

**The WebQuest: A Web-based activity model supportive of  
differentiated instructional goals.**

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Teachers who wish to make use of educational technology to support differentiated instruction goals (Tomlinson, 2001) will find the “WebQuest” a wonderful tool for the task. The WebQuest—a constructivist activity model making use of the Internet—is more than just a popular educational innovation—it is a practical approach for educators who aim to differentiate content, process and product to promote improved student learning. This article explains what a WebQuest is and how it may be used as a tool that supports differentiated instruction principles. It describes several strategies for using WebQuests and suggestions for how differentiated principles might be incorporated in them. Finally it includes a model unit plan illustrating how a differentiated WebQuest might be utilized in the classroom.

**What is a WebQuest?**

A WebQuest is an inquiry oriented activity in which all or most of the information used by students is gained from the World Wide Web (Dodge, 1995). WebQuests are learning experiences that involve students in the completion of motivating, meaningful, and authentic tasks. They often involve cooperative learning, role playing, and use of a broad range of knowledge sources. Whether short (one lesson) or long (several lessons over a span of weeks) in duration, WebQuests are product-oriented activities. They involve the step-by-step acquisition of knowledge and display of this learning in culminating events or materials.

One major goal of this activity model is the presentation of Web-based resources in a way that uses learners' time efficiently and effectively. The WebQuest activity model was developed in reaction to the practice of educational Web surfing—a common classroom activity that sent students searching the open Web for useful information and in quite often squandering learning time. When interacting with the Web in a WebQuest students focus on using information rather than looking for it. Teachers create Webquests and review resources students use in advance making better use of instructional time. WebQuests exercise learners' thinking at the levels of analysis, synthesis, and evaluation rather than their ability to point and click. Though the WebQuest activity model was developed by Tom March and Bernie Dodge of San Diego State University the term WebQuest and the corresponding model have taken on meaning beyond that originally envisioned by the creators. Educators around the world, hungry for ways to make Web-based lessons have adopted and adapted the model. The WebQuest page is an excellent source of information about this model and can be found at <http://webquest.sdsu.edu/>

**WebQuest Presentation and Components**

WebQuests are usually presented to students on hyperlinked web pages that resemble electronic activity sheets or worksheets. For an example of the template used to create WebQuests, visit this URL <http://webquest.sdsu.edu/templates/lesson-template1.htm> Students read the instructions presented in the WebQuest and follow them to accomplish the meaningful, authentic tasks presented to them. Not all Web-based lessons are

considered WebQuests, rather they must include the following critical components. They are:

1. **The Introduction-** A WebQuest introduction sets the stage and provides some background information about the learning activities that will be completed. The introduction is motivational and whets students' appetites for the adventure to come.
2. **The Task-** This section describes clearly what the end result of learning will be and what standards will be met through instruction.
3. **The Process-** Breaks down the activities that must be completed step-by-step for students to accomplish the Task. This section provides links to scaffolding tools for the completion of each step, often including guiding questions, graphic organizers, timelines, and cause-and-effect diagrams. These process is usually characterized by group activities promoting social learning, motivational elements (such as role play, electronic communication with experts), an interdisciplinary inclination, and the emphasis of higher order thinking skills
4. **The Information Sources-** Sources of information are provided for students to use in acquiring knowledge about the standards addressed. These resources often recommend links to Internet websites, but may also recommend passages in CD-Rom encyclopedias, teacher created guide sheets, and bibliographies of hard copy materials. Resources are reviewed in advance by the teacher to save time and put the emphasis on using information rather than finding it.
5. **The Conclusion-** This component brings closure to the WebQuest. It reminds the students what they've learned, and encourages them to extend the experience into other domains

### **WebQuests and Incorporating Differentiated Instruction Principles**

WebQuests have a natural attraction for teachers incorporating differentiated instruction principles in their classrooms because they provide a powerful framework for modifying instruction based on student's interest, readiness and learning style. By virtue of their constructivist design, WebQuests are a natural match with efforts to apply differentiation strategies. The style of learning that goes on in WebQuests fits with the flow of activity in the differentiated classroom where students often work in small groups overseen by an interested and supportive teacher. The WebQuest structure puts teachers in control of content, process and evaluation. Teachers can apply the ideas behind Tomlinson's "Equalizer" (2001, p. 47) to address student readiness. For example, WebQuests can be designed in response to student interests—covering a broad range of topics from foundational to transformational. Their tasks may be varied based on student readiness and range from more concrete to more abstract. Forms of scaffolding in the process can be varied to meet the learning profiles of different groups of students. The level of structure and independence students experience in completing the Process might also be flexed appropriately. The content of information sources can be matched with student readiness. More examples are provided later in this article.

