

Information Literacy Curriculum

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As I work with freshmen [who] are overwhelmed by their first research paper, they are confronting, not only source location, evaluation, and use, but a whole new way of thinking about a written argument, combining theories and multiple disciplinary perspectives with their own insights. Your ISP model precisely describes what I see.

— university librarian

This chapter lays out a comprehensive curriculum for developing information literacy through Guided Inquiry. While reading, think about how your students will employ their information literacy. What are the fundamental concepts your students need to know to be information literate?

Guided Inquiry information literacy concepts are the basis for developing high levels of research proficiency and for adapting to rapidly emerging information systems and sources. A conceptual approach to teaching information skills introduces students to ideas and strategies they can transfer to a variety of situations and contexts throughout life. These concepts are best taught by integrating them into all levels of your prekindergarten–12 school curriculum to promote a high degree of independence in searching, selecting, and using information for learning about a wide range of topics and important questions.

Concepts for Locating, Evaluating, and Using Information

The three sections of this chapter describe concepts for locating, evaluating, and using information. The first section discusses concepts for locating information and sources, responding to the question, “How do I find information about my questions?” The second section treats concepts for evaluating information and sources, responding to the question, “How do I know the information I find is dependable?” The third section focuses on concepts for using information and sources, responding to the question, “Will the information I find help to me to learn about my questions?” Following are statements of three central concepts that address these questions. The curriculum is built around these three central concepts and carries the concept approach throughout. The entire curriculum is shown in figures 7.1 through 7.3. Each central concept is explained and discussed, as shown in figures 7.4, 7.7, and 7.9, with multiple examples for learning through the grades.

Central Concept 1: Information that is organized provides access to facts, ideas, and multiple perspectives.

Guided Inquiry Information Literacy Concepts	
Central Concept 1	Information that is organized provides access to facts, ideas, and multiple perspectives.
	1.1 A vast array of sources can be either organized or linked.
	1.2 A library is a collection of sources that have been organized according to a classification system, whereas the Internet is a universe of electronic resources that can be linked by attributes that may have nothing to do with their content.
	A. Knowing the title or author of a book is a straightforward way to locate the source.
	B. Keywords are terms and phrases you think best represent a topic.
	C. Subject headings are consistent terms and phrases that a professional has assigned to sources.
	1.3 Search strategies provide ways to forge a path through information on an inquiry journey.
	A. A variety of search strategies enable you to find a wide range of sources of information.
	B. Different types of searches have different purposes and are appropriate for different points in the inquiry process.
	C. Managing inquiry to keep track of sources requires a systematic approach.

Figure 7.1. Guided Inquiry Information Literacy Concept 1.

Central Concept 2: Valuable information prompts curiosity, reflection, and enlightenment.

Guided Inquiry Information Literacy Concepts	
Central Concept 2	Valuable information prompts curiosity, reflection, and enlightenment.
	2.1 The purpose of evaluating sources of information is to choose the highest quality and most useful to accomplish a task.
	A. Choosing information in different formats fosters multiple ways of thinking and learning.
	B. The structure of a source offers clues for evaluating the usefulness of the information.
	2.2 Sources have distinct characteristics that will help you evaluate the quality and usefulness of the information.

Figure 7.2. Guided Inquiry Information Literacy Concept 2.

Central Concept 3: Thoughtfully interpreting information over time leads to deep learning.

Guided Inquiry Information Literacy Concepts	
Central Concept 3	Thoughtfully interpreting information over time leads to deep learning.
	3.1 Inquiry is a process of learning and building understanding.
	A. The process of learning from a variety of information sources occurs in a series of phases.
	B. Formulating a focused question is the turning point of the inquiry process.
	C. Managing inquiry to keep track of information and ideas requires a systematic approach.
	D. Deciding what content is most important in an information source is essential for constructing deep learning.
	E. Deciding how much information is enough for a given project is an essential task of inquiry.
	F. Deep learning requires interpreting facts, creating connections, and organizing ideas.
	G. Sharing learning requires ethical, thoughtful, and productive practices.
	3.2 Sharing research contributes to the knowledge base of a community, reinforces learning, and helps others to learn.

Figure 7.3. Guided Inquiry Information Literacy Concept 3.

Concepts for Locating: “How Do I Find Information about My Questions?”

The concepts for locating information explained in this section provide students with a basic understanding of how sources are organized for access and strategies for searching to find a wide variety of sources and information. (See Figure 7.4.)

Information that is organized provides access to facts, ideas, and multiple perspectives.	
Central Concept 1	1.1 A vast array of sources can be either organized or linked.
	1.2 A library is a collection of sources that have been organized according to a classification system, whereas the Internet is a universe of electronic resources that can be linked by attributes that may have nothing to do with their content.
	A. Knowing the title or author of a book is a straightforward way to locate the source.
	B. Keywords are terms and phrases you think best represent a topic.
	C. Subject headings are consistent terms and phrases that a professional has assigned to sources.
	1.3 Search strategies provide ways to forge a path through information on an inquiry journey.
	A. A variety of search strategies enable you to find a wide range of sources of information.
	B. Different types of searches have different purposes and are appropriate for different points in the inquiry process.
	C. Managing inquiry to keep track of sources requires a systematic approach.

Figure 7.4. Central Concept 1.

Central Concept 1: Information that is organized provides access to facts, ideas, and multiple perspectives.

1.1 A vast array of sources can be either organized or linked.

It is important to be clear about the difference between a library and the Internet. Students can be confused into thinking that the Internet can serve all purposes and fail to take advantage of valuable sources in organized collections in libraries and databases. In Guided Inquiry, students learn about the special sources available in libraries and how to find those sources to respond to their questions. Understanding the difference between an organized collection in a library and the vast, changing environment of the Internet is essential for information literacy.

1.2 A library is a collection of sources that have been organized according to a classification system, whereas the Internet is a universe of electronic resources that can be linked by attributes that may have nothing to do with their content.

