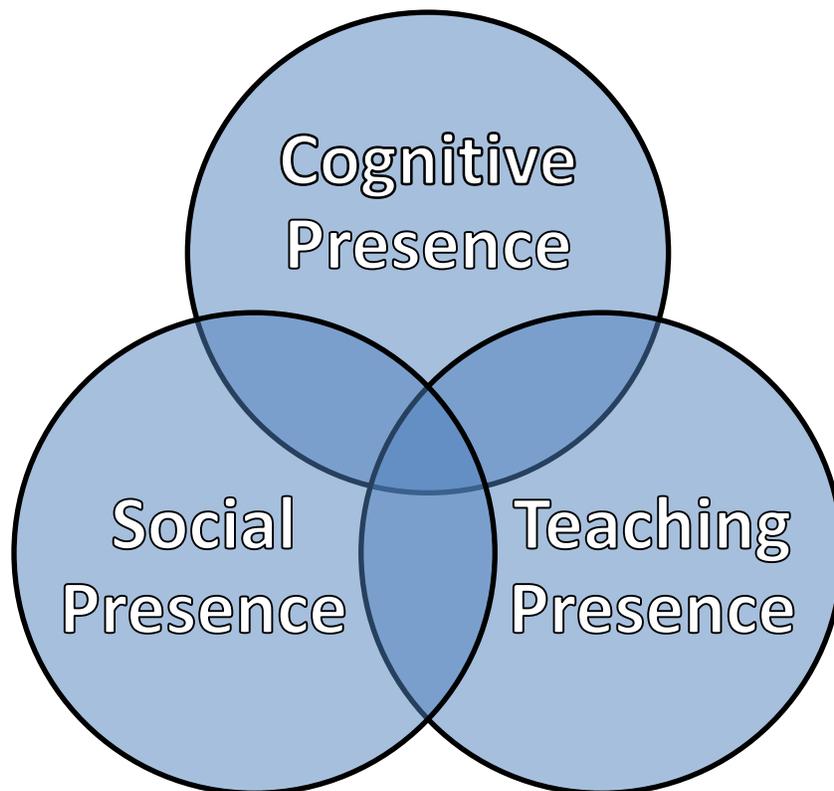
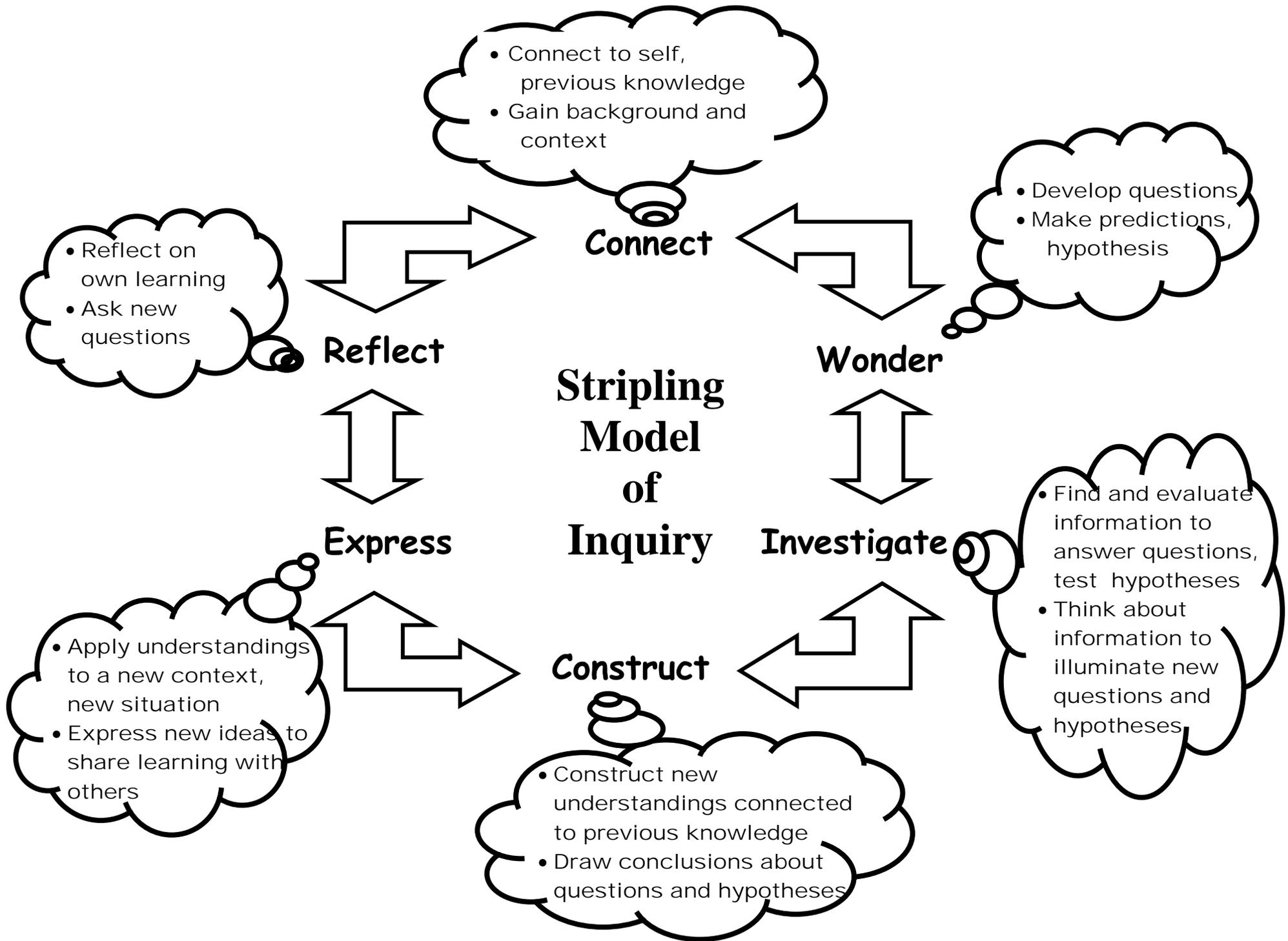