The WebQuests is a versatile activity model because WebQuests may be designed to address instructional goals in any curricular area on any grade level. Teachers may wish

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to create their own WebQuests based on the individual learning needs of their students. Support materials such as electronic templates, rules for creating WebQuests, and a WebQuest about WebQuests may be of use to teachers who are interested in developing their them can be found at: <http://webquest.sdsu.edu/materials.htm> Sample WebQuests developed by teachers can be found at:  
[http://webquest.sdsu.edu/webquest\\_collections.htm](http://webquest.sdsu.edu/webquest_collections.htm)

Though many educators invest the time and energy in creating their own WebQuests, some adopt WebQuests already developed by others. They either use these activities “as is” or adapt them for their own students and curriculum. A refereed database, searchable by grade level, content area, and quality can be found through the WebQuest portal by going to <http://webquest.org/> and selecting the menu item “search.” A flow chart showing the steps involved in adapting existing WebQuests may be found at:  
<http://webquest.sdsu.edu/adapting/index.html> Care should be taken when using WebQuests created by others. Because most WebQuests found on the Internet are not refereed and reviewed by others, their quality varies. Using the evaluation rubric located at <http://webquest.sdsu.edu/webquestrubric.html> is helpful in considering the merits of individual WebQuests.

Sometimes teachers involve their students in developing WebQuests. Students who create such activities for others are encouraged to master both curriculum content and technology resources. Process guides that scaffold students through the thinking process involved in WebQuest creation may be found at:  
<http://projects.edtech.sandi.net/staffdev/tpss99/processguides/index.htm>

Research on WebQuests has explored the ways in which they support cooperative learning (Brucklacher and Gimbert 1999) and interdisciplinary teaching (Pohan and Mathison 1998). WebQuests also promote learner motivation and skills in problem solving and decision making (Cotton 1998; Seamon 1999). Much remains to be discovered about other potential benefit on students’ motivation and learning but for these they show great promise.

### **Using WebQuests to Differentiate Instruction**

Teachers who wish to differentiate instruction with the WebQuest activity model can do so using numerous approaches. Some are simple and others are more involved. In the sections that follow, we describe several. We begin with those taking less time and skill and progress to those that require more.

#### **Strategy 1: Find several appropriate WebQuests and match individual or groups of students with the one that best meets their needs.**

The World Wide Web serves as the open repository for many excellent WebQuests. Teachers and students around the globe have contributed to this stockpile—making their hard work and creative materials available to others for free. Any number of these WebQuests might be useful to you and appropriate for helping you meet your instructional goals.

There are many ways to find high-quality WebQuests. You might start reviewing those which have been refereed on the WebQuest Portal. WebQuests on this site have been examined in a peer review process and rated in terms of quality (i.e. Top and Middling). Another way to find those that pertain to your curriculum goals, is to conduct a Boolean search using Google or another search engine. Combine the term “WebQuest” and terms that best describe the curriculum standards you hope to address. For example, search +WebQuest +”ancient civilizations” Note, including the grade level of the students with whom you work increases your likelihood of finding a desirable WebQuest. Though search engines vary, using quotation marks to enclose multiword search terms generally allows the search engine to call up only those pages that have your terms together. Using the plus “+” sign before each search term will call up pages that combine all of your terms on the same page. This narrows your search and saves time. The rubric mentioned previously in this article would be useful in determining the quality of those WebQuests you find through an open search. Additionally you will need to conduct an evaluation of whether the WebQuest effectively addresses the curriculum goals you have for student’s expenditure of time.

*Match student readiness with the level of content in the ”Information Sources”-*

Once you have found several WebQuests appropriate for teaching your students and content standards, consider students’ learning profiles and match the WebQuests with those who can best learn from them. Strive to match students’ readiness with the level (i.e. reading level, depth, structure, degree of abstractness) of content materials in the WebQuest. Simply setting a student up with the WebQuest that has resources corresponding to his or her reading level makes a tremendous difference the quality of a learning experience. For example, three WebQuests on the solar system might be used in a sixth grade Science class. One WebQuest might make use of materials from the NASA website designed for scientists which registers at a reading level of 12.4. Another WebQuest might use only materials on a site created for sixth grade students registering at a reading level of 6.2.

Determining the reading level of digital text is easy using Microsoft Word. The instructions are provided in the sidebar.