In Guided Inquiry, students learn that a library is based on a classification system, commonly a combination of alphabetical and numerical codes, which indicate the content and location of materials in the collection. Call numbers in the library catalog identify where a source, and others like it, may be found on the shelves. Without understanding this basic concept, students find it hard to locate sources in a library collection and to adjust to other libraries, particularly college and university libraries, as well as public libraries (George, 2008).

The school library is an excellent lab for learning how a classification system works. The Dewey Decimal Classification System can be used as a model of how materials are classified so that specific items may be retrieved. One problem with “teaching Dewey” is that unless a concept approach is used, students have difficulty transferring their knowledge to other libraries and classification systems, such as Library of Congress, as well as to indexes in books and reference sources, and article and subject databases. Understanding the concepts underlying classification transfers to other systems, both online digitized collections and in-house print collections.

Timing is important in introducing concepts of classification. Guided Inquiry introduces these concepts at appropriate points in the school curriculum and provides opportunities for students to apply and practice their classification skills. When children are applying the alphabet to learn to read, they can practice their alphabetizing skills to find books by favorite authors. Alphabetizing beyond the first letter used in libraries is a complex skill that develops with practice. When upper elementary students are learning decimals in math, it is an opportune time to teach the function of the decimal in the Dewey Decimal Classification System. As they learn mathematical concepts and science classification systems, they build an understanding of the organizing function of classifying sources that is applied in libraries.

A. Knowing the title or author of a book is a straightforward way to locate the source.

Guided Inquiry introduces students to the concept of known-item searching. Young students learn that when you know the author or title, finding a book, video, or audio recording is a fairly simple task. They learn to look for the title or author in the library catalog and to note the call number that leads them to the item in the collection. With practice they become

proficient at known-item searching as a means of locating materials. Older students need practice translating a bibliographic reference into a catalog or article database to discover whether a library owns the item.

B. Keywords are terms and phrases you think best represent a topic.

The most important and commonly used concept for locating sources is subject access. In Guided Inquiry, students learn that words to describe the subject lead to the location of information on a topic without their having to know the precise title or specific author of the source. They learn that keywords are words and phrases they think best represent their topic, whereas subject headings are the words and phrases someone else has already assigned to describe a source. Subject searching is a central activity in inquiry. Guided Inquiry provides sequential interventions for developing students' understanding of subject searching using a combination of keywords and subject headings for finding a wide variety of information on their topics and research questions.

Keyword searching requires students to identify terms to describe their topics and questions. In Guided Inquiry, students are encouraged to identify lots of alternative words that may be appropriate search terms. When they think of what, who, when, and where in relation to their topic, the answers become keywords for searching article databases and other online sources. As their inquiry progresses, students continue to expand their list of keywords by adding how and why questions and using a thesaurus to determine synonyms.

C. Subject headings are consistent terms and phrases that a professional has assigned to sources.

Students are most familiar with keyword driven searches, like those done in Google, and often are unaware of the potential power of access to sources through subject headings. When they limit their search to keywords, a term they use may not be the subject heading used in the library catalog. Students often interpret not finding something in the catalog as an indication that there is nothing on that topic in the library.

A common problem identified by librarians is that reference sources and subject databases, and even informational books in the library collection, are often overlooked. In Guided Inquiry, students learn that professional catalogers and indexers use a standardized vocabulary to assign subject headings and descriptors, sometimes referred to as tags, so that people can retrieve everything in a collection that is relevant on a topic. George (2008) recommends that middle and high school students be introduced to online subject thesaurus and topic lists so that they are aware they exist; otherwise they are likely to miss relevant sources in libraries and databases.

In Guided Inquiry, students also learn to apply subject terms to locating sources and information not listed in the library catalog. They discover that subject headings and descriptors lead to sources that otherwise may be difficult to find, such as periodical articles, and that they are a direct and quick way to locate information within a source. With practice, students come to understand that subject searching evolves through the inquiry process. They become aware of new search terms that describe more precisely what they are looking for as they progress through the phases of inquiry and learn more about their topic. Their information horizon is expanded by gaining greater familiarity with using a combination of keywords, subject headings, and descriptors to locate a wide variety of quality resources in the library and online.

Children in early grades practice known-item searching by learning to locate favorite books by title and author. As they move through elementary school, they learn to use subject headings to search the library catalog for call numbers to find materials on their inquiry topics. They have extensive practice using the library catalog to locate informational books, audio recordings, films, and videos in the library collection, and also in finding information in online encyclopedias, specifically selected for their reading and comprehension level. As they become more proficient at subject searching, middle school students are introduced to the basics of keyword searching in article databases and other online sources. Secondary students continue to build competence in using subject headings and keywords for locating a wide variety of relevant sources of information to respond to their research questions.

1.3 Search strategies provide ways to forge a path through information on an inquiry journey.

A. A variety of search strategies enable you to find a wide range of sources of information.

Guided Inquiry encourages students to think of inquiry as a journey of exploration and discovery that is interesting, creative, memorable, and fun. On their journey, they need to find a path through information to arrive at the destination of deep understanding of their questions. The path that they choose may not be the same one another student would follow. The choices they make along the way of what information is important and interesting forges their trail from source to source into deep and personal learning. Rather than following a cut-and-paste approach, students understand the concept that learning through inquiry takes time and requires choices, persistence, and strategies to progress to their goal.

The metaphor of forging a path on the inquiry journey helps students develop the concept that they need to actively pursue strategies to find their way through information to build their own portfolio of sources, what some call their archive or dataset. Guided Inquiry introduces students to basic search strategies drawn from information science. Students develop expertise in finding information through the practice of established information search strategies: *browsing*, *monitoring*, *chaining*, *differentiating*, and *extracting* (Ellis, 1989) (see Figure 7.5). Many online systems incorporate these strategies in their search capabilities (Choo, 2006). Lots of practice in the early grades through secondary school builds competence in applying these strategies.

