students how to use the Assessing Sources Handout to complete the Assessing Sources Tool.

- Students follow along with the modeling.

<table>
<thead>
<tr>
<th>Publisher</th>
<th>Date</th>
<th>Author</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Geographic</td>
<td>March 2008</td>
<td>It says at the end of the article that the author, Virginia Morell, is a science writer who often writes for National Geographic.</td>
<td>This is an article. It is an informational text that includes reporting on studies.</td>
</tr>
<tr>
<td>publishes many articles about science topics like animal intelligence.</td>
<td>The date indicates that the information is current.</td>
<td>It seems that she is not a scientist but someone who has a general interest in the topic.</td>
<td>The purpose of this article is to illustrate the intelligence of animals and therefore relates to the research question, How does animal intelligence compare to human intelligence?</td>
</tr>
<tr>
<td>The publisher has a stake in producing articles that are supported by real research since it is considered an academic nonfiction magazine.</td>
<td>The topic seems to have a longer history as indicated by the research date first discussed in the opening paragraph (1977), but 2008 is relatively recent so there might be current research in the article.</td>
<td>The author gets paid to write the article but that seems to be it.</td>
<td></td>
</tr>
</tbody>
</table>

① Consider displaying the model Assessing Sources Tool for students to see the notes.

① Explain to students that some of the questions, for example the “economic stake” or “political stake” may not always be relevant and leaving it open is okay. Consider reminding students that “economic stake” was relevant, for example, in Gradin’s work since many farmers benefitted from her discoveries.

① Consider defining the word credentials (“evidence of authority”) for students. Inform students that this word relates to the idea of authoritative resources discussed in standard W.9-10.8.
Model for students how to complete the second section of the Assessing Sources Tool using the Assessing Sources Handout as a guide by writing the following notes on a model tool.

- Students follow along with the modeling.

<table>
<thead>
<tr>
<th>Assessing a Source Text’s Accessibility and Interest Level</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Accessibility to You as a Reader</strong></td>
</tr>
<tr>
<td>• The text seems accessible. The reference to dogs and people makes it easier to relate to.</td>
</tr>
<tr>
<td>• The short paragraphs help.</td>
</tr>
<tr>
<td>• From this excerpt it seems that I will comprehend the whole essay because I understand most of the words and I can look up the rest that I do not understand.</td>
</tr>
</tbody>
</table>

Inform students that at this point they do not have to address the Inquiry Path question and that later in the unit they will be looking closely at the concept.

Ask students the following question:

**What could the word accessibility mean based on the questions and answers just modeled?**

- It means how easy it is to read, comprehend, or approach.

Model for students how to complete the bottom section (Assessing a Source Text’s Relevance and Richness) of the Assessing Sources Tool by using the Assessing Sources Handout as a guide.

- Students follow along with the modeling.

<table>
<thead>
<tr>
<th>Assessing a Source Text’s Relevance and Richness</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Relevance to Topic &amp; Purpose</strong></td>
</tr>
<tr>
<td>• This article provides information about animal intelligence and specific experiments used to measure animal intelligence.</td>
</tr>
<tr>
<td>• Since my research involves</td>
</tr>
</tbody>
</table>

8
### Assessing a Source Text’s Relevance and Richness

<table>
<thead>
<tr>
<th>Relevance to Topic &amp; Purpose</th>
<th>Relevance to Area to Investigation</th>
<th>Scope and Richness</th>
</tr>
</thead>
<tbody>
<tr>
<td>both human and animal intelligence it will help my research because it will give me more insight into animal intelligence.</td>
<td>How do scientists measure animal intelligence? and Which animals do scientists study?</td>
<td>• The article provides a lot of details, especially discussing a variety of experiments. • Most of the texts about animal intelligence use studies to support their point of view.</td>
</tr>
</tbody>
</table>

Consider introducing the practice of skimming. It is an important skill to teach at this stage of the process. It serves two important purposes: it allows the reader to quickly identify if a source is relevant and it also enables the reader to select excerpts rather than read every word when completing tools like the Potential Sources Tool.

### Activity 4: Assessing Sources Independently

Instruct students to put aside the excerpt and take out one of their Potential Sources Tools from the previous lesson. Remind students that in the previous lesson they did not complete Step 3 of the tool. Today, following the assessment of sources, they will complete this section.

- Students put aside the excerpt and take out one of their Potential Sources Tools from the previous lesson.