## **Sidebar**

### **Using Microsoft Word to Determine the Reading Level of Electronic Text**

To determine the reading level of materials found in digital format, you must pen the word processor and turn on the readability statistics. To do so, follow these step-by-step instructions

1. Open the Microsoft Word program.
2. Open a new blank document.
3. Go to the “Tools” menu and select “options”
4. Select the tab that says “Spelling and Grammar”
5. Select the option “Show readability statistics”
6. Then close the window

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7. Minimize the Microsoft Word program
8. Open the window with the digital text you want to analyze
9. Highlight several paragraphs of the text using your cursor
10. Go to the “Edit” menu
11. Select “Copy”
12. Minimize the window with the digital text in it
13. Maximize the window with your blank word document in it
14. Click the mouse to put your cursor at the top of the page
15. Go to the “Edit” menu and select “Paste”—the text you selected should appear
16. Go to the “Tools” menu
17. Select “Spelling and Grammar”
18. Run this check, ignoring or correcting any errors, when the check has completed, the readability statistics using the Flesch-Kincaid\* system will appear.

\*The Flesch-Kincaid Index uses the following formula to determine readability  $0.39 \times$  Average No. of words in [sentences](#) +  $11.8 \times$  Average No. of [syllables](#) per [word](#) - 15.59

*Allow students to choose WebQuests with different “Tasks” based on their interests*  
Alternatively you might provide students a choice about the WebQuests and the tasks required for its completion. Providing students a choice is often the easiest way to differentiate and it can be very effective. Choice generally motivates students to spend more time on task. It also enables students to use skills or ideas familiar to them as a bridge to new and less familiar skills and ideas. Differentiating for interest capitalizes on a student’s natural desire to learn about particular topics, in particular ways, and express them through different products. As long as the WebQuest standards provide effective learning experiences related to the curriculum standards all choices are good ones promoting student ownership over the learning process. For example, when studying ancient civilizations, you might allow students to choose from completing a WebQuest about one of several groups. Some students might complete one about the Romans, others might be more interested in the Egyptians, Mayans, or Aztecs.

### **Strategy 2: Modify an existing WebQuest and differentiate it based on students’ learning profiles**

Although there are myriad ways you may differentiate the content, process, or products associated with instruction in a WebQuest, there are only a few technical ways to actually change the way it is presented to students in writing. So we begin with these. Each varies in level of technical difficulty. Here are just a few:

**Low-tech-** Print out a copy of the entire WebQuest and make modifications to it in writing using post-it notes stuck to the print out. Make enough copies for individuals or groups of students. Note: This strategy is less convenient for students because they will have to type the sometimes long and unwieldy URLs from the resource section of the WebQuest into their web browser. But some students may find it easier to carry out their quest with the instructions provided for them in hard copy format.

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**Middle-tech-** Use your cursor and the “edit” function in your web browser to copy and paste all of the text you wish to “borrow” from the WebQuest into a word processing program like Microsoft Word. Then modify the text and WebQuest as you see fit. The URLs from the WebQuest should copy along with the text but if they do not, you can enter them in using the “add link” feature in your word processor.

**High-tech-** Use the “Save” feature in your web browser to save a copy of the HTML file containing the WebQuest onto a disk or the desktop of your computer. Then open the file in Microsoft Word or a Web Page Editor and modify it. Note: When you save a copy of the HTML file containing the WebQuest, you will need to download the picture files associated with it as well. In cases when WebQuests are actually created using several linked pages, you will need to download each of the pages and relink them to one another once you have modified their contents.

Regardless of the approach you use to obtain and modify your WebQuest it is both courteous and advisable to notify its creator that you are using a copy of the WebQuest. By doing so, you may make a valuable colleague and friend while gaining a useful instructional tool. Simply send an email (it should be included on the WebQuest) to its creator, introduce yourself and state your intentions. Then be sure you include an acknowledgement to this person when you use your work based on theirs.

Once you have figured out how to modify the physical presentation and instructions in a WebQuest, you are ready to differentiate content, process and products associated with it. Here are some examples of how to do this.

### **Differentiate WebQuest Content**

According to Tomlinson (2001), content is the “input” of teaching and learning—what we teach and what we want students to learn. One strategy of Tomlinson’s that works well with WebQuests is to vary text and resource materials. The resource materials that are a fundamental part of the learning activities in a WebQuest can be flexed to meet individual needs.

*Match the presentation of content materials in the “Information Sources” with student readiness-* As described above, reading level might be matched with student readiness. But it is also possible to vary materials by their presentation format. Some students might perform best using hard copy resources that have already been selected by the teacher while others might be challenged to locate their own using an Internet search. Likewise, some students might be ready to deal with more abstract information such as real data (such as that from the census bureau or other government entities) to accomplish learning tasks where others might be best off working with data that has already been summarized in an almanac.