Browsing is semi-directed searching in an area of potential interest that is helpful in the early phases of inquiry. In their extensive study, Rice, McCreadie, and Chang define browsing as “the process of exposing oneself to a resource space by scanning its content and structure, possibly resulting in awareness of unexpected or new content or paths in that resource” (2001, p. 258). Browsing incorporates scanning a range of materials in the library and online to get a sense of possibilities at the beginning of the inquiry process. It is an early strategy of poking around to get a feel for what’s there, what looks interesting, what is familiar, and what seems puzzling.

In Guided Inquiry, young children become aware of their own browsing as a strategy for looking for interesting things to read. Middle school students gain practice using call numbers for both shelf browsing and virtual browsing. Older students apply their knowledge of keywords and subject headings to scan for possible leads and ideas about their topic as well as alternative search terms.

Monitoring is maintaining awareness of developments on a topic through regularly following particular sources (Ellis, 1992). It involves identifying a few core sources and checking

Information Search Strategies	
Browsing	Using semi-directed searching in an area of potential interest
Monitoring	Maintaining awareness of developments on a topic through regularly following particular sources
Chaining	Following up on leads from references and footnotes in sources that have been found useful
Differentiating	Using differences among sources as a filter for choosing the best ones to accomplish the inquiry task
Extracting	Systematically working through a particular source to choose material of interest and importance

Figure 7.5. Information Search Strategies. *Source:* Adapted from Ellis (1989).

them from time to time to see if anything new pertains to the student's area of interest. Monitoring is a particularly good strategy when the area of inquiry is a current topic and the inquiry is expected to take place over an extended period of time.

Guided Inquiry introduces monitoring as a strategy for inquiry units that require current information and are studied over several months. Students may be alerted ahead of time to keep an eye on certain topics to prepare for an intensive inquiry project. For example, students in fifth grade may monitor weather patterns over several months to track changes to prepare for deeper investigation of the region. Older students may monitor a particular news story as it unfolds. Inquiry Logs and Journals are tools for monitoring information over time.

Chaining is a well-established search strategy in library and information science that involves following up on leads from references and footnotes in sources that have been found useful. Citations in useful materials are leads to other sources that may also be of use. Bibliographic references in one source provide a path to other sources on the same topic. In Guided Inquiry, young children make early use of chaining by looking for other books on a topic or author that has piqued their interest. This sets the stage in middle and secondary school for chaining from references in useful materials to track down other relevant sources. In Guided Inquiry, chaining is a valuable strategy in both the **Explore** and **Gather** phases of the inquiry process.

Chaining in elementary school consists mainly of shelf browsing for useful sources with similar call numbers. Elementary students also get lots of practice with known item searching, which is a good foundation for chaining. Middle school and secondary students practice skimming tables of contents and reference lists for new leads. Middle school students are formally introduced to chaining by checking references in one good source for other possible sources and finding out if they are in the library catalog. Academic librarians

report that few university students can translate a footnote or bibliographic reference into a catalog or article database to discover whether the library owns the item. In Guided Inquiry, advanced students practice footnote tracking and cited reference searching as important tactics for finding good sources.

Differentiating is using differences between sources as a filter for choosing the best for accomplishing the inquiry task. It involves comparing and selecting sources by noticing differences among the format, quality, and level of difficulty, discussed further in this chapter in the section on evaluating sources. The sources students select and the choices they make depend on their background knowledge, where they are in the inquiry process, what they see as their inquiry task, how much time they have, and what sparks their interest (Kuhlthau, 2004b).

Guided inquiry helps students learn how sources differ and to make good choices in each phase of their inquiry journey. They learn that some sources are most useful in an early phase and others in a later phase of the inquiry process. For example, students learn to use an encyclopedia to gain an overview of their topics at the beginning of their inquiry. They practice comparing and differentiating between sources to build a portfolio of sources for their inquiry project. For example, secondary students learn the difference between academic articles, which are peer reviewed before publication, and popular articles by comparing articles on the same topic located in an article database, such as EBSCO.

Extracting is systematically working through a particular source to choose material of interest and importance. While differentiating is deciding which sources to use, extracting is deciding which information and ideas to use from within a source. Bates (1989) uses the metaphor of berry picking to describe how people select information from here and there. As in berry picking, not everything is extracted from a source; only some items of information and certain ideas are selected for use. What is extracted from one source leads to the next source of information. In Guided Inquiry, students learn that choosing information to extract from a source takes place all the way along the inquiry journey, not only at the end of a search when they are preparing to present their learning. Students use their Inquiry Journals to record and interpret what they have chosen to extract in the **Explore** and **Gather** phases to reflect on and apply in the **Create** phase of the inquiry process.

In Guided Inquiry, students learn strategies for extracting what to quote, summarize, paraphrase, and extend from their sources. Young children practice summarizing and paraphrasing what they read, see, and experience. Elementary students add their interpretations and connections to extend and personalize their learning. Secondary students practice thinking about how to shape their inquiry and how to track down sources to fill in gaps. They learn to troubleshoot obstacles and seek help when they are stuck in the inquiry process.

Students who understand these strategies are prepared to make full use of search capabilities in their information environment. Guided Inquiry prepares students to adopt these as their own search strategies for finding their way through a vast amount of information essential for information literacy.