Instruct students to independently assess one of the sources from the Potential Sources Tool using the Assessing Sources Handout as a guide and by completing an Assessing Sources Tool.

- Students locate a source and assess it by completing the Assessing Sources Tool.

See the end of the lesson for model student responses.

Instruct students to then complete Step 3 in the Potential Sources Tool for the source just assessed.

- Students individually complete Step 3 in the Potential Sources Tool for the source they just assessed.
Students need access to their sources. Unless students are able to print material, this activity will take place either in the library or a classroom with computers. Consider having the school’s librarian and/or media specialist help students use the technology. However, since students will need to annotate material in later lessons, printing the material is recommended.

Circulate around the room to monitor student progress. Check that students are using the Assessing Sources Handout when they assess their sources. Make sure they go back to the Potential Sources Tool and complete Step 3.

### Activity 5: Quick Write 10%

Instruct students to briefly respond to the following prompts:

Choose two sources from your Potential Sources Tool and, using the Assessing Sources Tool work, discuss your evaluation of them. Why did the sources earn their specific rates for accessibility, credibility, and relevance? Explain using information from your sources, your inquiry questions, and the criteria outlined on the Assessing Sources Handout.

Based on today’s work, what are your next steps? Are you going to need to find more sources? What sources do you need to look for? What holes remain in your research so far?

Remind students to use the Potential Sources Tool and Assessing Sources Tool to guide their written responses.

Display the prompt for students to see, or provide the prompt in hard copy.

- Students independently answer the prompt using the Potential Sources Tool and the Assessing Sources Tool work from the previous activity.

- See High Performance Response at the beginning of the lesson.

This assessment will be evaluated using the Assessing Sources Tool.

### Activity 6: Closing 5%

Display and distribute the homework assignment. Distribute additional Assessing Sources Tools to each student. For homework, instruct students to continue looking for three more sources based on selected inquiry questions from Unit 2, Lesson 2. Instruct students to rate the sources on the Potential Sources Tool using the Assessing Sources Handout and Tool. Additionally, students will record vocabulary from these preliminary searches in the vocabulary journal.

- Students follow along.
Consider instructing students to use notebooks or additional paper for the vocabulary journal. The notebook or additional paper can be kept in the Research Portfolio throughout the research process.

Instruct students to print hard copies of sources to bring to the following lesson, if possible.

Consider drawing students’ attention to their application of standard L.9-10.4.a,c,d by using context to make meaning of a word; consulting reference materials to clarify its precise meaning; verifying the preliminary determination of its meaning.

**Homework**

Continue looking for three more sources based on selected inquiry questions from Unit 2, Lesson 2. Rate the sources on the Potential Sources Tool using the Assessing Sources Handout and Tool. Additionally, record vocabulary from these preliminary searches in the Vocabulary Journal.
# Assessing Sources

## Assessing a Source Text's Credibility

Look at the information you can find about the text in the areas below, and consider the following questions to assess a source text’s credibility:

<table>
<thead>
<tr>
<th>Publisher</th>
<th>Date</th>
<th>Author</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>• What is the publisher’s relationship to the topic area?</td>
<td>• When was the text first published?</td>
<td>• What are the author’s qualifications/credentials relative to the topic area?</td>
<td>• What type of text is it: explanation, informational article, feature, research study, op/ed, essay, argument, other?</td>
</tr>
<tr>
<td>• What economic stake might the publisher have in the topic area?</td>
<td>• How current is the information on the topic?</td>
<td>• What is the author’s personal relationship to the topic area?</td>
<td></td>
</tr>
<tr>
<td>• What political stake might the publisher have in the topic area?</td>
<td>• How does the publishing date relate to the history of the topic?</td>
<td>• What economic/political stakes might the author have in the topic area?</td>
<td></td>
</tr>
</tbody>
</table>

## Assessing a Source Text’s Accessibility and Interest Level

Consider your initial experience in reading the text, how well you understand it, and whether it seems interesting to you:

<table>
<thead>
<tr>
<th>Accessibility to You as a Reader</th>
<th>Interest and Meaning for You as a Reader</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Am I able to read and comprehend the text easily?</td>
<td>• Does the text present ideas or information that I find interesting?</td>
</tr>
<tr>
<td>• How do the text’s structure and formatting either help or hinder me in reading it?</td>
<td>• Which of my Inquiry Paths will the text provide information for?</td>
</tr>
<tr>
<td>• Do I have adequate background knowledge to understand the terminology, information, and ideas in the text?</td>
<td>• Which inquiry questions does the text help me answer? How?</td>
</tr>
</tbody>
</table>