*Highlight text materials to promote student comprehension in the “Resources”-* Information in digital format is easy to modify in ways that create scaffolding for students. By making use of text formatting features in a word processing program, it is easy to highlight important phrases, terms, and or concepts to promote student comprehension. To do so, use features in the “Edit” menu to copy and paste certain

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portions of a WebQuest or electronic text from the resources section into a Word Document. Then use “highlighting” or colored text to make certain words stand out. Students with low vision will appreciate your using the computer to change the size of print or contrast of font and screen.

*Insert links to materials that promote student independence during learning tasks in the WebQuest “Process”-* The Web places support materials that make students more independent just one click away. Insert links to online dictionaries, encyclopedias within WebQuest assignments to facilitate students’ independence. For example, if you anticipate that one group of students might have difficulty understanding certain words in the content of a WebQuest, link their WebQuest assignment sheet to an online dictionary. If inserting a link in the assignment is too difficult for you technically, then simply indicate in writing that they might wish to look the word up using the resource.

### **Differentiate WebQuest Process**

According to Tomlinson (2001), process is sensemaking. It is the way in which students gain access to information and make sense of it. The attributes of the WebQuest model—the involvement of students in meaningful tasks, the promotion of higher order thinking skills, the use of real information from the Internet, and involvement in social learning activities—all enhance the learning process for students. Yet there are even more ways in which a WebQuest can be differentiated for students’ individual learning profiles. Here are just a few.

*Differentiate learning activities for prior knowledge during the “Introduction” of the WebQuest-* In the modification of your WebQuests, allow students to select activities based on their current level of mastery and prior knowledge. Use an online quiz tool such as the one found at <http://school.discovery.com/> to create a quiz that pretests student understanding on certain standards. Link the quiz to the WebQuest, encourage them to take the test and then instruct students which activities to complete based on their performance. Those with prior knowledge might go to activities that require new learning while others might be best starting building foundational knowledge.

*Enable students to use assistive technologies such as text readers or talking word processors while completing WebQuests-* Text Readers are software programs that read all the text in any given document or application. They also include other assistive features such as word prediction and spell check. Those with a reading disability, but with adequate vision most often use them. Some popular titles are: Read and Write (<http://www.texthelp.com/>), TextAssist (<http://www.mindmaker.com/>), and TextAloudMP3 (<http://www.nextuptech.com/TextAloud/>) These tools work quite well when used in conjunction with WebQuests. As part of the process in a WebQuest, encourage students to use these tools to scaffold and promote independence in the learning task. Programs that say every word a student types are called talking word processors. These tools can be quite helpful when used by students who have difficulty during the writing process. Here are just a suggested few titles [Write Outloud](http://www.nextuptech.com/TextAloud/) (<http://www.nextuptech.com/TextAloud/>), IntelliTalk II (<http://www.intellitools.com/>), and eReader (<http://www.intellitools.com/>). When students can hear a letter or word

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spoken as it is typed helps them to more quickly associate letters and words with the sounds that they make, connecting visual and auditory images of words. These programs also provide ways to re-read text, they give power and independence to children, allowing them to hear their texts as often as they like. All children benefit as these programs as they work to enhance the acquisition of literacy skills.

*Use instructional strategies that support differentiated processing in the WebQuest “Process”- Combine a low-tech instructional strategy such as concept attainment or concept development with the WebQuest activity model to enhance student learning. Consider creating several versions of the same WebQuest for learners at different readiness levels. Struggling learners might need to accomplish a learning activity set up in an inductive manner. Accelerated learners might need to approach it deductively. The creation of multiple assignment explanations is facilitated by the electronic presentation of the WebQuest. Simple modifications in the electronic document that presents learning tasks make multiple presentations for multiple groups of students more efficient and realistic to create.*

### **Differentiate WebQuest Evaluation**

Because the WebQuest model is very product oriented by design not much modification is required to make it compatible with differentiation principles regarding evaluation. Products are any materials, activity, or demonstration of a students’ learning from instruction (Tomlinson, 2001). In WebQuests, students work through the various components and acquire knowledge to create products using this knowledge. Therefore effective evaluation examines the breadth, depth, and application of the knowledge demonstrated. WebQuests products may range from hard copy materials such as brochures, newspapers, to presentations such as skits, sales presentations, and newscasts. Rubrics created as a join effort between students and the teacher are especially effective ways to differentiate evaluation of WebQuest products.

### **Strategy 3: Create a WebQuest for your students that incorporates differentiated instruction principles.**

Although starting with WebQuests already designed by others and modifying them to meet the needs of your own students, it is possible to create your own WebQuest from scratch. This method takes a bit more time, energy, and skill but it is most likely to make the best use of instructional time. Fortunately an extensive number of materials explaining in great detail how to design your own WebQuest exist on the WebQuest Page in the area that is called “Training Materials.” Start by learning about the “WebQuest Design Process” at <http://webquest.sdsu.edu/designsteps/index.html> and consult other materials as needed. Some practical ways to differentiate WebQuests have been mentioned previously in this article and these apply to creating your own WebQuest as well.

