

FOSIL (Framework Of Skills for Inquiry Learning): Building understanding and creating new knowledge through inquiry.

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	Grade K-1/Year 1-2	Grade 2/Year 3	Grade 3/Year 4	Grade 4/Year 5
Connect	<ul style="list-style-type: none"> K.a Identifies one or two key words about a topic, problem or question with guidance. K.1 Connects ideas to own interests. 1.1 Shares what is known about general topic to elicit and make connections to prior knowledge. 1.a Restates/retells and asks questions about the topic, problem or question with guidance. 	<ul style="list-style-type: none"> 2.1 Recognizes that questions can be answered by finding information. 2.a Identifies the overall “big picture” idea by stating it orally or drawing a picture. 	<ul style="list-style-type: none"> 3.a Connects ideas <u>in texts</u> to own interests. 3.b States what is known about the problem or question and makes connections to prior knowledge. 	<ul style="list-style-type: none"> 4.1 Generates a list of key words for a research– based project with guidance.
Wonder	<ul style="list-style-type: none"> K.b Formulates questions related to listening activities. 1.b Adds to K-W-L chart constructed by class by helping develop questions for W –Wonder. 	<ul style="list-style-type: none"> 2.2 Asks “I wonder” questions about the research topic. 	<ul style="list-style-type: none"> 3.c Formulates questions about the topic with guidance. 3.d Uses prior knowledge and understanding of overall topic to make predictions about what the new 	<ul style="list-style-type: none"> 4.2 Asks questions to clarify topics or details 4.3 Predicts answers to inquiry questions based on background knowledge and beginning observation or experience.
Investigate	<ul style="list-style-type: none"> K.2 Understands the basic organizational structure of books. K.3 Distinguishes between fiction and nonfiction resources. K.d Uses materials provided to find answers to questions posed. 1.c Demonstrates the ability to use the library and check out books. 1.d Recognizes that nonfiction resources in the library are organized by categories and begins to associate the Dewey numbers with areas of interest. 1.2 Recognizes that fiction (and picture books) are organized by the author’s last name in A-B-C order and uses this to locate them. 1.e Recognizes the purpose of the online catalogue to locate materials. 1.f Selects and uses appropriate sources with guidance, including picture dictionaries and beginning encyclopaedias, to answer questions. 1.g Interprets information represented in pictures, illustrations, simple charts and verbalizes main idea. 1.3 Distinguishes between fact and opinion. 1.4 Finds facts and briefly summarizes them via writing, drawing, or verbalization to answer research questions. 	<ul style="list-style-type: none"> 2.3 Follows a modeled inquiry process during each visit to the library to do research. 2.c Uses online encyclopedias, magazines databases, and other technology resources with guidance. 2.d Selects and uses appropriate sources with guidance, including dictionaries, <u>periodicals, maps, and globes</u>, to answer questions. 2.4 Writes, draws, or verbalizes the main idea and supporting details. 2.e Uses simple note-taking strategies as demonstrated by librarian/teacher (e.g., copying words or phrases). 	<ul style="list-style-type: none"> 3.1 Identifies the ten major Dewey areas and what main topics are included in each. 3.e Locates nonfiction material at appropriate reading level. 3.2 Searches the online catalog (author, title, and subject) with assistance to locate materials. 3.3 Uses bookmarked Websites to find appropriate information. 3.f Selects and uses <u>multiple appropriate print, nonprint, electronic and human</u> sources (e.g., <u>thesauri, general encyclopedias, and periodical databases</u>) to answer questions. 3.g Uses at least two sources for research projects. 3.h Questions text during reading or listening. 3.i Uses simple note taking strategies (e.g., <u>graphic organizers</u>). 3.j Identifies and uses the organizational structures of a nonfiction book (table of contents, index and glossary) to locate information. 	<ul style="list-style-type: none"> 4.4 Uses selected search engines to find appropriate information. 4.a Uses pre-selected primary sources to gather information. 4.b Uses pre-selected Web resources to locate information. 4.c Selects and uses multiple appropriate print, non-print, electronic and human sources (e.g., <u>almanacs, indexes, specialized dictionaries</u> and encyclopedias, and <u>databases</u>) to answer questions. 4.d Uses skim/scan to locate information that is appropriate to age and ability level. 4.f Uses various note taking strategies (e.g., <u>highlighting</u>, graphic organizers). 4.5 Paraphrases, summarizes information that answers research questions. 4.g Identifies and uses the organizational structures of a nonfiction book (<u>bibliography and appendix</u>) to locate information. 4.h Follows a model or template provided to complete inquiry project and follows a timeline.