## Assessing a Source Text’s Relevance and Richness

Using your Research Frame as a reference, answer the following questions:

<table>
<thead>
<tr>
<th>Relevance to Topic &amp; Purpose</th>
<th>Relevance to Area of Investigation</th>
<th>Scope and Richness</th>
</tr>
</thead>
<tbody>
<tr>
<td>• What information does the text provide on the topic?</td>
<td>• How is the text related to the specific area I am investigating?</td>
<td>• How long is the text and what is the scope of the topic areas it addresses?</td>
</tr>
<tr>
<td>• How might the text help me accomplish the purpose for my research?</td>
<td>• Which of my paths of inquiry might the text provide information for?</td>
<td>• How extensive and supported is the information it provides?</td>
</tr>
<tr>
<td>• Does the text provide accurate information?</td>
<td>• Which inquiry questions might the text help me address? How?</td>
<td>• How does the information in the text relate to other texts?</td>
</tr>
</tbody>
</table>
## Assessing Sources Tool

<table>
<thead>
<tr>
<th>Name:</th>
<th>Class:</th>
<th>Date:</th>
</tr>
</thead>
</table>

### Assessing a Source Text’s Credibility

<table>
<thead>
<tr>
<th>Publisher</th>
<th>Date</th>
<th>Author</th>
<th>Type</th>
</tr>
</thead>
</table>

### Assessing a Source Text’s Accessibility and Interest Level

<table>
<thead>
<tr>
<th>Accessibility to You as a Reader</th>
<th>Interest and Meaning for You as a Reader</th>
</tr>
</thead>
</table>

### Assessing a Source Text’s Relevance and Richness

<table>
<thead>
<tr>
<th>Relevance to Topic &amp; Purpose</th>
<th>Relevance to Area of Investigation</th>
<th>Scope and Richness</th>
</tr>
</thead>
</table>

Model Assessing Sources Tool (for Source #2)

Name: 
Class: 
Date: 

Assessing a Source Text’s Credibility

<table>
<thead>
<tr>
<th>Publisher</th>
<th>Date</th>
<th>Author</th>
<th>Type</th>
</tr>
</thead>
</table>
| National Geographic | • National Geographic publishes many articles about science topics like animal intelligence.  
|            | • The publisher has a stake in producing articles that are supported by real research since it is considered an academic nonfiction magazine. | • March 2008  
|            | • The date indicates that the information is current. | • It says at the end of the article that the author, Virginia Morell, is a science writer who often writes for National Geographic.  
|            | • The topic seems to have a longer history as indicated by the research date first discussed in the opening paragraph (1977), but 2008 is relatively recent so there might be current research in the article. | • This is an article. It is an informational text that includes reporting on studies.  
|            | | • It seems that she is not a scientist but someone who has a general interest in the topic. | • The purpose of this article is to illustrate the intelligence of animals and therefore relates to the research question, How does animal intelligence compare to human intelligence? |

Assessing a Source Text’s Accessibility and Interest Level

<table>
<thead>
<tr>
<th>Accessibility to You as a Reader</th>
<th>Interest and Meaning for You as a Reader</th>
</tr>
</thead>
</table>
| • The text seems accessible. The reference to dogs and people makes it easier to relate to.  
| • The short paragraphs help.  
| • From this excerpt it seems that I will comprehend the whole essay because I understand most of the words and I can look up the rest that I do not understand. | • Very interesting. I always thought parrots only repeat people and now it seems they actually think for themselves.  
| | • One of my inquiry questions was: How do scientists measure animal intelligence? This essay addresses this question directly. |
### Assessing a Source Text’s Relevance and Richness

<table>
<thead>
<tr>
<th>Relevance to Topic &amp; Purpose</th>
<th>Relevance to Area of Investigation</th>
<th>Scope and Richness</th>
</tr>
</thead>
<tbody>
<tr>
<td>• This article provides information about animal intelligence and specific experiments used to measure animal intelligence.</td>
<td>• It deals with measuring animal intelligence and therefore relates to my area of investigation and several inquiry questions.</td>
<td>• This is a long article (10 pages). I skimmed the article first and I realized that she talks about human intelligence and the way that Darwin approaches it.</td>
</tr>
<tr>
<td>• Since my research involves both human and animal intelligence it will help my research because it will give me more insight into animal intelligence.</td>
<td>• The inquiry questions that this article might help me answer are: How do scientists measure animal intelligence? And another one is: Which animals do scientists study?</td>
<td>• The article provides a lot of details, especially discussing a variety of experiments.</td>
</tr>
<tr>
<td>• Since the article is from a credible source and reputable studies are used to support the information then I can assume that the information is accurate.</td>
<td></td>
<td>• Most of the texts about animal intelligence bring studies to support their point of view.</td>
</tr>
</tbody>
</table>

