



## *Kansas Effective Practices Instructional Toolkit*

### Implementing Research and Resources Into Action Research Lesson 5: Differentiated Instruction

### **Bloom's Revised Taxonomy**

BLOOM created a learning taxonomy in 1956, and since that time we have learned more about the way that children learn. Teachers have also revised the way that they plan and implement instruction in the classroom. To keep the importance of Bloom's work relative to today's theories, [Anderson and Krathwohl](#) (2001) revised Bloom's [original taxonomy](#) by combining both the cognitive process, and knowledge dimensions. This new expanded taxonomy can help instructional designers and teachers to write and revise learning objectives.

#### **How can the new table help instructional designers and teachers?**

The revised taxonomy (Anderson and Krathwohl, 2001) incorporates both the kind of knowledge to be learned (knowledge dimension) and the process used to learn (cognitive process), allowing for the instructional designer to efficiently align objectives to assessment techniques. Both dimensions are illustrated in the following table that can be used to help write clear, focused objectives.

<b>The Knowledge Dimension</b>	<b>The Cognitive Process Dimension</b>					
	Remember	Understand	Apply	Analyze	Evaluate	Create
Factual Knowledge						
Conceptual Knowledge						
Procedural Knowledge						
Meta-cognitive Knowledge						

Table 1: The Revised Taxonomy Table

For teachers, the objectives for an entire unit can be plotted out on the taxonomy table, ensuring that all levels of the cognitive process are used and that students learn different types of knowledge. For example, if a math teacher were planning a comprehensive unit, he or she could use the taxonomy table to make sure that students not only learned different mathematical procedures, but also learned how to think (meta-cognition) about the best way to solve math problems.

Teachers may also use the new taxonomy dimensions to examine current objectives in units, and to revise the objectives so that they will align with one another, and with assessments. Using the revised taxonomy by referring to the charted dimensions may give teachers a place to start when revising units to better align with new standards-based requirements as well.

Anderson and Krathwohl also list specific <b>verbs</b> that can be used when writing objectives for each column of the cognitive process dimension.	<b>Remember:</b> Recognizing, Recalling
	<b>Understand:</b> Interpreting, exemplifying, classifying, summarizing, inferring, comparing, explaining
	<b>Apply:</b> Executing, implementing
	<b>Analyze:</b> Differentiating, organizing, attributing
	<b>Evaluate:</b> checking, critiquing
	<b>Create:</b> generating, planning, producing

Because the purpose of writing objectives is to define what the instructor wants the student to learn, using detailed objectives will help students to better understand the purpose of each activity by clarifying the student's activity. Verbs such as "know", "appreciate", "internalizing", and "valuing" do not define an explicit performance to be carried out by the learner. (Mager, 1997)

Unclear Objectives	Revised Objectives
Students will know the dates of important events in U.S. History.	Each student will <i>recall</i> the 10 major events of the Civil War.
Students will know described cases of mental disorders.	Each student will <i>classify</i> observed or described cases of mental disorders.
Students will understand the relevant and irrelevant numbers in a mathematical word problem.	Each student will <i>distinguish</i> between relevant and irrelevant numbers in a mathematical word problem.
Students will know the best way to solve the word problem.	Each student will <i>judge</i> which of the two methods is the best way to solve the word problem.

Figure 2: Examples of unclear and revised objectives

### How to use the revised table

Learning objectives must fall under one of the four categories under the knowledge dimension, and under one of the six categories of the cognitive process dimension. Use the **noun** in the objective to determine what is being learned: factual, conceptual, procedural, or meta-cognitive knowledge. The **verb** used in the learning objective will determine which cognitive process dimension column the objective falls under: remember, understand, apply, analyze, evaluate, and create. Where the knowledge and cognitive process dimension intersect, is where the objective stands on the revised taxonomy table.

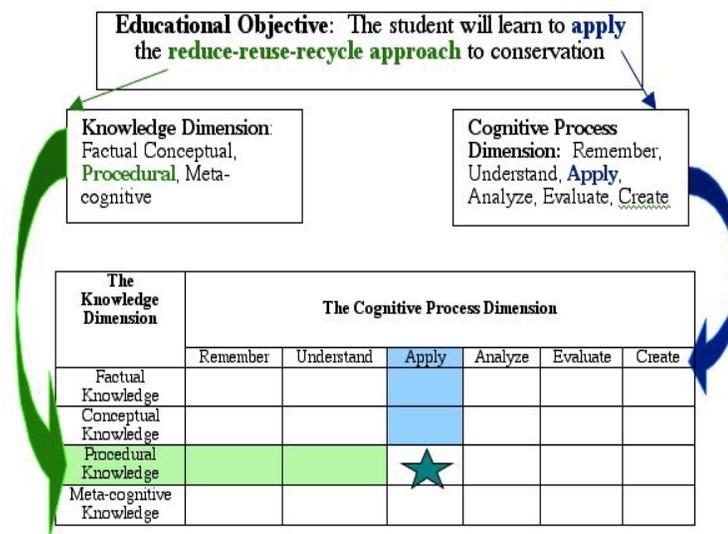


Figure 3: Classifying objectives with the revised taxonomy table