

“BAIT WEB” ANGLING: UNDERSTANDING AQUATIC FOOD WEBS

6th-8th Grade Discussion Guide

Developed by: Dan Bertalan and Phyllis McKenzie

SCIENCE CATEGORIES

Life Science, Physical Science, Environmental Science

TIMEFRAME

Three, 45-minute Sessions

MATERIALS

Access to computers and the internet, Pre-lesson Worksheet,
Four (4) Student “Bait Web” Group Worksheets

TOPICS

Aquatic food webs, fish species, angling



LEARNING OBJECTIVES

Students will be able to:

- Understand the differences in various aquatic ecosystem food webs. They will then be able to convert that understanding to effectively selecting and using various live baits to catch key fish species.
- Define the reasons for matching certain live fishing baits with various fish species in different aquatic ecosystems, then develop a fishing plan to catch fish.
- Use video, online research and classroom discussion in developing and supporting their understanding of aquatic food webs.
- Work in small and large groups to process new information and use various life science evidence to develop and come to conclusions.

ACTIVITY SUMMARY

Students will research, prepare and make presentations on a variety of aquatic food webs as they relate to what baits anglers could effectively use in those different ecosystems and match them to catching key fish species.

BACKGROUND INFORMATION

OVERVIEW

(To students) You’re about to embark on an adventure at Camp Wilderness where you will spend part of the time becoming aquatic ecologists studying various lake and river food webs, then use that knowledge to effectively select and use live baits to catch various species of fish to share with your class at the big camp fish fry. Imagine that, becoming smarter, eating healthy and having fun at the same time!

(For Teacher) By taking part in this lesson, students will develop an understanding of the importance and concepts of aquatic food webs, using critical thinking in a peer-driven activity where students ask critical questions, perform research, debate, and create their own bait-angling plans for various species of fish.

LEARNING PROCEDURE

Hooks & Baits classroom video and background information can be found at; intotheoutdoors.org/topics/into-fishing-with-cane-poles/

SESSION 1

Before watching the *Hooks & Baits* classroom video, or, reading the website background information, ask students what they know about lake and river food webs. Also ask students how many have actually been fishing using live baits and what species of fish they may have caught. Then lead a class discussion about the relationship between natural food webs and fishing baits.

Print and distribute the *Pre-Lesson Student Worksheet* (copy contained in this PDF). Instruct students to fill in the worksheet while watching the *Hooks & Baits* classroom video. Go over the questions with the students before viewing so they know what to look and listen for. After viewing the video, review and discuss the answers to the questions as a class.

Next, divide the class into these four (4) “Bait Web” Groups;

- Trout Rivers
- Perch Lakes
- Bluegill Ponds
- Bass Reservoirs

Print and hand out the four group worksheets (copies contained in this PDF). Inform students they will be working together within their respective groups to achieve the different and group-specific goals detailed in their assigned worksheets. Explain briefly what they will do in each of the three sessions. Answer any questions about the assignment.

SESSION 2 - Group Research & Plan Development

Each of the four (4) groups have specific and somewhat different goals in developing a “Bait Web” fishing plan.

In their separate groups, have students perform online research from the resource links provided on the webpage, plus other sources they discover, then discuss and develop their group’s “Bait Web” fishing plan that best matches live bait with their respective ecosystem food web. The worksheets provide specific group (and different) instructions for students on what to consider in developing their plans. Inform each group that two members of their group will also present their “Bait Web” fishing plan to the entire class during Session 3. Their presentations should be supported by research and/or evidence, and presented with at least one form of “angler education” art or media prepared by the group (either video, poster, graphs, charts, images, or art).

SESSION 3 – Student Group Presentations & Class Discussion

Using their completed worksheets, have each group present their “Bait Web” fishing plan and supporting research. Limit each group to five minutes presentation time followed by several minutes of questions and discussion between the groups. Encourage discussion about differences in the plans and how those differences relate to catching different species of fish in various ecosystems.

After the four groups each present their “Bait Web” fishing plan, lead a class discussion on how the different groups might develop some form of bait-web angler education for kids that could be used in almost any part of the country. Consider how their bait-web angler education materials might be distributed (social media, YouTube).