Introduction

In this lesson, students will read and analyze pages 9–14 from *Animals in Translation* (from “By the time I got to college” to “capable of a lot more than anybody thought, and that was a good thing”). In this portion of the text, Grandin unfolds her analysis of the behaviorist field of psychology.

This lesson is students’ first introduction to the different fields of psychology that are foundational for understanding Grandin’s unique point of view as an animal specialist. The lesson assessment asks students to analyze how Grandin unfolds her analysis of behaviorism. Students will also continue to track potential topics for research and practice how to generate inquiry questions from research topics, a fundamental starting point in the research process in this module. For homework, students will begin informally researching in order to explore, begin to build background knowledge, and generate interest around potential topics. The inquiry questions generated in class will guide students as they begin to explore research topics.

Standards

<table>
<thead>
<tr>
<th>Assessed Standard(s)</th>
<th>RI.9-10.3</th>
<th>Analyze how the author unfolds an analysis or series of ideas or events, including the order in which the points are made, how they are introduced and developed, and the connections that are drawn between them.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Addressed Standard(s)</strong></td>
<td>RI.9-10.1.a</td>
<td>Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text. a. Develop factual, interpretive, and evaluative questions for further exploration of the topic(s).</td>
</tr>
<tr>
<td><strong>Addressed Standard(s)</strong></td>
<td>RI.9-10.2</td>
<td>Determine a central idea of a text and analyze its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.</td>
</tr>
<tr>
<td><strong>Addressed Standard(s)</strong></td>
<td>L.9-10.4.c</td>
<td>Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning, its part of speech, or its etymology.</td>
</tr>
</tbody>
</table>
Assessment

The learning in this lesson will be captured through a Quick Write at the end of the lesson. Students will answer the following prompt based on the close reading (citing text evidence and analyzing key words and phrases) completed in the lesson.

- How does Grandin introduce and develop her analysis of behaviorism? What connections does she make between her perspective and her analysis of behaviorism?

This assessment will be evaluated using the Short Response Rubric.

High Performance Response(s)

A high performance response may include the following:

- Grandin introduces behaviorism as a popular field of psychology when she started university, “the whole field of psychology was B.F. Skinner and behaviorism” (p. 9). Behaviorists believed that since you can “measure only behavior” environment is the “only thing that mattered” (p. 9). Behaviorists also study the effect of positive and negative reinforcements to shape or modify behaviors, “punishing a bad behavior isn’t as effective as rewarding a good behavior” (p. 9). Grandin understands that there are benefits to behaviorism and the study of environment but she also believes, “Behaviorists made a big mistake declaring the brain off-limits” (p. 11). Grandin came to this conclusion through her own experiences and perspective: “I didn’t believe it because I had problems that sure didn’t seem to be coming from my environment” (p. 11).

Vocabulary

Vocabulary to provide directly (will not include extended instruction)

- behaviorism (n.) – the theory or doctrine that human or animal psychology can be accurately studied only through the examination and analysis of objectively observable and quantifiable behavioral events, in contrast with subjective mental states
- ethology (n.) – the study of animal behavior with emphasis on the behavioral patterns that occur in natural environments
- operant conditioning (n.) – the process of behavior modification that changes a subject’s behavior based on positive and negative reinforcements
- media specialist (n.) – In schools, the term covers a broad spectrum of educational roles. It can mean the person who operates audio-visual equipment, the librarian, a teacher with broad knowledge of media resources and the communication process, or one who helps other teachers or students locate an array of resources.
Vocabulary to teach (may include direct word work and/or questions)