B. Different types of searches have different purposes and are appropriate for different points in the inquiry process.

Guided Inquiry emphasizes developing thoughts and ideas as the inquiry progresses. Different types of searches have different purposes that are useful at different times in the inquiry process. Students often expect to conduct one comprehensive search, in one trip

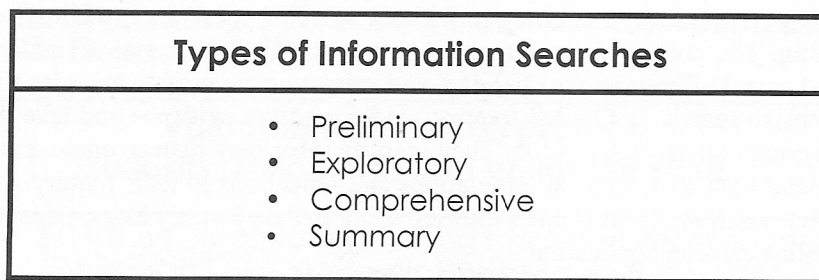


Figure 7.6. Types of Information Searches. *Source: Kuhlthau (2004b).*

to the library or one visit to the Internet, with the unfortunate result that they rush through without gaining sufficient ideas to formulate a focus. In Guided Inquiry, they take time to formulate focused research questions in the **Open, Immerse, Explore** and **Identify** phases of the inquiry process. This helps them avoid being bogged down in the **Gather** phase by general material not pertinent to the focus of their inquiry. Through practice they gain a clear understanding of how to conduct different types of searches to accomplish the tasks in different phases of the inquiry process. Students are introduced to four types of searches: *preliminary*, *exploratory*, *comprehensive*, and *summary* (see Figure 7.6). They learn to combine and adapt these to their own inquiry needs. The concept of different types of searches for accomplishing different objectives in the inquiry process is important for information literacy.

Students practice conducting *preliminary*, *exploratory*, *comprehensive*, and *summary* searches at appropriate times in the inquiry process. They practice browsing in preliminary searches in early phases of inquiry. In *exploratory* searching they begin with who, what, when, and where questions and advance to why and how inquiries. From their listing of sources in their Inquiry Log they may be asked to select the two or three that seem most interesting, describe the search path that led to each, and list some questions each raised.

A *preliminary* search is helpful in the very early phase of the inquiry process to gain an overview of the general topic, estimate the amount and type of material available, and discover terms to define the topic. Students are encouraged to notice interesting ideas and perplexing questions that spark their curiosity. Browsing and monitoring are useful strategies in preliminary searching to get a feel for the topic and to look for search terms.

The purpose of an *exploratory* search is to explore ideas to gain a better understanding of the general topic, to look for ways to shape the inquiry, and to identify questions to focus the inquiry. The outcome of *exploratory* searching is different than that of the earlier *preliminary* search. In exploratory searching, students investigate interesting ideas to prepare to identify a focused research question. They use Inquiry Logs for keeping track of sources to refer back to later in the inquiry process and Inquiry Journals for noting important ideas and interesting questions. Students need to be conscientious about recording citations of useful sources in their Inquiry Logs throughout exploratory searching to refer back to later in the inquiry process. Chaining is a good exploring strategy for discovering new sources, by checking references and tracking footnotes.

Comprehensive searching is helpful in the **Gather** phase after a focused research question has been articulated. In the early stages of inquiry a comprehensive search tends to bog students down in detail that can be overwhelming and confusing. A focused question

formed through exploratory searching provides a “guiding idea” for direction in comprehensive searching. The purpose is to gather specific pertinent information to address a focused research question. Differentiating, chaining, and extracting are useful strategies for conducting a comprehensive search. In Guided Inquiry, students gather evidence and take detailed notes throughout comprehensive searching. They identify what they plan to quote, paraphrase, and summarize and then write their interpretations and reflections in their Inquiry Journals. They keep complete citations of all sources they are using in their Inquiry Logs, commonly with the aid of an online citation application.

In comprehensive searching students practice differentiating, chaining, and extracting for deep learning. In *summary* searches they look for what’s missing and fill in gaps. Librarians and teachers model library catalog searching for elementary students using different students’ topics. For middle school students, they model database searching, starting with a basic database like ProQuest and introducing discipline specific databases later on. Secondary students build a repertoire of search strategies for finding information in a wide range of sources that is essential for career and college readiness.

A *summary* search is conducted at the close of the **Gather** phase of the inquiry process, when students are preparing to share their learning. The purpose of a summary search is to recheck information for anything missing that may have been overlooked and to be certain all sources have been properly acknowledged and cited. Students’ Inquiry Logs are important tools for retracing their journey through the sources they have used.

Information literate students clearly understand that one-shot searching is inadequate for all of the phases of the inquiry process. In Guided Inquiry, they learn to conduct different kinds of searches in different phases of inquiry and to apply various search strategies to locate sources of information throughout the inquiry process.

C. Managing inquiry to keep track of sources requires a systematic approach.

Managing inquiry to keep track of sources gathered along the way requires systematic techniques for recording citations and bibliographic references. Guided Inquiry introduces students to Inquiry Logs for keeping citations of their sources of information. In the early phases, when they are browsing for ideas, students often think that they don’t need to record every source they use. Without a log of sources, they can readily lose track of sources used early on and have difficulty finding them later when they want to go more deeply into some of the initial ideas they came across. Even though they are advised against making too detailed notes in the **Explore** phase, which may bog down their inquiry, they will need to keep a record of all the sources they use.

In Guided Inquiry, children in primary grades keep an Inquiry Log of simple citations of their sources, including author and title. Older elementary students add publisher and publication date and learn to cite comparable information for other media. Middle school and secondary students will need to keep complete citations of all their sources in a standard citation form. The Learning Team may recommend a combination of hand and digital tools for logging sources. Students often find that keeping a handwritten log while they are searching, simply identifying features such as type, title, and author, is good preparation for using an online citation tool for the complete form, such as Easybib. Older students favor Zotero, which allows capturing screen shots of citations.

Concepts for Evaluating: “How Do I Know the Information I Find Is Dependable?”

Valuable information prompts curiosity, reflection, and enlightenment.	
Central Concept 2	2.1 The purpose of evaluating sources of information is to choose the highest quality and most useful to accomplish a task.
	A. Choosing information in different formats fosters multiple ways of thinking and learning.
	B. The structure of a source offers clues for evaluating the usefulness of the information.
	2.2 Sources have distinct characteristics that will help you evaluate the quality and usefulness of the information.

Figure 7.7. Central Concept 2.