Conclude Session 3 by listing on the board the several important aspects of each groups’ fishing plan. Then list the prime fish species that might be caught using their plans. Lead a discussion with student input on how they might actually use what they’ve learned to go fishing with their family or friends.

ASSESSMENT

Students will be informally assessed based on their participation within their groups and during class presentations and discussions. Teachers could collect the discussion notes students took during the video to check for completion.

Students can be formally assessed using their Student Worksheets. Students can be assessed on meeting the formal learning objectives on how thoroughly students completed their respective worksheets.

EXTENDING THE LESSON *(Options for extended/additional activities and lessons)*

(With permission and supervision of parents) Using their “bait-web” plans, student groups can go fishing, and use their smart phones to video and edit instructional (and entertaining) videos on how to use certain baits to catch targeted species of fish. Students should watch the reference videos about and practice “water safety” before they go fishing. Then they can present their completed instructional videos to class for discussion, and consider distributing their videos *(with parent permissions)* via various social media or video channels (YouTube, Vimeo).



WORKSHEET FOR CANE POLES & KIDS VIDEO - BAIT WEBS

Developed by: Dan Bertalan and Phyllis McKenzie



Student Name: _____ Class: _____ Date: _____

Before watching the video or exploring the website, review these questions, look for and write down your answers while watching the video.

1) What are common baits anglers might use to catch fish?

2) What are some naturally occurring foods that fish eat in various aquatic ecosystems?

3) How do different baits relate to different species of fish?

4) What might be the benefits of using worms in a fishing pond?

5) What kinds of baits might a person collect by themselves in nature?

6) What kinds of baits might be best suited to get at a bait shop?

7) What kinds of "fun baits" or "human foods" might be used to catch fish?



BASS RESERVOIRS

Web-Bait Plan Worksheet

Developed by: Dan Bertalan and Phyllis McKenzie



Student Name: _____ Class: _____ Date: _____

Welcome to the Bass Reservoirs group. Here's the deal...

You're about to embark on an adventure at Camp Wilderness where you will spend part of the time becoming aquatic ecologists studying "bass reservoir" food webs, then use that knowledge to effectively select and use certain live baits to catch bass to share with your class at the big camp fish fry. Imagine that, becoming smarter, eating healthy and having fun at the same time!

The goal of your group has three main parts:

1. Research and create a graphic of the food web within a "bass reservoir" where bass are one of the prime "predators" in that food web. Identify all the various aquatic-related organisms that bass commonly eat, and place them in the appropriate parts of the food web (research "food pyramids"). Also include top tier predators in that food web (certain other fish, birds and/or mammals) Note to research: Largemouth bass are one of the few freshwater species that also eat birds, mammals and amphibians and should be included within its food web.
2. Using that knowledge, create a bass "bait-web" of the various live baits that anglers (and you) could use to catch bass that are similar to the actual organisms in the food web. Identify which of those live baits you could collect yourself in nature, and which live baits would be better to get at a bait shop.
3. Create one form of "angler education" art or media presentation prepared by your group (either video, poster, graphs, charts, images, or art) to present to the class in Session 3. Your presentation should be supported by research and offer "pathways to participation" (an actual bait web fishing plan on where to go and what live baits to use) on how students might actually catch bass, plus other possible "bonus species" that you might catch using bass baits.

Now go create an awesome Bass Reservoir Web-Bait Plan to present in Session 3.

BLUEGILL PONDS

Web-Bait Plan Worksheet

Developed by: Dan Bertalan and Phyllis McKenzie



Student Name: _____ Class: _____ Date: _____

Welcome to the Bluegill Ponds group. Here's the deal...

You're about to embark on an adventure at Camp Wilderness where you will spend part of the time becoming aquatic ecologists studying "bluegill pond" food webs, then use that knowledge to effectively select and use certain live baits to catch bluegills to share with your class at the big camp fish fry. Imagine that, becoming smarter, eating healthy and having fun at the same time!