### **An Illustration of the Differentiated WebQuest in Action**

In the remainder of this article, I present an example of a unit plan and the lessons in this unit to illustrate one way a WebQuest might be used in a differentiated classroom. The



WebQuest is a part of the larger unit. Each lesson is broken down to demonstrate how technology resources might facilitate the differentiation of content, process, and evaluation.

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Virginia State Standards of the "River Cultures" WebQuest

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History and Social Science

8.2 The student will compare selected ancient river civilizations, including Egypt, Mesopotamia, the Indus Valley, and Shang China, and other ancient civilizations (such as the Hebrew and Phoenician kingdoms and the Persian Empire), in terms of

- location in time and place;
- the development of social, political, and economic patterns;
- the development of religious traditions; and
- the development of language and writing.

8.9 The student will give examples of the practice of slavery from the earliest civilizations to 1000 A.D.

8.10 The student will improve skills in historical research and geographical analysis by identifying, analyzing, and interpreting primary sources and secondary sources to make generalizations

English

8.4 The student will comprehend what is read from a variety of sources.

- Draw on background knowledge and knowledge of text structure to understand selections.
- Analyze details for relevance and accuracy.
- Read and follow instructions to assemble a model or simple structure.
- Evaluate and synthesize information to apply in written and oral presentations.

8.5 The student will write in a variety of forms, including narrative, expository and persuasive writings.

- Use prewriting strategies to generate and organize ideas.
- Focus on elaboration and organization.
- Select specific vocabulary and information.
- Use standard sentence formation, eliminating comma splices and other nonstandard forms of sentences that distract readers.
- Revise writing for word choice, appropriate organization, consistent point of view, and transitions among paragraphs. Edit final copies to ensure correct use of pronoun case, verb tense inflections, and adjective and adverb comparisons.
- Edit final copies to ensure correct spelling, capitalization, punctuation, and format.
- Use available technology.

Mathematics

8.2 The student will simplify numerical expressions involving exponents, using order of operations.

8.3 The student will solve practical problems involving whole numbers, integers, and rational numbers, including percents.

- Problems will be of varying complexities, involving real-life data.

8.18 The student will describe and represent relations using tables, graphs, and rules.

Computer/Technology

C/T8.1 The student will communicate through application software.

- Compose and edit a multipage document at the keyboard, using word processing skills and the writing process steps.
- Communicate with spreadsheets by entering data and setting up formulas, analyzing data, and creating graphs or charts to visually represent data.
- Communicate with databases by defining fields and entering data, sorting, and producing reports in various forms.
- Use advanced publishing software, graphics programs, and scanners to produce page layouts.
- Integrate databases, graphics, and spreadsheets into word-processed documents.

C/T8.4 The student will process, store, retrieve, and transmit electronic information.

- Use search strategies to retrieve electronic information.
  - Use electronic encyclopedias, almanacs, indexes, and catalogs to retrieve and select relevant information.
  - Use laser discs with a computer in an interactive mode.
  - Use local and wide-area networks and modem-delivered services to access and retrieve information from electronic databases.
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- Use databases to perform research.
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## **Lesson One Objectives**

### ***Eighth-grade students will:***

1. become familiar with academic and behavioral objectives in this unit,
2. understand the components of WebQuests in general, and
3. recognize the problem to be solved in this WebQuest in particular.

## **Procedure**

This lesson serves as an introduction and lays the foundation for the curriculum unit as a whole. It enables the teacher to communicate information about the WebQuests activity model in general as well as essential details about students' tasks for the "River Cultures" WebQuest in particular. Through a multimedia presentation used in this lesson, the teacher will introduce students to learning objectives that they will accomplish as part of "River Culture" and explain that they will engage in activities related to solving a hypothetical "real world" problem.

The teacher will explain that the local school board has come across extra money that will be used to fund innovative educational projects. Students will learn that they have the opportunity to persuade the school board to send them on research expeditions for the purpose of learning the prescribed state curriculum in English, History and Social Sciences, Math, and Computer/Technology. The teacher will provide students with a brief description of the activities that they will perform in preparation for their meeting with the school board. She will explain upcoming lessons during which students will investigate the state curriculum standards, plan their research team's itinerary, calculate their team's budget, and create presentations that will communicate the information they have learned to the school board and community tax-payers.