*Empowering Learners Through
Inquiry:
Building a Community*



Garrison, D. R., Anderson, T., & Archer, W. (2000). <http://communitiesofinquiry.com/model>

Barbara Stripling
bstripli@syr.edu



CRITICAL INQUIRY SKILLS FOR THE DIGITAL ENVIRONMENT

Barbara Stripling

bstripli@syr.edu

PHASE OF INQUIRY	CRITICAL DIGITAL INQUIRY SKILLS	TEACHING STRATEGIES
Connect	Contextualization	<ul style="list-style-type: none"> • Provide links to overview information • Design instruction around big ideas, central themes • Guide the connection to everyday life • Motivate inquiry into specific issues with provocative essential questions • Do diagnostic assessment to bring misconceptions and inaccurate mental models to surface • Teach mindmapping to help students visualize the whole
	Focus	<ul style="list-style-type: none"> • Teach students to capture key terms from overview • Teach webbing to enable students to identify their main ideas and supporting or peripheral ideas • Develop criteria with students for evaluating appropriateness and usefulness of websites • Provide criteria for self-assessment of topic breadth, depth, viability, and interest
PHASE OF INQUIRY	CRITICAL DIGITAL INQUIRY SKILLS	TEACHING STRATEGIES
Wonder	Higher-level questioning	<ul style="list-style-type: none"> • Teach and provide templates for developing questions at different levels • Model questioning at convergent, divergent, and evaluative levels • Facilitate whole-class development of in-depth questions around the essential question • Scaffold the development of higher-level questions by providing provocative and diverse sources • Teach students to question the text
PHASE OF INQUIRY	CRITICAL DIGITAL INQUIRY SKILLS	TEACHING STRATEGIES
Investigate	Relational search strategies	<ul style="list-style-type: none"> • Teach students to generate synonyms and natural-language related terms for key terms gathered through overview/background reading • Provide instruction and practice in both hierarchical and relational search strategies; emphasize relational strategies for web environment
	Participatory organization	<ul style="list-style-type: none"> • Provide opportunities and tools for students to tag and organize both information and websites as they are investigating • Teach students how to use digital tools for organizing their research information and sources