- stimulus (n.) – something that causes or quickens action

Lesson Agenda/Overview

<table>
<thead>
<tr>
<th>Student-Facing Agenda</th>
<th>% of Lesson</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Standards &amp; Text:</strong></td>
<td></td>
</tr>
<tr>
<td>Standards: RI.9-10.3, RL.9-10.1.a, RL.9-10.2, L.9-10.4.c</td>
<td></td>
</tr>
<tr>
<td>Text: <em>Animals in Translation</em>, Chapter 1, pages 9–14</td>
<td></td>
</tr>
<tr>
<td><strong>Learning Sequence:</strong></td>
<td>1. 5%</td>
</tr>
<tr>
<td>1. Introduction Lesson Agenda</td>
<td></td>
</tr>
<tr>
<td>2. Homework Accountability</td>
<td>2. 15%</td>
</tr>
<tr>
<td>3. Pages 9–14 Reading and Discussion</td>
<td>3. 40%</td>
</tr>
<tr>
<td>4. Posing Inquiry Questions</td>
<td>4. 25%</td>
</tr>
<tr>
<td>5. Quick Write</td>
<td>5. 10%</td>
</tr>
<tr>
<td>6. Closing</td>
<td>6. 5%</td>
</tr>
</tbody>
</table>

Materials

- Student copies of the Topic Tracking Tool (refer to 9.3.1 Lesson 2)
- Copies of the Posing Inquiry Questions Handout for each student
- Student copies of the Short Response Rubric and Short Response Checklist (refer to 9.3.1 Lesson 1)

Learning Sequence

<table>
<thead>
<tr>
<th>How to Use the Learning Sequence</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Symbol</strong></td>
</tr>
<tr>
<td>10%</td>
</tr>
<tr>
<td>no symbol</td>
</tr>
<tr>
<td>Bold text</td>
</tr>
<tr>
<td><em>italicized text</em></td>
</tr>
<tr>
<td>Indicates student action(s).</td>
</tr>
<tr>
<td>Indicates possible student response(s) to teacher questions.</td>
</tr>
<tr>
<td>Indicates instructional notes for the teacher.</td>
</tr>
</tbody>
</table>
Activity 1: Introduction of Lesson Agenda 5%

Begin by reviewing the agenda and the assessed standard for this lesson: RI.9-10.3. Inform students that they will be examining how Grandin unfolds her analysis of behaviorism in this chapter as well as tracking topics and learning how to generate inquiry questions.

- Students look at the lesson agenda.

Activity 2: Homework Accountability 15%

Instruct students to Turn-and-Talk with a classmate about the definitions of behaviorism and ethology they found for homework.

1. **Differentiation Consideration:** Consider reminding students these are difficult concepts and knowing the definition of these terms will help them understand the text. This is why, in addition to common online reference materials, students were encouraged to use audio and video to help gain an understanding of these terms. Explain to students that it is also helpful to put these definitions in their own words to make sure they fully comprehend the definition.

1. **Differentiation Consideration:** Consider leading a brief whole-class discussion in order to clarify the meaning of behaviorism and ethology before students talk in pairs.

- Students Turn-and-Talk with a classmate, discussing the definitions they found for homework.

  - Student responses should include:
    - **Behaviorism** is the theory that human or animal psychology can be accurately studied and measured in a laboratory.
    - **Ethology** is the study of animal behavior in the animal’s natural environment.

Ask students:

**How did the resources you found help you understand these terms?**

1. Remind students that additional resources such as video clips that reinforce understanding of an idea or concept will be part of their Module Performance Assessment.

1. It is important that students have an understanding of behaviorism as well as ethology as they continue to read Animals in Translation and it may be necessary to check in with student pairs or the entire class to confirm their understanding.

- Student pairs discuss the resources they found and how it helped them understand behaviorism and ethology.

  - Student responses will vary depending on the resource:
This entry on dictionary.reference.com helped me understand ethology because it mentions that ethology emphasizes behavior that happens in natural environments. [http://dictionary.reference.com/browse/ethology?s=t]

This video, “Behaviorism 101, by user Nessy Mond,” helped me understand behaviorism because it presented information in a clear way and used visuals effectively.

The video “Animal Behavior” by Bozeman Science helped me understand that ethology studies a wide variety of animal behaviors in their natural environments. This video used a lot of pictures and helpful examples.

Activity 3: Pages 9–14 Reading and Discussion 40%

Introduce and display the Quick Write assessment (How does Grandin introduce and develop her analysis of behaviorism? What connections does she make between her perspective and her analysis of behaviorism?)

- Students read the Quick Write assessment.

Instruct students to take out their Topic Tracking Tool introduced in the previous lesson. Inform students that they will continue to record potential topics for research as they read and discuss this portion of Animals in Translation. Explain to students that they will discuss potential topics for research with a partner as they emerge from the text. Remind students to record the topics as well as the key details from Animals In Translation about the topic on their Topic Tracking Tool.