## **Preparation**

The teacher will construct a simple multimedia presentation to use to communicate and explain necessary information about the "River Cultures" unit to the students. Prior to preparing this lesson, the teacher will need to identify curriculum standards the unit will address and consider how the content, process, and evaluation might be differentiated.

## **Differentiation**

The teacher might differentiate the content and process of instruction to better meet students' needs if she has pre-existing knowledge of students' learning profiles.

*Content:* The presentation might be created with various media formats to accommodate students' different learning modalities. Several versions of the same presentation might be created—varying in the amount of information communicated, the order of information communicated, etc.

*Process:* In classrooms with little student diversity this lesson might be carried out through whole-class instruction. In classrooms with great variation in students' abilities, the lesson might be taught a variety of ways. For example, high ability students might go through the presentation independently and ask the teacher for clarification if needed and low-ability students might be taught in small groups.

*Evaluation:* Students might be allowed to demonstrate their understanding of the lesson using different methods. High-ability students who need less structure might craft a “mock” press release communicating important details about the upcoming unit for the school newspaper. Low-ability students who require greater amounts of structure might be asked to complete a simple questionnaire containing prompts that might scaffold them through the recall of unit objectives.

## **Lesson Two Objectives**

*Eighth grade students will:*

1. work in teams to investigate the curriculum standards for various subject areas,
2. use selected web resources to discover more about international travel, and
3. collect and synthesize information about an ancient river region and the culture that lived there.

## **Procedure**

Prior to conducting this lesson, pre-assessment should be performed. Pre-assessment can be based on students’ prior performance, a formal, brief rating scale where students indicate their knowledge about various topics, or a webbing exercise in which the teacher chooses one or two words and phrases and asks the students to create a visual picture of their knowledge. The teacher might use one concrete word (e.g. Egypt) and one abstract term (e.g. “river cultures”).

In this lesson, students will work in carefully crafted cooperative learning teams (for more information about learning teams, we suggest reading Elizabeth Cohen's work on complex instruction to acquire knowledge). Then they will engage in activities that help them comprehend and synthesize it.

Students will meet in teacher assigned teams and discuss the learning objectives tied to their assigned tasks. With the teachers’ help, the students will lay out a schedule for accomplishing tasks in the allotted time period. They might use learning contracts or agendas to help them focus their efforts. In learning groups, students will help each other investigate materials about the curriculum standards and engage in “think-pair-share” or “jigsaw” activities for the purpose of forwarding the groups’ understanding of curriculum frameworks. Before moving onward, the teacher will provide students any clarification they might need about the curriculum standards and if needed, the teacher might assess students’ individual and collective understanding of this material.

Once understanding of the curriculum standards is acquired, student groups will work together to investigate particular resources about a region and river culture. Students will access a variety of resources, (e.g. books, maps, travel brochures, the Web) and gather information that pertains to the cultural artifacts, social, political, and economic patterns, religion, traditions, language and writing of their assigned river culture. They will make note of connections between these resources and the curriculum standards while analyzing details for relevance and accuracy. They will also acquire graphics that might be incorporated in a brochure they will create in lesson three.

## **Preparation**

The teacher should acquire or compile necessary materials for the lesson in advance. Copies of the curriculum standards should be collected and made ready for

student use. If the teacher plans to use the Internet as an information source, he or she should survey the web and collect a few links that might be helpful to each student group.

### **Differentiation**

*Content:* The teacher might differentiate the content for students by condensing the listing of curriculum standards. He or she might provide students with easy to read handouts that include only standards that will be addressed in the unit rather than providing students with an entire year's worth of standards to grapple with. The teacher might also consider retyping the standards in language that is easier for students to understand. Resources chosen for students' review might be selected based on their personal backgrounds, interests, and abilities. The web sites visited or printed resources consulted by the differing levels of learners would be varied in level of sophistication of information from basic encyclopedic form to advanced texts and primary sources such as newspaper articles or form to advanced texts and primary sources such as newspaper articles or Smithsonian and National Geographic articles to journal articles or references prepared by anthropologists, sociologists, historians, etc.

*Process:* A series of questions should be provided to guide the struggling learner to answer the most basic questions about the geographic principles surrounding the development of river cultures. Advanced learners might not be constrained to using just the information provided and selected by the teacher. Instead, they might be guided as they create their own search for information. The teacher might help them to see the subtleties of variation that emanate from comparing or contrasting the cultures as they gain additional information.

*Evaluation:* Varying types of evaluation might be used to determine students' success in meeting learning objectives. Evaluation should assess both the process students engaged in as well as the content they explored. Some learners might be encouraged to compare and contrast knowledge sources where others might be asked to comment on the information they obtained and how it could be applied.