Central Concept 2: Valuable information prompts curiosity, reflection, and enlightenment.

2.1 The purpose of evaluating sources of information is to choose the highest quality and most useful to accomplish a task.

Evaluating the quality and usefulness of sources has become increasingly difficult in today’s complex online information environment. Guided Inquiry introduces students to criteria for selecting useful sources for their inquiry. Considering the format, structure, and characteristics of sources helps them make intelligent choices. Using these criteria, students compare sources to decide which are most useful for their inquiry task.

A. Choosing information in different formats fosters multiple ways of thinking and learning.

A fundamental concept for evaluating sources is that information comes in a number of different formats. There are formats for reading, listening, viewing, and experiencing as well as multimedia formats that incorporate several or all of these aspects. The variety of formats includes books, encyclopedias, magazines, newspapers, audios, videos, films, objects, photographs, interviews, Web sites, and blogs, among many others. A format may be thought of as a package or container for the information. Different formats accommodate different ways of thinking and learning, a key principle of Guided Inquiry (discussed in Chapter 2).

Through Guided Inquiry students learn to consider the entire library as an information source, with a variety of materials in different formats. They learn to take into account the many resources outside of the school, in their local community, and on the Internet. They learn to evaluate how each type of format might inform them about their topic and to choose what will be most useful for them at a particular point in the inquiry process. Rather than requiring a specific number of books, students are guided to think about what they need to know and what formats will help them learn.

Students learn to approach a search from a number of points of access to locate information in different formats. They also learn to expand their inquiry through museums and experts, many of these digitized for online access. They practice applying the format of a source as an evaluation criterion for choosing materials that are most suited to their own inquiry learning. They learn the difference between primary and secondary sources and how to draw evidence from each for learning about their topic. Guided Inquiry often introduces a primary source as a point of departure on the inquiry journey to stimulate curiosity and questions for further investigation.

In Guided Inquiry, children at a very young age become aware of learning in different formats. After reading a book, viewing a film, and taking a short excursion, they reflect on what they have learned and examine the differences in their experience. This conscious awareness of learning in different formats is continued throughout elementary school. Middle school students practice combining various formats of information in their inquiry projects. Secondary students learn to consider different formats as texts for their inquiry. Guided Inquiry Design employs a variety of formats throughout the phases of the inquiry process. For example, in the early phases the inquiry may Open with an object or photograph to stimulate curiosity and then students may visit a museum exhibit to Immerse in background knowledge and discover interesting ideas to Explore in the library.

B. The structure of a source offers clues for evaluating the usefulness of the information.

Sources are structured in a variety of ways, and understanding these differences helps students evaluate the usefulness of a source for their inquiry. Many students limit their information search to a few familiar sources, overlooking excellent, interesting materials, such as reference sources, subject databases, and a variety of genres. In Guided Inquiry, the concept of structure is learned and applied through examples, such as the parts of books, organization of reference sources, construction of databases, and various genres and formats, including museum collections and other community resources.

Guided Inquiry incorporates different genres to enhance the learning experience. The division of fiction and nonfiction is important but sometimes overemphasized. Ideas and information are derived from fiction as well as expository texts. For example, historical fiction is a good way to bring life and reality to the events in a remote time period. The various types of fiction, including mystery, fantasy, science, historical, adventure, sports, realistic, and humorous, may build background knowledge and prompt further inquiry in informational materials. Other genres, such as poetry, essays, music, short stories, plays, films, letters, and interviews, as well as pictures and objects, are incorporated in the rich resource environment of inquiry. Each has a structure that when understood makes the information more valuable for learning.

Elementary students are introduced to the concept of structure in sources by becoming acquainted with the parts of a book. They practice using tables of contents, pagination, title pages, and indexes for finding and evaluating useful information. They learn that a reference

source is structured for referring to specific information and not to be read all the way through, which is particularly useful early on when they need an overview of a topic. Building on this foundation, middle school students learn the structure of other genres, such as articles, films, and interviews, as well as objects, photographs, and descriptions in museum collections. Secondary students apply their knowledge of structure to evaluating information in a wide range of different sources to address their questions in each phase of their inquiry.

2.2 Sources have distinct characteristics that will help you evaluate the quality and usefulness of the information.

Sources of information have certain distinct characteristics that enable people to select those that are most useful for them. Guided Inquiry introduces students to five criteria for evaluating sources and for judging the usefulness of information for their inquiry tasks: *expertise*, *accuracy*, *currency*, *perspective*, and *quality* (see Figure 7.8). The characteristics for evaluating sources may be introduced in the early grades and developed over the years.

A word of caution: some sources are relatively easy to evaluate, but others are more complex and difficult for students to evaluate on their own. Students need to become acquainted with these criteria but should not hesitate to ask for advice from librarians and teachers, who have expertise in evaluating resources for specific inquiry tasks and for particular students. An important part of information literacy is to know when and where to seek advice.

Expertise is the knowledge of the author. Students at an early age can consider who the author is and what qualifications the author has. Guided Inquiry leads students to recognize experts on a subject and to seek sources that are credible, comprehensive, and complete. They are guided to materials they can understand in secondary sources that explain an expert’s work when the original source may be too difficult to comprehend. They come to recognize and value expertise that helps them to learn in the inquiry process.

The concept of expertise can be introduced in primary grades simply by raising curiosity about favorite authors and pointing out some interesting facts about their lives. Older students

Characteristics for Evaluating Sources	
Expertise	Knowledge of the author
Accuracy	Factual correctness and authenticity of a source
Currency	The date of publication or presentation of the material
Perspective	Point of view and outlook of an author
Quality	Value and merit of an information source

Figure 7.8. Characteristics for Evaluating Sources.

need to consider an author's biography and the time, place, and circumstances of a work's composition.

Accuracy is the factual correctness and authenticity of a source. Students may be misled by misinformation, particularly in sources they find on the Internet. With their limited prior knowledge of a topic, they may have difficulty spotting errors. Guided Inquiry leads students to question whether facts are correct and if the material is free from obvious errors. Librarians and teachers help them recognize whether sources are thorough, sound, and sufficiently detailed for their inquiry task.