The goal of your group has three main parts:

1. Research and create a graphic of the food web within a "bluegill pond" where bluegills are one of the prime "predators" in that food web. Identify all the various aquatic organisms that "gills" commonly eat, and place them in the appropriate parts of the food web (research "food pyramids"). Also include top tier predators in that food web (certain other fish, birds and/or mammals).
2. Using that knowledge, create a bluegill "bait-web" of the various live baits that anglers (and you) could use to catch bluegill that are similar to the actual organisms in the food web. Identify which of those live baits you could collect yourself in nature, and which live baits would be better to get at a bait shop.
3. Create one form of "angler education" art or media presentation prepared by your group (either video, poster, graphs, charts, images, or art) to present to the class in Session 3. Your presentation should be supported by research and offer "pathways to participation" (an actual bait web fishing plan on where to go and what live baits to use) on how students might actually catch bluegill, plus other possible "bonus species" that you might catch using bluegill baits.

Now go create an awesome Bluegill Pond Web-Bait Plan to present in Session 3.



PERCH LAKES

Web-Bait Plan Worksheet

Developed by: Dan Bertalan and Phyllis McKenzie



Student Name: _____ Class: _____ Date: _____

Welcome to the Perch Lakes group. Here's the deal...

You're about to embark on an adventure at Camp Wilderness where you will spend part of the time becoming aquatic ecologists studying "perch lake" food webs, then use that knowledge to effectively select and use certain live baits to catch perch to share with your class at the big camp fish fry. Imagine that, becoming smarter, eating healthy and having fun at the same time!

The goal of your group has three main parts:

1. Research and create a graphic of the food web within a "perch lake" where perch are one of the prime "predators" in that food web. Identify all the various aquatic organisms that perch commonly eat, and place them in the appropriate parts of the food web (research "food pyramids"). Also include top tier predators in that food web (certain other fish, birds and/or mammals).
2. Using that knowledge, create a perch "bait-web" of the various live baits that anglers (and you) could use to catch perch that are similar to the actual organisms in the food web. Identify which of those live baits you could collect yourself in nature, and which live baits would be better to get at a bait shop.
3. Create one form of "angler education" art or media presentation prepared by your group (either video, poster, graphs, charts, images, or art) to present to the class in Session 3. Your presentation should be supported by research and offer "pathways to participation" (an actual bait web fishing plan on where to go and what live baits to use) on how students might actually catch perch, plus other possible "bonus species" that you might catch using perch baits.

Now go create an awesome Perch Lakes Web-Bait Plan to present in Session 3.



TROUT RIVERS

Web-Bait Plan Worksheet

Developed by: Dan Bertalan and Phyllis McKenzie



Student Name: _____ Class: _____ Date: _____

Welcome to the Trout Rivers group. Here's the deal...

You're about to embark on an adventure at Camp Wilderness where you will spend part of the time becoming aquatic ecologists studying "trout river" food webs, then use that knowledge to effectively select and use certain live baits to catch trout species to share with your class at the big camp fish fry. Imagine that, becoming smarter, eating healthy and having fun in a trout river at the same time!

The goal of your group has three main parts:

1. Research and create a graphic of the food web within a cold-water river where trout are one of the prime "predators" in that food web. Identify all the various insects and other aquatic organisms that trout commonly eat, and place them in the appropriate part of the food web (research "food pyramids"). Also include top tier predators in that food web (certain other fish, birds and/or mammals).
2. Using that knowledge, create a "bait-web" of the various live baits that anglers (and you) could use to catch trout that are similar to the actual organisms in the food web. Identify which of those live baits you could collect yourself in nature, and which live baits would be better to get at a bait shop.
3. Create one form of "angler education" art or media presentation prepared by your group (either video, poster, graphs, charts, images, or art) to present to the class in Session 3. Your presentation should be supported by research and offer "pathways to participation" (an actual bait web fishing plan on where to go and what live baits to use) on how students might actually catch certain trout species native to your area.

Now go create an awesome Trout Rivers Web-Bait Plan to present in Session 3.