Construct	<ul style="list-style-type: none"> K.4 Demonstrates simple organizational skills such as sorting and categorizing. 1.5 Draws a conclusion about the main idea with guidance. 1.h Completes the L portion of the K-W-L chart with what new ideas were learned. 	<ul style="list-style-type: none"> 2.5 Compares new ideas with what was known at the beginning of the inquiry. 	<ul style="list-style-type: none"> 3.k Uses a variety of strategies to determine important ideas. 3.4 States the main idea. 3.l Organizes information using a teacher provided tool. 	<ul style="list-style-type: none"> 4.6 Identifies facts and details that support main ideas. 4.i Notes similarities and differences in information from two different sources. 4.7 Uses common organizational patterns (chronological order, main idea with supporting details) to organize information. 4.j Draws a conclusion about the main idea.
Express	<ul style="list-style-type: none"> K.5 Presents facts and simple answers to questions. 1.i Uses writing process to develop expression of new understandings. 1.j Uses format chosen by the teacher. 	<ul style="list-style-type: none"> 2.f Begins to understand concept of “audience”. 2.6 Presents information in a variety of ways (e.g., art, music, poetry, movement, verbally, and/or written language). 2.g Identifies the names of sources used. 2.h Uses technology tools chosen by teacher or librarian to create written products. 	<ul style="list-style-type: none"> 3.m Communicates new understandings through combining, predicting, illustrating and constructing. 3.5 Chooses the format for the product based on personal preference or uses format chosen by the teacher or librarian. 3.n Uses visuals and multimedia to communicate meaning. 3.6 Presents information clearly so that main points are evident. 	<ul style="list-style-type: none"> 4.k Uses pre-writing to brainstorm ideas for most effective way to present conclusions. 4.l Drafts the presentation/product. 4.m Understands the concept of “audience”; <u>determines audience before creating product.</u>
Reflect	<ul style="list-style-type: none"> K.6 & 1.7 Identifies own strengths and sets goals for improvement. 1.6 Asks, “What do I wonder about now?” 	<ul style="list-style-type: none"> 2.i Uses authentic assessment rubrics modeled by librarian. 2.7 Identifies own strengths and sets goals for improvement. 	<ul style="list-style-type: none"> 3.o Identifies and evaluates the important features for a good product. 3.7 Assesses and revises own work with guidance. 3.8 Identifies own strengths and sets goals for improvement. 3.p Asks “What...would I like to learn more about?” 	<ul style="list-style-type: none"> 4.8 Identifies and evaluates the important features for a good product. 4.9 Assesses and revises own work with guidance. 4.10 Identifies own strengths and sets goals for improvement.

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	Grade 5/Form Lower 1	Grade 6/Form 1	Grade 7/Form 2	Grade 8/Form 3
Connect	<ul style="list-style-type: none"> 5.1 Use sources to acquire background information and brainstorm ideas for further inquiry. 	<ul style="list-style-type: none"> 6.a Find areas of passion or interest within topics of study 6.b Identify key words and ideas <u>that appear in background information and class conversation.</u> 	<ul style="list-style-type: none"> 7.1 State and verify what is known about the problem or question and make connections to prior knowledge. 7.a Use multiple sources to acquire background information and brainstorm ideas for further inquiry. 	<ul style="list-style-type: none"> 8.1 Revise the question or problem as needed to arrive at a manageable topic for inquiry. 8.a Express the big idea and the relation of own topics of interest to that idea through a mind map using pictures and words.
Wonder	<ul style="list-style-type: none"> 5.2 Assess questions to determine which can be answered by simple facts, which cannot be answered, and which would lead to an interesting inquiry. 5.a Forms tentative thesis about main idea with guidance. 	<ul style="list-style-type: none"> 6.c Recognize characteristics of good questions. 6.d Determine what information is needed to support the investigation and answer the questions. 	<ul style="list-style-type: none"> 7.b Write questions independently based on key ideas or areas of focus. 7.2 Analyse and evaluate what is known, observed or experienced to form tentative thesis or hypothesis. 7.c Determine what resources will most likely offer quality information. 	<ul style="list-style-type: none"> 8.2 Refine questions to guide the search for different types of information (e.g., overview, big idea, specific detail, cause and effect, comparison). 8.b Plan inquiry to <u>test</u> hypothesis or validate thesis.