Starting in upper elementary school, students can become aware of the subtleties of determining the accuracy of a source by checking several different articles on the same topic to compare the factual accounts. Middle school students may benefit from and enjoy an online exercise to find misinformation and mistakes, and intentional, sometimes humorous, misrepresentation of facts to share with their classmates. Secondary students will need to be constantly aware that information is not accurate just because it is online or in print.

Currency refers to the date of publication or presentation of the material. Many research topics require material from a specific time period. Students can make the mistake of searching in the wrong place for a certain time period. In Guided Inquiry, they learn to establish whether their topic is a present-day, ongoing issue that requires the latest, most up-to-date information, something that took place in the past, or some combination of past and present. Students learn how to find sources of the most current information and how to find sources on topics from the past.

Elementary students can be introduced to the concept of currency by checking the copyright and production dates of sources they plan to use. They need to develop the habit of recording these dates as part of citations in their Inquiry Logs. Middle school students can learn that article databases are a source of current information, and the library collection contains information on past events. Secondary students practice applying the concept of currency for evaluating sources to different inquiry tasks that require information from a variety of time periods.

Perspective is the point of view and outlook of an author. Students need to become aware of the difference between sources that present an opinion or position and those that are primarily factual. Guided Inquiry helps students recognize material presented with a particular frame of reference or slant and to learn when these sources are useful and when they are confusing and limiting. In this way, they can respect an author's way of looking at something while being alert to bias that distorts facts and restricts fairness. Basic to information literacy is the ability to distinguish between a factual report and an opinion piece and to select wisely from a range of perspectives.

Elementary students may be introduced to perspective by comparing an encyclopedia article with a book on the same topic. They can also become aware of the difference between a fictional story about an event and a nonfiction account. Middle school students can practice by comparing a news report and opinion piece from the same newspaper. Secondary students can compare the reports and commentary from several newspapers or television news programs on the same event to analyze their differences. They will need to become increasingly aware of perspective and bias in the sources they use.

Quality is the value and merit of an information source. It implies excellence in the writing, composition, and presentation of material as well as its content. Quality material is clear and understandable. It is well written and articulate. It is organized in a purposeful way. Quality is a summation of the other four evaluation characteristics. Guided Inquiry helps students

recognize quality in both composition and content through familiarity with a variety of well-chosen materials in the library collection and selected online sources.

The library represents a collection of high-quality sources, and librarians and teachers model evaluating sources for quality. In Guided Inquiry, as students practice evaluating sources using the criteria of expertise, accuracy, currency, and perspective, they become more proficient at selecting high-quality materials. However, they should be encouraged not to hesitate to seek advice when engaged in this difficult task.

These five concepts are at the core of evaluating sources. In Guided Inquiry, they are applied to a variety of materials and resources for making judgments about what to use in inquiry. It is essential for students to know these concepts for evaluating information and to practice them throughout their inquiry learning. A person who can apply these concepts to evaluate sources in the vast information environment is truly information literate and educated for the information age.

Concepts for Using: “Will the Information I Find Help Me Learn about My Questions?”

The third component of the information literacy curriculum is concepts for using information for learning. Guided Inquiry develops students’ ability to use a variety of sources to construct meaning, gain understanding, and achieve deep learning through a comprehensive program of concepts, strategies, and tools. (See Figure 7.9.)

Central Concept 3: Thoughtfully interpreting information over time leads to deep learning.

3.1 Inquiry is a process of learning and building understanding.

The objective of inquiry learning is not merely to collect facts, but to reflect on and interpret those facts to construct deep understanding. When students view their research projects as a fact-collecting exercise, they miss the most important element of inquiry, the interpretation of facts for learning. The research assignment itself is sometimes the source of the copying and plagiarism problem. When students view the object of inquiry as pursuing their own understanding, blatant copying rarely occurs.

Guided Inquiry strives to get students into the flow of inquiry, where learning is interesting, creative, and fun. For younger children, the inquiry process consists primarily of wondering, exploring facts and ideas, and sharing what they have learned. While the Learning Team encourages questioning and reflection in these early years, the full inquiry process is developed later, in middle school. Guided Inquiry introduces students to formulating a focused research question in their preadolescent and early adolescent years, when they learn to develop an argument and substantiate their claims.

A. The process of learning from a variety of information sources occurs in a series of phases.

Guided Inquiry is based on Kuhlthau’s model of the Information Search Process (ISP), which describes students’ feelings, thoughts, and actions in a series of stages in the research process (Kuhlthau, 2004b; discussed in Chapter 4). Guided Inquiry Design is a framework for

Thoughtfully interpreting information over time leads to deep learning.	
Central Concept 3	3.1 Inquiry is a process of learning and building understanding.
	A. The process of learning from a variety of information sources occurs in a series of phases.
	B. Formulating a focused question is the turning point of the inquiry process.
	C. Managing inquiry to keep track of information and ideas requires a systematic approach
	D. Deciding what content is most important in an information source is essential for constructing deep learning.
	E. Deciding how much information is enough for a given project is an essential task of inquiry.
	F. Deep learning requires interpreting facts, creating connections, and organizing ideas.
	G. Sharing learning requires ethical, thoughtful, and productive practices.
	3.2 Sharing research contributes to the knowledge base of a community, reinforces learning, and helps others to learn.

Figure 7.9. Central Concept 3.

designing interventions to guide students through each phase of the inquiry process: Open, Immerse, Explore, Identify, Gather, Create, Share, and Evaluate. Guided Inquiry helps students persist through the phases of inquiry for deep learning (Maniotes, 2013b). The optimal goal of Guided Inquiry is to capture students' interest and engage them in a flow of creative learning that is memorable and fun.

