Stones, Bones & Telephones: Analyzing Artifacts Using Bloom's Taxonomy

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Subject: Texas, American, or World History

Grade Level: TEKs are provided for 7th grade but can easily be adapted to 8th, 10th, or 11th grades.

Rationale:
A thorough discussion of any given artifact can easily be based on Bloom's Taxonomy, a teaching tool that can take students through the hierarchy of thinking levels, from simple and concrete to complex and abstract. Analyzing artifacts using Bloom's Taxonomy allows students on all levels (from remedial to gifted and talented) to exercise the complete range of critical thinking skills.

Materials:
- Collection of artifacts, including a cell phone, and a few items which are not artifacts, such as a carrot, a pine cone, etc.
- 6-8 small paper bags, each containing a different artifact
- Student Handout, *Stones, Bones, and Telephones: Analyzing Artifacts Using Bloom's Taxonomy*
- Overhead Transparency of Student Handout
- Answer Key to Student Handout
- Student Artifact Handout
- Artifact Drawing (for transparency)

Lesson Duration: Two 45 minute class periods

Objectives:
- Define metacognition, Bloom's Taxonomy, and artifacts.
- Introduce Bloom's Taxonomy and illustrate how it is used to measure learning.
- Apply Bloom's Taxonomy to the analysis of artifacts.

Texas Essential Knowledge and Skills (TEKS) 7th Grade:
- Social Studies 113.23 (20A), compare types and uses of technology, past and present.
- Social Studies 113.23 (21A,) use primary and secondary sources such as artifacts to acquire information about Texas.
- Social Studies 113.23 (21B), analyze information, categorizing, identifying cause-and-effect relationships, comparing, contrasting, summarizing, making generalizations and predictions, and drawing inferences and conclusions.
- Social Studies 113.23 (22C), transfer information from one medium to another.

- Social Studies 113.23 (23A), use a problem-solving process to identify a problem, gather information, list and consider options, consider advantages and disadvantages, choose and implement a solution, and evaluate the effectiveness of the solution.

Activity: Day One
Step 1 - Write the word **artifact** on the board or overhead and ask for a student volunteer to define it. Lead students to the following definition: **anything made or altered by man.** Ask students if a stone or a bone could be considered an artifact. (Answer: Yes, if they are used as tools).

Step 2 - Show a cell phone to the class and ask them if it is an artifact. Explain that many questions can be asked about artifacts, some simple and some very complex.

Step 3 - Have the students get into small groups. Distribute one copy of the student handout, *Stones, Bones, And Telephones: Analyzing Artifacts Using Bloom's Taxonomy* to each group and place an overhead transparency of the handout on the overhead.

Step 4 - Ask three students to volunteer to illustrate different levels of Bloom's Taxonomy. Ask one student what his name is. Ask the other student whether he would rather ride the school bus home or ride home with his best friend. Ask students which question was simple and which was complex and have them explain their answers.

Step 5 - On the student handout transparency, go over the six Thinking Levels and corresponding Cue Words with students.

Step 6 - Ask students to volunteer answers for the **Knowledge** category on the handout, using the cell phone as their artifact. Write correct answers on the handout transparency.

Step 7 - Direct students to work in their groups to fill in the rest of the handout.

Step 8 - Relate that in 1956, a man named Benjamin Bloom devised a way to measure the steps by which we learn. The steps begin with simple learning and move to complex learning. This measurement of learning activity is known as Bloom's Taxonomy. Ask students why we might want to use different levels of thinking in our lives.

Modification for Special Learning Needs:
Instead of having students work independently in groups, call on individuals to fill in answers to the Student Handout. Fill in the transparency of the Student Handout as correct answers are given.

Student Product:
Correctly completed Student Handouts.

Closure:
Write the word **metacognition** on the board or overhead projector. Explain that the word means thinking about our own thought processes and add that we engage in metacognitive activities everyday. Activities such as analyzing an artifact or planning how to study for a test are examples of metacognition. Ask students to name more examples.

Assessment:
Correct completion of Student Handouts.

Extension Activity:

Activity: Day Two
Step 1 - Remind students of yesterday's artifact analysis. Ask for a volunteer to define the word **artifact**. Ask another student to define **metacognition**. Explain that today student's will view an artifact online and work in groups to analyze it using the same graphic organizer used yesterday.

Step 2 – Distribute Student Handouts of the mystery artifact and the Artifact Analysis sheet. Have students work in groups to analyze the unknown artifact.

Step 3 - When all groups have completed analysis of the mystery artifact, place a transparency of the Student Handout on the overhead. Ask a representative from each group to volunteer how his group completed one section of the handout. Continue with different students until the transparency is completed.

Step 4 – After all groups have reported their analyses, show the Artifact Drawing. Explain that the artifact they analyzed is a pipe from the Loma Sandia Archeological Site, a prehistoric cemetery and campsite in Live Oak County Texas (850-550 BC). Such pipes were smoked by adult males, probably during important rituals, and were placed next to the bodies in some of the graves.

Student Handout

Stones, Bones, & Telephones: Analyzing Artifacts Using Bloom's Taxonomy

Thinking Level	Cue Words	Artifact Question
KNOWLEDGE	define, recall, list, memorize	What is an artifact? What is this artifact?
COMPREHENSION	recognize, generalize	What is (was) this artifact generally used for?
APPLICATION	illustrate, apply, show	What else could this artifact be used for?
ANALYSIS	relate, differentiate	Name one thing that could be substituted for this artifact?
SYNTHESIS	invent, imagine, formulate	What might be used in the future in place of this artifact?
EVALUATION	compare, rate, justify, value	Which artifact is better, this one or the one you named as its substitute? Explain.

Answer Key

Stones, Bones, & Telephones: Analyzing Artifacts Using Bloom's Taxonomy

Thinking Level	Cue Words	Artifact Question
knowledge	define, recall, list, memorize	What is an artifact? Anything made or altered by man What is this artifact? A cellular telephone
comprehension	recognize, generalize	What is (was) this artifact generally used for? Communicating with absent others
application	illustrate, apply, show	What else could this artifact be used for? Answers will vary, e.g., playing games, listening to music, taking pictures, etc.
analysis	relate, differentiate	Name one thing that could be substituted for this artifact. Answers will vary, e.g., a letter, an email, telegraph, etc.
synthesis	invent, imagine, formulate	What might be used in the future in place of this artifact? Answers will vary, e.g., credit card phones, wristwatch phones, etc.
evaluation	compare, rate, justify, value	Which artifact is better, this one or the one you named as its substitute? Explain. Arguments can be made for either. Have students defend their choices.

Student Handout – Mystery Artifact

Stones, Bones, and Telephones

Analyzing Artifacts Using Bloom's Taxonomy

What is this artifact?