Investigate	<ul style="list-style-type: none"> 5.3 Select and use multiple appropriate print, non-print, electronic, and human sources to answer questions. 5.4 Use navigation tools of a Website to find information. 5.b Uses prior knowledge and experiences to understand new facts and ideas. 5.c Interprets information taken from maps, graphs, charts and other visuals. 5.5 Evaluate print and electronic information for usefulness, relevance and accuracy. 5.d Determines important details 5.6 Use various note taking strategies. 5.e Uses software (e.g., word processing, graphic organizing) to record and organize information. 5.f Identifies and uses the organizational structures of a nonfiction book (<u>preface, foreword and introduction</u>) to locate information. 	<ul style="list-style-type: none"> 6.e Recognize the organization and use of the <u>special sections in the library</u> (e.g., <u>reference, graphic novels, paperbacks</u>). 6.f Follow a complete research plan and stay on a timeline. 6.1 Use online catalogue <u>independently</u> to locate specific books, get classification numbers, and browse the shelves. 6.g Participate in <u>supervised use of search engines</u> and pre-selected Web resources to access appropriate information for research. 6.h Evaluate electronic and print information <u>to determine whether it is inaccurate or misleading.</u> 6.2 Use both primary and secondary sources. 6.i Summarize information that answers research questions. ENG 6.j Differentiate between important and unimportant details. ENG 6.k Take notes using one or more of a variety of note taking strategies. 6.l Relate new information to prior knowledge. 	<ul style="list-style-type: none"> 7.d Use the categorization of materials within Dewey areas to locate resources <u>and browse for additional materials.</u> 7.e Use technology resources such as online encyclopaedias, online databases, and Web subject directories to locate information on assigned topics within the curriculum. 7.f Use organizational systems and electronic search strategies (key words, subject headings) to locate appropriate resources. 7.g Evaluate and paraphrase information that answers research questions. 7.3 Evaluate quality of electronic and print information for usefulness, currency, authority and accuracy. 7.4 Use both facts and opinions responsibly by identifying and verifying them. 7.h Use table of contents, index, chapter and section headings, topic sentences, and summary sentences to locate information and select main ideas. 7.i Use the structure and navigation tools of a Website to find <u>the most relevant</u> information. 	<ul style="list-style-type: none"> 8.3 Use different formats (e.g., books, Websites, subscription databases, multimedia, graphs, charts, maps and diagrams) as sources of information. 8.c Seek balanced view by using diverse sources to access appropriate material. 8.d Select information based on authority and point of view. 8.4 Recognize the effect of different perspectives and points of view on information. 8.5 Recognize that own point of view influences the interpretation of information. 8.e Identify misconceptions and revise ideas as new information is gained.
Construct	<ul style="list-style-type: none"> 5.g Makes inferences with guidance. 5.7 Form opinions and use evidence from text to back it up. 5.h Organizes notes and ideas and develops an outline or graphic organizer. 5.i Actively listens to and restates others' ideas and contributes own ideas. 	<ul style="list-style-type: none"> 6.m Make inferences <u>based on explicit information in text.</u> 6.n Organize notes and ideas and develop an outline or graphic organizer <u>using both print and electronic tools.</u> 6.3 Combine information and weigh evidence to draw conclusions and create meaning. <i>Use of Excel in construct phase (not nec. F1)</i> 	<ul style="list-style-type: none"> 7.5 Use common organisational patterns (chronological order, cause and effect, compare/contrast) to organize information in order to draw conclusions. 7.6 Interpret information and ideas by defining, classifying, and inferring. 7.j Form opinions and judgments backed up by supporting evidence. 7.k Question the difference between sources and seek additional sources to resolve. 	<ul style="list-style-type: none"> 8.f Analyse disparate points of view discovered in different sources. 8.6 Draw conclusions based on explicit and implied information. 8.g Compare information found to tentative thesis or hypothesis; revisit and revise thesis/hypothesis as appropriate.