B. Formulating a focused question is the turning point of the inquiry process.

An essential task in the inquiry process is to articulate a focused research question. Students identify a focus from what they learn in the early phases of inquiry as they build background knowledge and explore interesting ideas. A clearly focused research question results from each student's creative formulation of an idea that piques his or her interest.

Identifying a focused question is the turning point of the inquiry, which moves students from seeking general information to seeking pertinent information on their specific research question. The focused question serves as a key idea for the **Gather** and **Create** phases of the inquiry process. Formulating a focused research question makes each student's inquiry a bit different. Studies find that students' interest and engagement increases after a focus has been formulated. The best guard against copying and plagiarism is the students' clear understanding that inquiry is a creative process in which they are constructing, learning, and creating their own understanding.

In secondary school students are ready to engage in all of the phases of the inquiry process in subjects throughout the curriculum. In Guided Inquiry, they learn to clearly distinguish between looking for a right answer and developing a point of view. They become proficient at interpreting and synthesizing information from a variety of sources to present their perspective on a problem, topic, or area of inquiry. The concept of forming a focused research question during the inquiry process enables them to gain control and proficiency in learning from a variety of sources of information.

C. Managing inquiry to keep track of information and ideas requires a systematic approach.

Managing inquiry to keep track of information and ideas gathered along the way requires systematic techniques for learning. Guided Inquiry provides students with inquiry tools for learning from a variety of sources through the phases of the inquiry process. The intervention strategies, drawn from Kuhlthau's research (2004b)—collaborate, converse, compose, choose, chart, and continue—are implemented as Inquiry Tools in Inquiry Communities, Inquiry Circles, Inquiry Logs, Inquiry Journals, and Inquiry Charts. Students are organized in Inquiry Communities and Inquiry Circles for collaborating and conversing. They keep Inquiry Logs and Inquiry Journals for composing and continuing. They use Inquiry Charts for choosing and visually interpreting and displaying their learning.

In Guided Inquiry, students form the habit of keeping an Inquiry Journal of their notes throughout the inquiry process. Note taking is an essential skill for collecting information and gathering ideas in inquiry. Many students have difficulty deciding exactly what to take down in their notes. They frequently make the mistake of either attempting to write down everything or taking sparse notations that are not useful when they refer back to them. Note taking requires a degree of abstracting, an ability students acquire as they mature. It centers on deciding what is important for learning about a research question. In Guided Inquiry, students are introduced to a systematic method for taking notes. They keep Inquiry Journals to write down the ideas and facts that they regard as important and plan to use throughout the inquiry process.

Note taking is matched to the phases of the inquiry process with Inquiry Journals for writing all along the way. Inquiry Journals are introduced in the early phases of the inquiry process for jotting down interesting ideas about the topic and thoughts about the progress of the inquiry. In the later, **Gather**, phase of inquiry, the journal becomes a detailed account of the information they plan to quote, summarize, and paraphrase with their reactions, reflections, and connections. The journal is the essential tool in the **Create** phase for making a thoughtful synthesis of their learning to **Share** with their Inquiry Community. The Inquiry Journal may be in the form of a handwritten notebook, a word processing file, or some combination of the two. If you plan to use one of the many digital tools available for note taking, be sure that it allows for ongoing reflection as the inquiry progresses.

D. Deciding what content is most important in an information source is essential for constructing deep learning.

An essential component of information literacy is the ability to decide what is important in a vast information environment. The ability to determine importance in an information source is essential for learning from a variety of sources. Many teachers have observed that their students have difficulty deciding what is important in the information texts they read. Even students who are proficient readers often have difficulty when it comes to finding meaning in expository texts (Keene and Zimmermann, 1997). In Guided Inquiry, students are guided through the early phases of the inquiry process to formulate a focused research question that enables them to decide what information is most important for their own learning.

Young students practice choosing what is most important in informational as well as fiction texts through deep discussion of the basic inquiry abilities to *recall*, *summarize*, *paraphrase*, and *extend* from their reading (Kuhlthau, 2004b). They learn not to try to take everything from a text, but rather to choose only those things that are important to them. This is the beginning of understanding how to use ideas to create something of their own, of utmost importance in avoiding mindless copying. Determining importance is particularly significant as students move from learning to read to reading to learn. Middle school and secondary students learn to choose information by considering how it addresses their focused research question and to select and extract information that helps them learn. The early phases of the inquiry process call for exploring information that is relevant to their general topic. The later phases require choosing only information that is pertinent to their focused research question. In Guided Inquiry, students come to recognize that determining what is important in a text changes as their inquiry progresses.

E. Deciding how much information is enough for a given project is an essential task of inquiry.

The concept of *enough* involves a deceptively simple question. “What is enough?” This question may have seemed fairly straightforward when a person could gather all there was to know on a topic in a contained collection. It is quite a different matter in the present information environment. Understanding what is enough is essential for finding meaning in the vast information available and relates to knowing what you are trying to accomplish. Some tasks simply call for finding a right answer. For deep learning tasks, “enough” relates to seeking meaning in a quantity of information by formulating a focused research question on which to build.

Guided Inquiry helps students learn to judge for themselves when they have enough information to accomplish the task at hand. The Learning Team guides students in determining what is enough for each phase in the inquiry process. What is enough to gain background knowledge and to explore for interesting ideas? What is enough to form a focused research question? What is enough to gain deep understanding? What is enough to be able to create and share what has been learned? Being able to decide what is enough is an important concept for information literacy in our complex information environment.

F. Deep learning requires interpreting facts, creating connections, and organizing ideas.

In Guided Inquiry, students are interpreting and making connections throughout the inquiry process. In the **Create** phase all of the ideas need to be brought together into a presentation for sharing. There are two tasks in the **Create** phase: to create a cogent story of

the learning in response to the inquiry question and to create a way to share one's learning with others.