The following National Common Core Standards can be met teaching:

“BAIT WEB” ANGLING: UNDERSTANDING AQUATIC FOOD WEBS

6TH GRADE:

CCSS.ELA-LITERACY.RI.6.1	Cite textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.
CCSS.ELA-LITERACY.RI.6.2	Determine a central idea of a text and how it is conveyed through particular details; provide a summary of the text distinct from personal opinions or judgments.
CCSS.ELA-LITERACY.RI.6.4	Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings.
CCSS.ELA-LITERACY.RI.6.6	Determine an author’s point of view or purpose in a text and explain how it is conveyed in the text.
CCSS.ELA-LITERACY.RI.6.7	Integrate information presented in different media or formats (e.g., visually, quantitatively) as well as in words to develop a coherent understanding of a topic or issue.
CCSS.ELA-LITERACY.W.6.1	Write arguments to support claims with clear reasons and relevant evidence.
CCSS.ELA-LITERACY.W.6.2	Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.
CCSS.ELA-LITERACY.W.6.3	Write narratives to develop real or imagined experiences or events using effective technique, relevant descriptive details, and well-structured event sequences.
CCSS.ELA-LITERACY.W.6.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
CCSS.ELA-LITERACY.W.6.5	With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.
CCSS.ELA-LITERACY.W.6.6	Use technology, including the Internet, to produce and publish writing as well as to interact and collaborate with others; demonstrate sufficient command of keyboarding skills to type a minimum of three pages in a single sitting.
CCSS.ELA-LITERACY.W.6.7	Conduct short research projects to answer a question, drawing on several sources and refocusing the inquiry when appropriate.
CCSS.ELA-LITERACY.W.6.8	Gather relevant information from multiple print and digital sources; assess the credibility of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and providing basic bibliographic information for sources.
CCSS.ELA-LITERACY.W.6.9	Draw evidence from literary or informational texts to support analysis, reflection, and research.
CCSS.ELA-LITERACY.W.6.10	Write routinely over extended time frames (time for research, reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.
CCSS.ELA-LITERACY.SL.6.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 6 topics, texts, and issues, building on others’ ideas and expressing their own clearly.
CCSS.ELA-LITERACY.SL.6.2	Interpret information presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how it contributes to a topic, text, or issue under study.

CCSS.ELA-LITERACY.SL.6.3	Delineate a speaker’s argument and specific claims, distinguishing claims that are supported by reasons and evidence from claims that are not.
CCSS.ELA-LITERACY.SL.6.4	Present claims and findings, sequencing ideas logically and using pertinent descriptions, facts, and details to accentuate main ideas or themes; use appropriate eye contact, adequate volume, and clear pronunciation.
CCSS.ELA-LITERACY.SL.6.5	Include multimedia components (e.g., graphics, images, music, sound) and visual displays in presentations to clarify information.
CCSS.ELA-LITERACY.SL.6.6	Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate.
CCSS.ELA-LITERACY.L.6.1	Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
CCSS.ELA-LITERACY.L.6.2	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
CCSS.ELA-LITERACY.L.6.3	Use knowledge of language and its conventions when writing, speaking, reading, or listening.
CCSS.ELA-LITERACY.L.6.4	Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 6 reading and content, choosing flexibly from a range of strategies.
CCSS.ELA-LITERACY.L.6.5	Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.
CCSS.ELA-LITERACY.L.6.6	Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases; gather vocabulary knowledge when considering a word or phrase important to comprehension or expression.

7TH GRADE:

CCSS.ELA-LITERACY.RI.7.1	Cite several pieces of textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.
CCSS.ELA-LITERACY.RI.7.3	Analyze the interactions between individuals, events, and ideas in a text e.g., how ideas influence individuals or events, or how individuals influence ideas or events).
CCSS.ELA-LITERACY.RI.7.4	Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of a specific word choice on meaning and tone.
CCSS.ELA-LITERACY.RI.7.6	Determine an author’s point of view or purpose in a text and analyze how the author distinguishes his or her position from that of others.
CCSS.ELA-LITERACY.W.7.1	Write arguments to support claims with clear reasons and relevant evidence.
CCSS.ELA-LITERACY.W.7.2	Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.
CCSS.ELA-LITERACY.W.7.3	Write narratives to develop real or imagined experiences or events using effective technique, relevant descriptive details, and well-structured event sequences.
CCSS.ELA-LITERACY.W.7.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