Instruct students to form pairs and read pages 9–10 (from “By the time I got to college I knew” to “I wanted to talk to him about some of the research I had done”). Instruct students to discuss the following questions and record their answers.

- Potential topics can be found on the modeled Topic Tracking Tool at the end of this lesson. The topics revealed during Lessons 1 and 2’s in-class work and assessments should provide a solid foundation for this work.

- Student pairs take out their Topic Tracking Tool, read, discuss, track topics, and record their answers to the questions.

According to Grandin what is the central feature behaviorists observe when studying an animal or human psychology?
Grandin writes that behaviorists believe that the “environment was the only thing that mattered” (p. 9).

**Differentiation Consideration:** Remind students that this is the reason they searched, defined, and found a resource to understand the concept of behaviorism and that sometimes authors don’t always explain complicated concepts in a text.

**What is the “black box” and why was it off-limits to behaviorists?**

- It was stuff, intelligence, emotions, and motives that you could not measure. Behaviorists only look at environment because you cannot see what is happening inside a person or an animal’s head.

**What is the difference between punishment and negative reinforcement?**

- Punishment is something bad happening to you and negative reinforcement is “something you don’t like either stops or doesn’t start in the first place.”

**Differentiation Consideration:** Consider these questions to scaffold student understanding of positive and negative reinforcements:

- **What is the effect of positive and negative reinforcements?**
  - Positive and negative reinforcements shape animal behavior. “Animals only had behavior, which was shaped by...positive and negative reinforcements from their environment.”

- **What kind of reinforcements are the most effective?**
  - Grandin writes that “rewarding good behavior” is more effective than punishment.

Based on Grandin’s explanations of different types of positive and negative reinforcements, explain in your own words what she means by “stimulus-response machines.”

- Behaviorists thought that animals were “stimulus-response machines” (p. 10), meaning that they would all react the same way to positive and negative reinforcements in an automatic way.

**What details has Grandin introduced about behaviorism in this portion of text? Give three pieces of evidence to support your answer.**

- Grandin has introduced several details about behaviorism. First, behaviorists believe that “environment was the only thing that mattered,” (p. 9) when studying animals who they think do not “have emotions or intelligence,” (p. 9). Grandin writes that behaviorists think that since animals are totally behavior driven their behavior can be “shaped by rewards, punishments.”
Differentiation Consideration: Consider modeling behaviorism as a potential research topic to students who may need more support with the Topic Tracking Tool.

Ask students to read pages 10–12 (from “His office called and invited me down” to “It works better because it respects the animal’s behavior”). Instruct students to discuss the following questions and record their answers. Remind students to continue to record potential research topics on their Topic Tracking Tool.

Provide the definition of operant conditioning as: the process of behavior modification that changes a subject’s behavior based on “positive and negative reinforcements from their environment,” (p. 9).

Student pairs read, discuss, track topics, and record their answers to the questions.

Why did Dr. Skinner believe that operant conditioning made the study of the brain unnecessary?

Skinner believed that studying the effect of positive and negative reinforcements on behavior was such a powerful way to understand animal and human thinking that studying the brain did not seem necessary. “Animals only had behavior, which was shaped by rewards, punishments, and positive and negative reinforcements from the environment” (p. 9).

What made Grandin believe that Dr. Skinner’s claim that operant conditioning was wrong? Give evidence to support your answer.

From her own experience Grandin saw that she “had problems that sure didn’t seem to be coming from my environment.” In addition, in her ethology class she studied how instincts are “hardwired” into the animal without any influence from the environment.

What is the connection between behaviorists and ethologists? What does Grandin think about their approach to studying animals?

Behaviorists and ethologists both study animals in their environments. Behaviorists study animals in laboratories while ethologists study them in their natural environments. Grandin, however, thinks that “looking at animals [only] from the outside” and “declaring the brain off-limits” (p. 11) is a big mistake.

How does Grandin support her claim that “the equipment won’t work if the environment is bad”?

Grandin supports this claim through her experience with designing equipment in the meatpacking industry, comparing the inefficient old V-restrainers with her new design: “animals don’t like to walk into a space where they feel like there isn’t enough space for their feet”
She also says “a lot of plant owners don’t think twice about their cattle’s environment” (p. 12). Her innovation in the industry is a result of examining the cattle’s environment as well as viewing the environment from their perspective.