### **Lesson Three Objectives**

*Eighth grade students will:*

1. synthesize information about a particular landmark or artifact from an ancient river culture,
2. use the computer or photocopy machine to acquire related graphics,
3. formulate how study of this region will help the class meet the standards, and
4. produce a brochure summarizing what they've learned.

### **Procedure**

Once students understand curriculum goals and take notes about their river culture, they will create a product that synthesizes this information. Students could either work alone or in groups to compile the information they have acquired. In their brochure, students will apply their writing skills to communicate information about a specific landmark or artifact important to their research team's river culture.

### **Preparation**

Teachers will need to prepare the materials students will use in this lesson in advance. In addition to ample work space, teachers will want to provide students with access to paper, markers, or computers and desktop publishing programs. They might also provide students with appropriate guidelines for the creation of their brochures.

### **Differentiation**

*Content:* If students create brochures individually, a teacher might work with students to communicate different expectations regarding the content of the brochure. The teacher could meet individually with more advanced students to formulate ways they might deepen the level of information they communicate and how they might stretch the expression of their knowledge or with struggling learners to ensure that they include basic information in an appropriate way.

*Process:* The teacher might make a list of specific steps for creating the brochure, specific required information, and provide these in writing to students who need more structure. Various levels of production should be allowed. Some students might use more sophisticated desktop publishing software than others like Microsoft Word whereas other students might use one that does more to format and package information for them.

*Evaluation:* The requirements for a final product should be varied depending on the kinds of content students used and ability level.

### **Lesson Four Objectives**

*Eighth grade students will:*

1. use calculators to solve real world problems,
2. explore equations of varying complexity, and
3. solve practical problems involving whole numbers, and
4. describe and represent relations using tables and/or graphs.

### **Procedure**

Students will use information to calculate the costs of air travel to their specific region and they will determine how much money they will need for food and lodging. For this lesson, they can use web resources or information from a travel agent, or travel book. They could use online calculators found on various websites like "Yahoo Travel" or "Travelocity," spreadsheet programs like Excel, or simple calculators. The record of students' work should be kept on a computer spreadsheet, paper worksheet, or in a travel journal with other project work. Students who are able might represent the costs of travel in graphs and charts. This type of independent activity would allow the teacher to circulate the classroom and aid students individually if necessary.

### **Preparation**

Teachers will need to prepare for this lesson by anticipating students needs before it appears. Some students may need more detailed instructions that could be prepared in advance.

### **Differentiation**

*Process:* Students at the most basic level might need the task broken down into smaller components. For example they might first focus on travel. Calculating the cost of one person traveling on predetermined days. Then can then be directed to calculate the total cost of travel by the total number of members in the group on those predetermined days. Once they have computed this stage of calculations they might be asked to calculate the same trip on another set of days and then make a recommendation for the most sensible dates of travel. Other students might not need any task break-down at all. Instead, these students might be urged to engage in the solving of multi-faceted problems. They might investigate group rates, weekday travel, and other travel specials. Additionally they might investigate various quality of lodging in the region they plan to visit (for example, five-star hotels, hostels, etc.) These students might look into the availability of tour packages and special travel association rates and then make a recommendation for the most cost-efficient travel plans.

*Evaluation:* Students in each group would report their findings to other members of their group when completed. The teacher would evaluate the accuracy of the calculations performed by the student. Because students would determine the way to solve the problem at hand the teacher would be able to learn a good deal about students' problem-solving strategies by reviewing both students' answers and the process they used to arrive at them.

### **Lesson Five**

Students aren't the only ones who might need some differentiation, teachers might benefit from it too. At this point in the unit, teachers might chose between different strategies depending on their own goals and skills and the interest of their students. In Lesson Five A, teachers might wish to have students pull together what they've learned from the previous lessons in a culminating activity. In Lesson Five B teachers encourage students to extend themselves even further by exploring topics of their own interest or synthesizing information they have learned.

### **Lesson Five A Objectives**

*Eighth grade students will:*

1. demonstrate knowledge of persuasion,
2. create a multimedia presentation to present their knowledge and support their ideas,
3. display understanding of the contributions of various ancient river cultures,
4. apply technical skills to create multimedia product, and
5. communicate effectively through oral presentation.

### **Preparation**

With lessons one through four completed, the teacher has a choice about how students will present the knowledge they have learned in the unit. Before lesson five, the teacher should consider what method of presentation will motivate students the most. To continue playing along with the unit "scenario" students should be encouraged to persuade school board members that their field trip to an area that was inhabited by an ancient river culture would be a worthy educational expenditure. The teacher will decide what audience will pose as the school board (other students in the class, other classes of students, parents, community members OR real school board members).