The Inquiry Journal is put to work in the **Create** phase. Students reflect on what they have written in their journals and think about what they have learned about their research questions. A well-formulated research question provides a focus for finding a thread through all of the information and ideas they have gathered. Inquiry Charts are useful for visualizing lots of ideas and information to make connections and find themes. Students need to think about how to tell their story and decide how to start and how to close. They need to decide what is important and what is enough to share their learning with others. They need to organize their presentation with a beginning, middle, and ending. They need to decide what format is best for sharing with their audience.

Academic librarians report that freshmen are overwhelmed by their first research paper. As one explained, "They are confronting not only source location and evaluation but a whole new way of thinking about a written argument, combining theories and multiple disciplinary perspectives with their own insights. The ISP Model precisely describes what I see, except that, of course, in college there needs to be several iterations of the explore/formulation/collection trio. I try to explain that anxiety should/will lessen with each spiral toward insight but they rarely believe me." Students need lots of practice with increasingly more complex research tasks to develop a sense of their own process of learning from a variety of sources and to experience the recursive nature of inquiry in more extensive tasks.

Guided Inquiry develops basic inquiry abilities that help students interpret facts, create connections, and organize ideas for deep learning. They establish habits of acknowledging the authors of the information and ideas they are quoting, summarizing, and paraphrasing and ways to extend with their own reflections, connections, and reactions.

G. Sharing learning requires ethical, thoughtful, and productive practices.

Guided Inquiry builds students' understanding of the value of an author's work. They learn how to quote, paraphrase, and summarize from the sources they use. They learn that acknowledging the author of a work and originator of ideas is an essential component of inquiry. Students often think that some types of sources, such as pictures, objects, and interviews, do not need to be cited. They need to learn that although these sources do not have authors, they do have creators that need to be acknowledged. They need to learn the importance of citing all their sources and how to cite many different types of information. Online citation tools are helpful once students have identified the type, author, and title of their source. They need to learn how to cite sources within their project, as well as listing references at the end.

An important aspect of research is deciding what to quote directly and what to paraphrase and summarize, all of which must be clearly identified as the work of someone else. Students need to learn to clearly differentiate between an author's work and their own ideas, reflections, and extensions.

In Guided Inquiry, students take a systematic approach to keeping citations of their inquiry sources. Elementary students are introduced to the concept of citing their sources of information by asking the question, "Where did I find out?" It is very important to impress on students early the necessity to acknowledge the work of an author. By middle school, students keep detailed logs of citations of all their sources, including formats other than print, such as photographs and interviews. Secondary students become more aware of the subtleties of citation as they continue to practice citing what they summarize and paraphrase as well as what they quote.

3.2 *Sharing research contributes to the knowledge base of a community, reinforces learning, and helps others to learn.*

Through Guided Inquiry the Learning Team creates an Inquiry Community in which students learn together and from each other. The audience for student inquiry is not only the teacher but also the whole class. Students also become aware of a wider audience for their inquiry, inside and outside the school and on the Internet. This is substantially different from a more traditional approach to research assignments, in which the student produces a product for the teacher to grade. In many of these instances, students work on their own, and the teacher is the only person who actually sees the finished product. In Guided Inquiry, the student's product of inquiry is opened to the whole community—fellow students, the entire Learning Team, sometimes the whole school community—and there is a possibility of contributing to a larger community online. Students should consider their possible audience when determining their products.

One of the important objectives of Guided Inquiry is to expand the knowledge base of all students through collaborating and sharing. Students learn a wide range of aspects about an area of the curriculum from each member of the class. In this way an Inquiry Community is created, with each student contributing to the knowledge base, providing a forum for the development and exchange of ideas. Students see themselves as producers as well as consumers of information. The Learning Team enables and guides this process for the utmost benefit to all students.

Guided Inquiry facilitates students' learning from each other throughout the inquiry process by providing ongoing opportunities to collaborate. Sometimes students work in pairs, at other times in small Inquiry Circles, and sometimes with the entire class in their Inquiry Community. They also need time alone to reflect and prepare for working with others. These various opportunities for working together and alone provide a means for construction and learning. Students try out their ideas and obtain responses and suggestions from others in their community. They become aware of where they need to dig more and recognize further questions that need to be addressed. This group interaction fosters critical thinking that leads to deep learning.

In Guided Inquiry, the Inquiry Community provides an environment for inquiry learning through elementary and secondary school. In elementary school students are involved in asking questions, seeking to know more, and sharing discoveries with others. In middle school students explore ideas from various sources and integrate those ideas into their own thinking in preparation for forming a focused perspective that they can share and apply. For secondary school students, the Inquiry Community provides a forum for an exchange of ideas and active engagement in interpreting, synthesizing, drawing conclusions, and identifying further questions and problems. Developing and facilitating an Inquiry Community is a primary goal of Guided Inquiry.

Developing a Scope and Sequence for Your Students

Part II of this book has provided a comprehensive curriculum for developing information literacy through Guided Inquiry. This concept-based information literacy curriculum is organized around three fundamental concepts, with detailed supporting concepts to build extensive, lasting information literacy competencies. Multiple examples explain how these concepts are

learned by students, from the very youngest child in prekindergarten to the graduating senior in secondary school.

An understanding of these concepts is built over the years by integrating the Guided Inquiry information literacy curriculum into the curriculum of your school. You can map the information literacy curriculum to your prekindergarten–12 curriculum. The examples of developing each concept through the grades can be used to construct an information literacy scope and sequence that is specifically tailored to the students in your school and district. This will take time and effort, but it will ensure that your students are progressing in their understanding of information literacy concepts and capabilities as they proceed through the grades.

Information literacy forms the basis of how people learn in today's complex information environment. These information literacy concepts hold up through changes in information technology and overcome problems of transference to college and work. Information literacy through Guided Inquiry prepares students for living, working, and learning in the technological information society.

Reflection

How is the concepts approach to information literacy different from what you are currently using? In what ways could implementing this approach to teaching information literacy have an impact on your students? How does your school or district perspective on information literacy fit with this curriculum? Who are important people for you to work with to implement this curriculum?