**Why does Grandin claim she is not an “enemy of behaviorism”?**

- Grandin makes this claim because she uses behaviorism a lot in her work with animals, “My design innovation wasn’t technological, it was behavioral.” She uses behaviorism to support her understanding of animals but doesn’t believe “the laws of learning were simple and universal, and all creatures followed them” (p. 12).

**How does Grandin develop her analysis of behaviorism in this portion of text?**

- Grandin writes that she did not agree with Dr. Skinner’s statement that operant conditioning was the only thing that needed to be studied to understand the psychology of an animal. Grandin disproves Dr. Skinner’s claim using her knowledge of ethology as well as her own experience, “I had problems that sure didn’t seem to be coming from my environment” (p. 11). Grandin also introduces positive aspects of behaviorism, making her analysis more complex. She writes that behaviorist’s focus on the study of the environment “was a huge step forward” (p. 11) toward understanding animal behavior.

Ask students to read pages 12–14 (from “But the plants don’t realize that” to “capable of a lot more than anybody thought, and that was a good thing”). Instruct students to discuss the following questions and record their answers. Remind students to continue to record potential research topics on their Topic Tracking Tool.

**What was the significance of Dr. Lovaas’s study? How does the inclusion of this study further develop Grandin’s analysis of behaviorism?**

- Dr. Lovaas’s study was important because it gave “a reason to think that autistic people were capable of a lot more than anybody thought” (pp. 13–14). This study develops Grandin’s positive analysis of behaviorism, its benefits, and successes even if she does not fully agree with all behaviorist ideas.

### Activity 4: Posing Inquiry Questions 25%

Instruct students to keep out their Topic Tracking Tool. Inform students that they will continue to record topics, the same way they were introduced to in the previous lesson, and that today they will begin to use these topics to generate inquiry questions to deepen their understanding. Explain to students that during this research process they will be using inquiry questions to guide their research and analysis.
This process is recurring and they will continue to surface new questions as they acquire information about their research topics.

- Students listen.

Inform students that *Animals in Translation* will be used to generate sample topics for research in this module. Explain that Temple Grandin touches on many topics throughout the first chapter of *Animals in Translation*. Of these, they will use autism as a sample topic to generate inquiry questions as a class. Distribute the Posing Inquiry Questions Handout to students. Inform students that they will be focusing on generating inquiry questions that they will select and refine in later lessons. At this stage, the inquiry questions are meant to guide an initial exploration of a topic. Instruct students to read the Generating Questions portion of the handout.

- Students read the Generating Questions portion of the handout.

Explain to students that by using the questions on the handout concerning each individual topic, it is possible to come up with a wide variety of inquiry questions. Remind students to consider what they find interesting and what they would like to know more about when they are generating questions. Explain to students at this stage it is best to brainstorm as many questions as possible.

- Students listen.

Display the autism topic for students and the example inquiry question: How does autism affect the human brain? Explain to students that based on the “What are its causes and implications?” prompt from the handout this is an open-ended inquiry question. Ask students to volunteer potential inquiry questions.

- Student responses may include:
  
  o How is autism defined?
  o What is the history of autism?
  o Where did autism originate?
  o What are the major aspects of autism?
  o What are the characteristics of autism?
  o Why might people with autism be able to understand animals better than people without autism?
  o What else is autism connected and associated with?
  o Who are famous or important autistic people?
  o Who is an expert on autism?
  o Are there countries that have more people with autism than others?
Instruct students to form pairs, choose a topic from the Topic Tracking Tool and generate five inquiry questions.

- Student responses will vary depending on the potential research topic. Student responses may include:

  Topic: Behaviorism
  Inquiry Questions:
  o What is the history of behaviorism?
  o Who are experts in behaviorism?
  o What are major aspects of behaviorism?
  o What are important discoveries behaviorists have found when observing animals?
  o What else is behaviorism associated with besides animal psychology?

**Activity 5: Quick Write 10%**

Instruct students to respond to the following Quick Write prompt:

**How does Grandin introduce and develop her analysis of behaviorism? What connections does she make between her perspective and her analysis of behaviorism?**

1. Display the prompt for students to see, or provide the prompt in hard copy.

Remind students to use the Short Response Checklist and Short Response Rubric to guide their written responses.

- Students independently respond to the Quick Write prompt.
- See the High Performance Response at the beginning of this lesson.