The teacher will also decide whether students will present their knowledge orally or (provided proper knowledge, skills, and technology exist) online. Students will distribute the brochures they created in lesson three. They might create multimedia presentations to use as visual aids for oral presentations or as stand-alone products that have voice narration and could be published on the Web. If the online option is selected, the teacher would need to set up a website for the projects and post notice of the students' presentation URL in an online educational project website like "Global School House." Doing so could enable students to get feedback from others around the world.

Finally, the teacher will need to decide what guidelines will be given for the creation of different kinds of projects. If multimedia programs are used in creating presentations, the teachers should make sure students have knowledge appropriate to their use and that clear guidelines for project production are shared.

### **Procedure**

Once students have decided how their final products will be displayed, they will work in their research teams to create a multimedia presentation that synthesizes information about why their team should research particular river cultures and how much such a field trip will cost. Students will pull together information from the brochures they created, pictures they have obtained, budgets and flight information and create a convincing presentation using elements of persuasion. We suggest the use of one of two multimedia programs, PowerPoint or HyperStudio, because they are easy to use, commonly found in schools, and allow projects to be saved quite easily to web compatible formats.

### **Differentiation**

*Content:* Students might be given guidelines addressing the varying amounts of structure for their presentations. Some students might be encouraged to create presentations with more complex uses of media and information where other students might just stick to basic information.

*Process:* Students might be given the choice of how information will be presented. Some might wish to give oral presentations of the material while others might chose to record sound into a presentation in advance. Students might also be given the option to create visual aids with paper and pencil instead of with a computer.

*Evaluation:* The evaluation of student products will be differentiated depending on which project option students chose and what their ability level is. Rubrics for grading oral or online presentations might be developed by the teacher with input from the students.

The unit might be closed in a variety of ways as instructional goals and objectives are met. Teachers concerned about students ability to perform on traditional forms of assessments like pencil paper tests, or worried about covering required content might encourage students to include specific facts in their presentations. They could then create quizzes that their classmates could take after viewing the final group presentations.

Two other types of evaluation might also be performed at this time. Students could evaluate the other members of their research team so that teacher will have an idea of how the individuals in the teams worked together. Students could also evaluate the

unit and its individual lessons indicating ways learning and instruction could be improved in the future.

### **Lesson Four B Objectives**

#### ***The students will:***

1. Engage in self-directed learning,
2. Synthesize information about river cultures in various geographic areas and historical periods
3. Compare and contrast various river cultures
4. Share their knowledge with other students

### **Procedure**

In this lesson, students should be given a list of various activities from which they might choose. In some instances the teacher might allow them to create their own lesson. As long as appropriate instructional goals are met, students can be given the freedom to engage in any activities that might enable this.

### **Preparation**

Teachers need to examine results of previous instruction and determine any additional outcomes they would like for this lesson. They would then prepare a list of activities students could choose from and then prepare materials to support the students in whichever option they choose.

- Explore one or more river cultures besides than the one you researched with your research team. Make a list comparing the culture you studied and the new cultures you have selected. After making this list, compare and contrast them. Identify the characteristics that make river cultures the same regardless of their geographic location in the world or their place in time (transportation, rituals, etc.). Then compare and contrast these river cultures with a nearby river culture.
- Create a learning center for other students in your grade level or other students in a different level. Construct four activities that would teach them the information you have just learned. You may chose to use audio tape to create a listening center, a computer to create a multimedia presentation, or any other creative material and methods. Consider what special things you will do to suit your instruction for your audience.
- Select one aspect of the river culture you study that intrigues and interests you. Then develop and perform an in depth research project that will expand your knowledge.

### **Differentiation**

*Content:* The choice of activity allows students of every ability level to figure out what they need to learn and how they need to learn it.

*Process:* Struggling students may need encouragement to select a lesson that appropriately matches their ability and will most likely need guidelines for how to structure it in ways that increase their chances for success. More advanced learners may



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need time limits and deadlines to help them remain focused on the scope of their research. Use of teams is suggested in any situations where it would enhance the students' goal of synthesis and discovery.

*Evaluation:* There are three types of evaluations that should be performed at the end of this unit: individual student assessment, cooperative group assessment, and instructional assessment. Individual accountability/assessment is necessary to determine the degree to which each student has achieved.

In this article, we have explained what WebQuests are and why they are a suitable model for teachers who wish to use Internet resources in their efforts to differentiate instruction. We have also provided examples of just a few ways that differentiated principles can be applied when making this constructivist activity model work in your classroom and a model unit plan illustrating how a differentiated WebQuest might be utilized. We wish you the best of luck in your efforts to use this information for the benefit of your students.

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