		<ul style="list-style-type: none"> • Provide opportunities for students to participate in the library catalog through tagging and comments on resources • Integrate collaborative activities into lesson design • Provide access to collaborative work tools
	Sourcing	<ul style="list-style-type: none"> • Develop criteria for evaluating the authority of sources with the students. These should include authority of author/publisher, purpose, currency, credibility, accuracy, and perspective/viewpoint • Establish school-wide protocol of requiring annotated bibliographies for all research projects
	Corroboration	<ul style="list-style-type: none"> • Teach students to weigh one source against another in terms of their accuracy and point of view • Teach students to challenge and question the information presented until they have corroborated it with evidence from other authoritative sources
	Connected Meaning	<ul style="list-style-type: none"> • Provide templates and instruction to enable students to compare, contrast, and sequence information • Teach students relational thinking so that they find commonalities and differences among multiple perspectives, connect new information to their big ideas, and find a broad range of related information
	Deep reading	<ul style="list-style-type: none"> • Teach the strategies of critical literacy, including questioning the text; reading for analysis; evaluating rather than summarizing the evidence; and reading for subtext and implicit meaning
	Transliteracy	<ul style="list-style-type: none"> • Teach students to “read” and interpret information presented through multiple formats • Provide opportunities for students to recognize and counter the dangers of noncritical acceptance of visual information: <ul style="list-style-type: none"> ○ Use of visuals for illustration purposes only ○ “Graphic seduction” of online visual information ○ Positive and negative influence of graphics on critical reasoning
	Ethical participation	<ul style="list-style-type: none"> • Develop ethical guidelines in the accessing and use of information with the students • Provide explicit instruction in copyright, crediting sources, and plagiarism • Discuss proprietary and creative commons concepts • Develop digital citizenship curriculum and integrate it into teaching throughout the school • Expand students’ understanding of their social responsibilities by teaching them to seek and respect divergent viewpoints

PHASE OF INQUIRY	CRITICAL DIGITAL INQUIRY SKILLS	TEACHING STRATEGIES
Construct	Synthesis	<ul style="list-style-type: none"> • Teach students specific skills to synthesize bits of information available through the hypertext environment and weave them together to form a meaningful whole: <ul style="list-style-type: none"> ○ Determining the importance of ideas ○ Identifying main ideas and supporting evidence ○ Combining ideas to develop robust arguments ○ Interpreting ideas in relation to similar and contrasting information
	Finding patterns and relationships	<ul style="list-style-type: none"> • Provide access to online organizational tools to enable students to find patterns in their evidence • Teach students to generate their own graphic organizations to find connections among ideas (e.g., concept mapping, mindmapping)
	Development of own interpretation or conclusion	<ul style="list-style-type: none"> • Teach students strategies to develop their own interpretations and conclusions: <ul style="list-style-type: none"> ○ Testing their interpretations against the evidence ○ Constructing a decision-making matrix and making a decision ○ Developing a line of argument with points and counterpoints
PHASE OF INQUIRY	CRITICAL DIGITAL INQUIRY SKILLS	TEACHING STRATEGIES
Express	Shared learning	<ul style="list-style-type: none"> • Provide opportunities and online tools for students to collaborate in the production and sharing of their work • Teach students the skills involved in using media in all formats and social tools to communicate their learning • Teach students to provide reflective feedback to their peers
	Authenticity	<ul style="list-style-type: none"> • Connect learning assignments and final products to authentic modes of communication and real-world issues • Establish clear criteria for authentic work, including the presentation of reasoned, in-depth, and accurate arguments that form a coherent whole • Teach students to create high-quality, professional products that would have legitimacy in the real world
	Creative thinking	<ul style="list-style-type: none"> • Provide opportunities for students to think outside of the box of “report writing” and use digital tools to create original and valid presentations

PHASE OF INQUIRY	CRITICAL DIGITAL INQUIRY SKILLS	TEACHING STRATEGIES
Reflect	Metacognition	<ul style="list-style-type: none"> • Teach students to evaluate their own thinking using reflective questions: <ul style="list-style-type: none"> ○ Did I learn anything new? ○ Are there holes in my argument that I want to pursue? ○ Do I trust my own conclusions? ○ What new questions do I have?
	Self-assessment of product	<ul style="list-style-type: none"> • Teach students to assess their own products in terms of how well they clarified concepts, constructed new knowledge, and communicated their ideas
	Self-assessment of process	<ul style="list-style-type: none"> • Teach students to evaluate their inquiry process and skills in terms of: <ul style="list-style-type: none"> ○ Quality of questions ○ Accuracy and authority of evidence ○ Depth and breadth of evidence ○ Validity of conclusions

REACTS TAXONOMY

A Taxonomy of Research Reactions

Recalling	Level 1
Explaining	Level 2
Analyzing	Level 3
Challenging	Level 4
Transforming	Level 5
Synthesizing	Level 6

RECALLING – LEVEL 1

- Recalling and reporting the main facts discovered
- Making no attempt to analyze the information or reorganize it for comparison purposes

Verbs: arrange; cluster; define; find; identify; label; list; locate; match; name; recall; recount; repeat; reproduce; select; sort; state

Example Assignments:

- Select 5-10 accomplishments of the person you have researched. Produce a “Hall of Fame” (or “Hall of Shame”) poster with your biographee’s photocopied picture and list of accomplishments.
- After your class adopts a second- or third-grade class, write a letter to your assigned student recounting five interesting facts you discovered in your research.
- List five “Do’s and Dont’s” about a social issue that you have researched.
- Find facts about your subject for each category determined by the class. Contribute your facts to the “Fact File” on your class’s web page.
- Select pictures from discarded magazines, make photocopied pictures, or find appropriate pictures on the Web to produce a collage or picture essay that portrays your researched subject.
- Based on your research, state five questions a television reporter might ask if he/she were preparing a feature news story on your subject. Answer the questions. (Students could work in pairs; their interviews could be videotaped.)
- Arrange words important to your research in a crossword puzzle.
- Define key words about your research subject. Embed hot links in your Web page to your definitions in a class glossary page.

EXPLAINING – LEVEL 2

- Recalling and restating, summarizing, or paraphrasing information
- Finding example, explaining events or actions
- Understanding the information well enough to be able to put it in a new context

Verbs: apply; cite; complete; convert; demonstrate; describe; document; dramatize; emulate; estimate; expand; explain; expound; express; generalize; give example; illustrate; imagine; paraphrase; portray; prepare; present; produce; propose; restate; review; search; show; solve; speculate; summarize; support; survey; translate; use

Example Assignments:

- Dramatize a particularly exciting event associated with your research in an on-the-spot report.
- Illustrate important features about your research by using clip art or a computer drawing program.
- Write and present a CNN News report about a particular event or person you researched.
- Keep a journal in which you present your reactions, thoughts, and feelings about your research.
- Show the events of your research on a map and explain the importance of each event.
- Complete each of the following statements based on your research: My research made me wish that. . . ; realize that. . . ; decide that. . . ; wonder about. . . ; see that. . . ; believe that. . . ; feel that. . . ; hope that. . . .
- Cut out newspaper or magazine ads that would have interested an historical figure you have researched. Explain their importance to the historical figure.
- Express the interests and accomplishments of an historical figure you have researched through a fictional diary mounted on your class's Web page. Portray your figure's characteristics by linking to Web sites that would have been important to your person's life and work.
- Prepare a job application or resume for a person you have researched.
- Keep an explorer's log book to express your impressions as you investigate the sights and way of life in another country through research.

ANALYZING – LEVEL 3

- Breaking a subject into its component parts (causes, effects, problems, solutions)
- Comparing one part with another

Verbs: analyze; apply; arrange; associate; break down; categorize; change; characterize; classify; compare; compile; construct; contrast; correlate; diagram; differentiate; discover; discriminate; dissect; distinguish; divide; examine; experiment; extend; group; infer; interpret; manipulate; map; modify; organize; outline; plan; question; reconstruct; relate; represent; revise; rewrite; scrutinize; select; separate; sequence; sift; simplify; solve; transplant; uncover; utilize; verify

Example Assignments:

- Create a timeline for the events which led up to the situation you researched. Correlate social, political, religious, educational, technological events.
- Transplant an event or famous person from one time period, country, or ecological system to another time or place. Explain the changes that would occur.
- Construct a carefully organized Web page to examine a social issue.
- Characterize your researched historical person in an obituary which makes clear his/her role in the conflicts of the day.
- Compare your lifestyle and neighborhood to those of people living in the time you have researched.
- Write a letter to the editor scrutinizing a local issue. Support your opinions with specific details from your research.
- Rewrite an historical event from two different points of view.
- Write a recipe for an historical event by researching, analyzing to pick out the main ingredients, and sequencing them in order with mixing instructions.
- Organize and create a travel brochure (on paper or on the Web) to attract visitors to the place or time period you have researched. Include all information that one would need to know plus fascinating details that would draw visitors.
- Use a graphic organizer to outline the main ideas of your subject visually, showing relationships between ideas and supporting points.

CHALLENGING – LEVEL 4

- Making critical judgments about subject based on internal or external standards
- (Standards may be student's own, or teacher or class may decide criteria. "I didn't like it" or "I don't believe it" are not enough)

Verbs: appraise; argue; assess; compare; criticize; debate; defend; determine; discriminate; evaluate; grade; investigate; judge; justify; modify; prioritize; rank; rate, refute; review; support; value; weigh

Example Assignments:

- Produce a critical review (of a book, movie, or play) which can be printed in a local paper or aired on local television or radio stations.
- Act as an attorney and argue to punish or acquit an historical character or a country for a crime or misdeed.
- Determine as a movie producer whether or not to make a film of an actual historical event, with justification for the decision.
- Defend your judgment that a research subject (if it is an invention, machine, or some other item or document) should be placed in a time capsule to be dug up in 100 years.
- Judge the merits of a researched subject by conducting a mock trial.
- Debate the issues of a controversial research topic with a classmate who researched the same topic.
- Evaluate the information available in print and electronic format on your topic, based on clear evaluation criteria. Compile an annotated bibliography of valuable sites and sources.
- Investigate a societal problem. Prepare a report card on the issue that assigns a grade for each proposed or attempted solution (look at the cost, feasibility, probable success, ease of implementation). Justify your grades.
- Evaluate the accuracy of an historical or teen-problem novel by comparing the "factual" information in the novel with the facts you discover through research. Refute the nonfactual information in a letter from "Dear Abby."
- Using a job evaluation form, rate a public person's performance of his/her job based on your research. Justify your ratings.
- Create an editorial cartoon about your researched subject that makes clear your judgment about the subject.

TRANSFORMING – LEVEL 5

- Bringing together more than one piece of information, forming own conclusion, and presenting that conclusion in a creative new format

Verbs: blend; build; combine; compile; compose; conclude; construct; convince; create; decide; design; develop; dramatize; elaborate; express; forecast; formulate; generate; imagine; modify; persuade; plan; predict; pretend; produce; propose; revise; speculate; structure

Example Assignments:

- Design and produce a television commercial or a whole advertising campaign that presents your research results to the class.
- Create a board game that incorporates the major conclusions you reached about your researched subject.
- Write a poem or short story that expresses your new knowledge or insight.
- Dramatize a famous historical event. The dramatization should make clear your interpretation of the event.
- Predict your reaction to your research subject as a resident of the future.
- Compose a speech that an historical person might deliver about a present-day national issue. Compose a speech that a current public person might deliver about an historical issue.
- Become a person in the historical era you have researched; elaborate from that perspective about a specific event, problem, invention, scientific theory, or political situation in a letter to someone.
- Predict what your researched person would take on a trip. Design the itinerary. Pack that person's suitcase and present each item to the class with an explanation of significance.
- Research a specific event, person, or aspect of the culture of an historical or modern era. Write and produce a segment for a morning news show on your topic.
- Pretend you are living in a particular place or historical era. Research a subject that is important to that time or place. Develop a newspaper or magazine article about that subject as though you were living there. Work with your classmates to produce the entire newspaper or magazine.
- Design a hypermedia program or a Web page about your researched subject that allows others to follow several different paths through your information.

SYNTHESIZING – LEVEL 6

- Creating an entirely original product based on a new concept or theory

Verbs: build a model program; create; design; develop; devise; generate; hypothesize; invent; propose; theorize

Example Assignments:

- Develop a model program to address a social problem that you have researched.
- Invent a new animal; explain its effect on other animals and on the environment.
- Create a new country and hypothesize about the change in the balance of power in the world.
- Design a new building, machine, process, experiment based on theories developed from your research.
- Develop proposed legislation to address national, state, or local issues.
- Devise an ethical code for present-day researchers or scientists which could regulate their activities in a particular field.
- Develop a community project that addresses an issue of local concern.
- Design and carry out a science project that builds on the previous knowledge that you have discovered through research and tests a new concept or theory.

REACTS RESEARCH PRODUCTS USING SOCIAL TOOLS

REACTS Level	EXAMPLES OF PRESENTATION TECHNIQUES	SOCIAL TOOL PRESENTATION TECHNIQUES FOR CIVIL WAR UNIT
RECALLING	<ul style="list-style-type: none"> • <u>Select</u> 5-10 accomplishments of the person you have researched. Produce a “Hall of Fame” (or “Hall of Shame”) poster with your biographee’s photocopied picture and list of accomplishments. 	
EXPLAINING	<ul style="list-style-type: none"> • Cut out newspaper or magazine ads that would have interested an historical figure you have researched. <u>Explain</u> their importance to the historical figure. 	
ANALYZING	<ul style="list-style-type: none"> • Write a letter to the editor <u>scrutinizing</u> a local issue. Support your opinions with specific details from your research. 	
CHALLENGING	<ul style="list-style-type: none"> • <u>Debate</u> the issues of a controversial research topic with a classmate who researched the same topic. 	
TRANSFORMING	<ul style="list-style-type: none"> • <u>Design</u> and <u>produce</u> a television commercial or a whole advertising campaign that presents your research results to the class. 	
SYNTHESIZING	<ul style="list-style-type: none"> • <u>Develop</u> a community project that addresses an issue of local concern. 	