**Activity 6: Closing 5%**

Display and distribute the homework assignment. For homework, instruct students to begin researching unknown topics using their inquiry questions developed in class as a guide. Remind students to consult other teachers, librarians, media specialists, books, the Internet, or any other available resource. The purpose of exploring a topic at this stage is to identify areas of interest within the topic and explore the dimensions of a topic. Instruct students to write 1–2 sentences identifying their area of interest within their research topic and come to the following lesson prepared to discuss one area of interest.
Explain to students that a media specialist can be the person who operates audio-visual equipment, the librarian, a teacher with broad knowledge of media resources and the communication process, or one who helps other teachers or students locate an array of resources.

It may be helpful to identify ahead of time the appropriate person/people in the building who will assist students with locating resources for their research.

- Students follow along.

**Homework**

Use your inquiry questions to guide your research and begin exploring various dimensions of a topic. Consult other teachers, media specialists, librarians, books, the Internet, or any other available resources. Begin to identify areas of interest within your research topic. Write 1–2 sentences identifying your area of interest within your research topic and be prepared to discuss one area of interest in the following lesson.
### Model Topic Tracking Tool

<table>
<thead>
<tr>
<th>Topic</th>
<th>Page Number(s)</th>
<th>Key Information About the Topic from the Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>behaviorism</td>
<td>9–14</td>
<td>Grandin writes that behaviorism dominated the whole field of psychology. To behaviorists “environment was the only thing that mattered.” They thought animals had no emotions only behaviors.</td>
</tr>
<tr>
<td>B.F. Skinner</td>
<td>9–12</td>
<td>Dr. Skinner was, according to Grandin, “the god of psychology.” He was a very influential behaviorist thinker.</td>
</tr>
<tr>
<td>ethology</td>
<td>11</td>
<td>Ethology is a field of animal psychology as well. Although the big difference from behaviorism is that, “ethologists study animals in their natural environment.”</td>
</tr>
<tr>
<td>meatpacking industry</td>
<td>12</td>
<td>Grandin writes about her work in the meatpacking industry. A system she designed is being used in “half of all the plants in North America.” She writes that environment is very important for an efficient cattle plant.</td>
</tr>
<tr>
<td>classical operant conditioning</td>
<td>11, 13</td>
<td>Grandin writes about classical operant conditioning in relation to a study done with autistic children: “having the kids go over and over the behaviors.”</td>
</tr>
</tbody>
</table>

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Posing Inquiry Questions Handout

Name: ____________________________  Class: ____________________________  Date: ____________________________

Generating Questions

In this module, *Animals in Translation* is a starter or “seed text” that helps generate potential topics that drive the research process. Topics that are identified in the text will be used to pose inquiry questions. These inquiry questions will help illuminate different potential areas of investigation within a research topic. When generating inquiry questions, it is often a good idea to brainstorm as many as possible before selecting and refining the richest ones. Here are several to help you get started:

- How is the topic defined?
- What are its major aspects?
- Where did it originate?
- What are its causes and implications?
- What is its history?
- What other things is it connected to or associated with?
- What are its important places, things, people, and experts?

Selecting and Refining Questions

Once the brainstorming process is completed, it is important to review and select the strongest questions generated. Use these questions to assist with selecting and refining the strongest inquiry questions:

**Are you genuinely interested in answering your question?**

There is a lot of work involved in research and genuine interest motivates the research process. The best questions are about things that are interesting to individual researchers and what they consider to be valuable information.

**Can your question truly be answered through your research?**

Some questions are unanswerable (Are there aliens on Jupiter?) or take years to answer (What is the meaning of life?). A good inquiry question must be realistic and researchable.

**Is your question clear? Can you pose your question in a way that you and others understand what you are asking?**

Good inquiry questions are straightforward and not confusing. If the question has two parts it may be better to separate the parts to form two new questions.
What sort of answers does your question require?

Questions that can be answered with a simple YES or NO generally do not make good inquiry questions. Good inquiry questions should support lots of investigation that may even lead to multiple answers, and more questions. For example, the question “What are the characteristics of autism?” could lead to asking questions about how these characteristics are defined and when they were first discovered.

Do you already know what the answer is?

Good inquiry questions are actually questions that cannot be answered immediately. The research process involves inquiry, finding more information about a question, and developing a perspective based on the evidence discovered and this cannot happen if the question is already answered or too simplistic. For example there is a big difference between the question, “Do I know anyone with autism?” (an easily answered question that requires little research) and, “What is the history of autism?” (a question that would require a lot of research).