Express	<ul style="list-style-type: none"> 5.j Using writing process to develop expression of new understandings. 5.8 Cite all sources used according to model provided by teacher (or librarian) (<u>some attempt at citation but not standard across subjects</u>). 5.k Uses a variety of technology tools chosen by librarian or teacher to create products. 5.9 Modify and revise own work based on feedback from teachers and others. 5.l Checks for correctness and completeness. 	<ul style="list-style-type: none"> 6.o Use pre-writing to discover alternate ways to present conclusions. 6.p Draft the presentation/product <u>tailored to the audience.</u> 6.4a <i>Have I presented my case convincingly using MS PowerPoint according to the Oakham Style Guide?</i> 6.4b <i>Have I presented my case convincingly using the Academic Writing Template in MS Word according to the Oakham Style Guide?</i> 6.4c <i>Have I presented my case convincingly using MS Publisher?</i> 6.4d <i>Have I presented my case convincingly using MS Excel?</i> 6.4e Presents conclusions and supporting facts in a variety of ways 	<ul style="list-style-type: none"> 7.l Publish final product for a particular audience <u>and purpose.</u> 7.7 Cite all sources used according to local style formats (in a standard format for each stage in school). 	<ul style="list-style-type: none"> 8.7 Create products for authentic reasons and audiences. 8.h Use <u>two or three strategies</u> to revise product based on self-assessment, teacher feedback, and peer feedback. 8.i <u>Identify</u> and use a variety of technology tools, <u>including Web-based interactive tools, to organize information</u>, create a product, and <u>enhance communication.</u>
Reflect	<ul style="list-style-type: none"> 5.m Identify and evaluate the important features for a good product. 5.10 Assess and revise own work with guidance. 5.11 Identify own strengths and set goals for improvement. 5.n Relies on feedback to figure out how to improve product and process. 	<ul style="list-style-type: none"> 6.q Assess own work <u>and begin to develop own revision process.</u> 	<ul style="list-style-type: none"> 7.8 Use established criteria or collaboration with classmates and teacher to develop criteria for assessment. 	<ul style="list-style-type: none"> 8.8 Identify own strengths and set goals for improvement.

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	Grade 9/Form 4	Grade 10/Form 5	Grade 11/Form 6	Grade 12/Form 7
Connect	<ul style="list-style-type: none"> 9.a Reads background information to discover the complexities of the problem or question and brainstorms ideas for further inquiry. 9.1 Identifies key words, concepts, and synonyms, both stated and implied, for topic and uses them to further research. 9.2 Develops a schema or mind map to express the big idea and the relationships among supporting ideas and topics of interest. 	<ul style="list-style-type: none"> 10.1 Develops and refines the topic, problem, or question independently to arrive at a worthy and manageable topic for inquiry. 10.a Maintains a list of effective search terms throughout the process of inquiry. 	<ul style="list-style-type: none"> 11.a Verifies the accuracy of what is known about the problem or question. 	<ul style="list-style-type: none"> 12.1 Explores problems or questions for which there are multiple answers or no "best" answer.
Wonder	<ul style="list-style-type: none"> 9.b Focuses the purpose of the research by formulating specific questions to be answered. 9.c Determines the kind of information needed to investigate the complexities of the topic and whether different points of view will be important. 	<ul style="list-style-type: none"> 10.2 Refines questions to provide a framework for the inquiry and to fulfill the purpose of the research (e.g., questions to lead to historical context and interpretation; questions to elicit accurate facts about scientific problem or issue). 	<ul style="list-style-type: none"> 11.1 Plans inquiry to systematically test hypothesis or to gather evidence to validate thesis. 	<ul style="list-style-type: none"> 12.a Uses prior knowledge, understanding of essential ideas and questions, and comprehensive background information to make predictions about specific information needed to answer questions and about the
Investigate	<ul style="list-style-type: none"> 9.d Brainstorms ideas for further information. 9.e Uses search strategies (Boolean operators, synonyms and relational searching) to broaden and narrow searches and locate appropriate resources. 9.f Uses technology resources such as the online catalogue, online encyclopaedias, online databases, Web subject directories, and links from valid Web sites <u>to locate primary and secondary information</u> on topics of inquiry. 9.g Uses a variety of search engines to do advanced searching. 9.h Seeks and uses <u>many different sources in a variety of formats</u> to obtain balanced and complex information and to find information needs effectively. 9.i Adjusts search strategies by comparing information gathered with the problem or question. 9.j Analyses maps, pictures, charts, graphs, and other information presented visually to determine main ideas and supporting details. 9.3 Takes notes using one or more of a variety of note taking strategies, including reflecting on the information (e.g., graphic organizers, two-column notes). 	<ul style="list-style-type: none"> 10.b Uses specialized reference materials to find specific and in-depth information. 10.3 Conducts advanced Web searches using Boolean logic and other sophisticated search functions. 