CCSS.ELA-LITERACY.W.7.5	With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on how well purpose and audience have been addressed.
CCSS.ELA-LITERACY.W.7.6	Use technology, including the Internet, to produce and publish writing and link to and cite sources as well as to interact and collaborate with others, including linking to and citing sources.
CCSS.ELA-LITERACY.W.7.7	Conduct short research projects to answer a question, drawing on several sources and generating additional related, focused questions for further research and investigation.
CCSS.ELA-LITERACY.W.7.8	Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.
CCSS.ELA-LITERACY.W.7.9	Draw evidence from literary or informational texts to support analysis, reflection, and research.
CCSS.ELA-LITERACY.W.7.10	Write routinely over extended time frames (time for research, reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.
CCSS.ELA-LITERACY.SL.7.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 7 topics, texts, and issues, building on others' ideas and expressing their own clearly.
CCSS.ELA-LITERACY.SL.7.2	Analyze the main ideas and supporting details presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how the ideas clarify a topic, text, or issue under study.
CCSS.ELA-LITERACY.SL.7.3	Delineate a speaker's argument and specific claims, evaluating the soundness of the reasoning and the relevance and sufficiency of the evidence.
CCSS.ELA-LITERACY.SL.7.4	Present claims and findings, emphasizing salient points in a focused, coherent manner with pertinent descriptions, facts, details, and examples; use appropriate eye contact, adequate volume, and clear pronunciation.
CCSS.ELA-LITERACY.SL.7.5	Include multimedia components and visual displays in presentations to clarify claims and findings and emphasize salient points.
CCSS.ELA-LITERACY.SL.7.6	Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate.
CCSS.ELA-LITERACY.L.7.1	Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
CCSS.ELA-LITERACY.L.7.2	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
CCSS.ELA-LITERACY.L.7.3	Use knowledge of language and its conventions when writing, speaking, reading, or listening.
CCSS.ELA-LITERACY.L.7.4	Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 7 reading and content, choosing flexibly from a range of strategies.
CCSS.ELA-LITERACY.L.7.5	Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.
CCSS.ELA-LITERACY.L.7.6	Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases; gather vocabulary knowledge when considering a word or phrase important to comprehension or expression.

8TH GRADE:

CCSS.ELA-LITERACY.RI.8.1	Cite the textual evidence that most strongly supports an analysis of what the text says explicitly as well as inferences drawn from the text.
CCSS.ELA-LITERACY.RI.8.3	Analyze how a text makes connections among and distinctions between individuals, ideas, or events.
CCSS.ELA-LITERACY.RI.8.4	Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the impact of specific word choices on meaning and tone, including analogies or allusions to other texts.
CCSS.ELA-LITERACY.RI.8.6	Determine an author's point of view or purpose in a text and analyze how the author distinguishes acknowledged and responds to conflicting evidence or viewpoints.
CCSS.ELA-LITERACY.RI.8.7	Evaluate the advantages and disadvantages of using different mediums (e.g., print or digital text, video, multi-media) to present a particular topic or idea.
CCSS.ELA-LITERACY.W.8.1	Write arguments to support claims with clear reasons and relevant evidence.
CCSS.ELA-LITERACY.W.8.2	Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.
CCSS.ELA-LITERACY.W.8.3	Write narratives to develop real or imagined experiences or events using effective technique, relevant descriptive details, and well-structured event sequences.
CCSS.ELA-LITERACY.W.8.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
CCSS.ELA-LITERACY.W.8.5	With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on how well purpose and audience have been addressed.
CCSS.ELA-LITERACY.W.8.6	Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas efficiently as well as to interact and collaborate with others.
CCSS.ELA-LITERACY.W.8.7	Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.
CCSS.ELA-LITERACY.W.8.8	Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.
CCSS.ELA-LITERACY.W.8.9	Draw evidence from literary or informational texts to support analysis, reflection, and research.
CCSS.ELA-LITERACY.W.8.10	Write routinely over extended time frames (time for research, reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.
CCSS.ELA-LITERACY.SL.8.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 8 topics, texts, and issues, building on others' ideas and expressing their own clearly.
CCSS.ELA-LITERACY.SL.8.2	Analyze the purpose of information presented in diverse media and formats (e.g., visually, quantitatively, orally) and evaluate the motives (e.g., social, commercial, political) behind its presentation.
CCSS.ELA-LITERACY.SL.8.3	Delineate a speaker's argument and specific claims, evaluating the soundness of the reasoning and relevance and sufficiency of the evidence and identifying when irrelevant evidence is introduced.