10.c Uses text structures to derive relationships among ideas and deeper or more subtle meaning (signal words; patterns such as cause/effect, comparison, sequence; foundational vs. detailed information). 10.d Evaluates information from a variety of sources for accuracy, <u>appropriateness, validity and comprehensiveness.</u> 10.e Recognizes statements that can be verified. 10.f Uses collaborative and independent digital tools to record and organize information. 10.g Pursues a <u>balanced perspective</u> of fact, opinion, and different points of view. 	<ul style="list-style-type: none"> 11.2 Pursues a balanced perspective by evaluating information based on authority, accuracy, point of view, and reliability. 11.3 Uses the organizational features of a book as well as abstracts, tables, charts and first and last chapters to locate main ideas, specific supporting evidence, and a balanced perspective. 11.b Recognizes degrees of bias (from slightly slanted point of view to heavily slanted propaganda). 11.c Recognizes competing interpretations of historical events and issues and the reasons for those differences. 11.d Evaluates the authority of a source by assessing the credentials and reputation of the author, creator and publisher. 11.e Evaluates, paraphrases, summarizes, and interprets information that answers research questions and gives an accurate picture of the research topic. 11.f Recognizes that even accurate facts can be misleading if relevant facts are omitted or if context is not provided. 11.g Categorizes information; adds new categories as necessary; explores connections among categories. 	<ul style="list-style-type: none"> 12.b Seeks resources with diverse opinions and points of view and <u>evaluates them carefully</u>, particularly on controversial, historical or culturally based topics. 12.c Counters the effect of bias on the accuracy and reliability of information by actively pursuing a balanced perspective. 12.2 Challenges ideas in text and makes notes of questions to pursue in additional sources. 12.d Independently recognizes gaps in information (based on the complexity of the problem or question). 12.e Extends search beyond readily available sources to ensure accuracy and comprehensiveness. 12.f Maintains an open attitude about new areas of the subject that were previously unknown or overlooked.
Construct	<ul style="list-style-type: none"> 9.k Combines ideas and information to develop and demonstrate new understanding. 9.4 Organizes information independently, deciding the structure based on the relationships among ideas and general patterns discovered. 9.l Understands and builds on the ideas of others. 	<ul style="list-style-type: none"> 10.h Critically examines and analyses relevant information from a variety of sources to discover relationships among ideas. 10.i Organizes notes and ideas using both print and electronic tools <u>to create the most appropriate organizational pattern to express the connections and patterns.</u> 10.4 Draws clear and appropriate conclusions supported by evidence and examples. 	<ul style="list-style-type: none"> 11.h Analyses different points of view <u>and determines best supported point of view by sorting and sifting evidence.</u> 11.4 Presents different perspectives with evidence for each. 11.i Identifies and addresses previously held misconceptions. 	<ul style="list-style-type: none"> 12.3 Builds a conceptual framework by synthesizing ideas gathered from multiple sources. 12.g Changes own ideas based on the ideas of others. 12.4 Develops own point of view and supports with evidence.
Express	<ul style="list-style-type: none"> 9.m Presents conclusions to answer the question or problem. 9.n Uses visuals, electronic tools and multimedia to communicate meaning. 	<ul style="list-style-type: none"> 10.j Drafts the presentation/product to present an argument, point of view, interpretation, or new model most effectively with supporting evidence. 10.5 Cites all sources used according to standard style formats. (APA) 10.k Identifies and uses a variety of technology tools, including Web-based interactive tools, to organize information, create a product, and enhance communication <u>with a real world application.</u> 	<ul style="list-style-type: none"> 11.5 Chooses the most appropriate format, tone and language to communicate ideas clearly in real world formats to different audiences. 11.j Publishes final product for an authentic audience and real world application. 	<ul style="list-style-type: none"> 12.h Communicates new understandings through designing, inventing, composing, transplanting and constructing. 12.5 Evaluates own product and process throughout the work and uses self-assessment, teacher feedback, and peer feedback to make revisions when necessary.
Reflect	<ul style="list-style-type: none"> 9.5 Identifies own strengths and sets goals for improvement. 	<ul style="list-style-type: none"> 10.l Identifies and evaluates the important and subtle features for an effective product. 10.6 Records individual experience of the inquiry process – the hardest part, best part, skills learned, insights experienced, etc. – with suggestions for future improvements. 	<ul style="list-style-type: none"> 11.k Assesses and revises own work using own <u>revision process.</u> 	<ul style="list-style-type: none"> 12.i Asks, "What about this topic is personally interesting to me and important? What about this topic do I want to pursue when I have an opportunity? Does this topic have implications for future career or college choices?"