CCSS.ELA-LITERACY.SL.8.4	Present claims and findings, emphasizing salient points in a focused, coherent manner with relevant evidence, sound valid reasoning, and well-chosen details; use appropriate eye contact, adequate volume, and clear pronunciation.
CCSS.ELA-LITERACY.SL.8.5	Integrate multimedia and visual displays into presentations to clarify information, strengthen claims and evidence, and add interest.
CCSS.ELA-LITERACY.SL.8.6	Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate.
CCSS.ELA-LITERACY.L.8.1	Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
CCSS.ELA-LITERACY.L.8.2	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
CCSS.ELA-LITERACY.L.8.3	Use knowledge of language and its conventions when writing, speaking, reading, or listening.
CCSS.ELA-LITERACY.L.8.4	Determine or clarify the meaning of unknown and multiple-meaning words or phrases based on grade 8 reading and content, choosing flexibly from a range of strategies.
CCSS.ELA-LITERACY.L.8.5	Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.
CCSS.ELA-LITERACY.L.8.6	Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases; gather vocabulary knowledge when considering a word or phrase important to comprehension or expression.

6TH - 8TH GRADE:

CCSS.ELA-LITERACY.RST.6-8.1	Cite specific textual evidence to support analysis of science and technical texts.
CCSS.ELA-LITERACY.RST.6-8.2	Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.
CCSS.ELA-LITERACY.RST.6-8.4	Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6-8 texts and topics.
CCSS.ELA-LITERACY.RST.6-8.6	Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text.
CCSS.ELA-LITERACY.RST.6-8.8	Distinguish among facts, reasoned judgment based on research findings, and speculation in a text.
CCSS.ELA-LITERACY.RST.6-8.9	Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
CCSS.ELA-LITERACY.WHST.6-8.1	Write arguments focused on discipline-specific content.
CSS.ELA-LITERACY.WHST.6-8.2	Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.
CCSS.ELA-LITERACY.WHST.6-8.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
CCSS.ELA-LITERACY.WHST.6-8.5	With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on how well purpose and audience have been addressed.

- CCSS.ELA-LITERACY.WHST.6-8.6** Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas clearly and efficiently.
- CCSS.ELA-LITERACY.WHST.6-8.7** Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.
- CCSS.ELA-LITERACY.WHST.6-8.8** Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation
- CCSS.ELA-LITERACY.WHST.6-8.9** Draw evidence from literary or informational texts to support analysis, reflection, and research.
- CCSS.ELA-LITERACY.WHST.6-8.10** Write routinely over extended time frames (time for research, reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

NEXT GENERATION SCIENCE STANDARDS:

- MS-LS2-1.** Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem. [Clarification Statement: Emphasis is on cause and effect relationships between resources and growth of individual organisms and the numbers of organisms in ecosystems during periods of abundant and scarce resources.
- MS-LS2-2.** Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems. [Clarification Statement: Emphasis is on predicting consistent patterns of interactions in different ecosystems in terms of the relationships among and between organisms and abiotic components of ecosystems. Examples of types of interactions could include competitive, predatory, and mutually beneficial.
- MS-LS2-3.** Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem. [Clarification Statement: Emphasis is on describing the conservation of matter and flow of energy into and out of various ecosystems, and on defining the boundaries of the system.
- MS-LS2-4.** Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations. [Clarification Statement: Emphasis is on recognizing patterns in data and making warranted inferences about changes in populations, and on evaluating empirical evidence supporting arguments about changes to ecosystems.