

Effective Teaching Moves by Learning Outcome

This chart, developed by Linda Nilson (2010), “lists effective teaching moves by the learning outcome they serve. Some of them specify what you can do or say in class to familiarize your students with different ways of thinking about and working with the material. The rest are activities and exercises for your students to give them practice and you feedback on their learning” (p. 108).

Cognitive Level	For You to Do	For Students to Do
Remember	<ul style="list-style-type: none"> • Suggest prior knowledge to which students can link new and future information and knowledge. • Chunk knowledge into coherent groups, categories, or themes. • Share devices to improve memory such as mnemonic patterns, maps, charts, comparisons, groupings, highlighting of key words or first letters, visual images, and rhymes. • Point out parts, main ideas, patterns, and relationships within sets of facts or information. 	<ul style="list-style-type: none"> • Practice recalling and restating information. • Practice recognizing or identifying information. • Practice recalling and reproducing information. • Practice restating concept definitions and principles.
Understand	<ul style="list-style-type: none"> • Outline new or upcoming material in simple form. • Concept-map or mind-map new or upcoming material. • Explain with concrete examples, metaphors, questions, or visual representations. 	<ul style="list-style-type: none"> • Restate or paraphrase and summarize information or knowledge. • Describe or explain phenomena or concepts using words different from those used in the initial teaching. • Identify the correct meaning of concepts or terms. • Add details or explanations to basic content. • Relate new to previously learned content. • Construct visual representations of main ideas (mind or concept maps, tables, flowcharts, graphs, diagrams, or pictures).
Apply	<ul style="list-style-type: none"> • Give multiple examples of a phenomenon that are meaningful to students. • Define the procedures for use, including the rules, principles, and 	<ul style="list-style-type: none"> • Generate new examples and nonexamples. • Paraphrase the procedures, principles, rules, and steps for using or applying the material.

	<p>steps.</p> <ul style="list-style-type: none"> • Provide the vocabulary and concepts related to procedures. • Explain steps as they are applied. • Define the contexts, problems, situations, or goals for which given procedures are appropriate. • Explain the reasons that procedures work for different types of situations or goals. • Ensure students' readiness by diagnosing and strengthening their command of related concepts, rules, and decision-making skills. • Provide broad problem-solving methods and models. • Begin with simple, highly structured problems; then gradually move to more complex, less structured ones. • Use questions to guide student thinking about problem components, goals, and issues. • Give students guidance in observing and gathering information, asking appropriate questions, and generating solutions. 	<ul style="list-style-type: none"> • Practice applying the material to problems or situations to gain speed, consistency, and ease in following the problem-solving steps. • Solve simple, structured problems, then complex, unstructured ones. • Practice recognizing the correct use of procedures, principles, rules, and steps with routine problems, then complex ones. • Demonstrate the correct use of procedures, principles, rules, and steps with routine problems, then complex ones.
Analyze	<ul style="list-style-type: none"> • Point out the important and the unimportant features or ideas. • Point out examples and nonexamples of a concept, highlighting similarities and differences. • Give a wide range of examples, increasing their complexity over time. • Emphasize the relationships among concepts. • Explain different types of thinking strategies, including how to think open-mindedly, responsibly, and accurately. • Emphasize persistence when answers are not apparent. • Ask students questions that require their persistence in discovering and 	<ul style="list-style-type: none"> • Classify concepts, examples, or phenomena into correct categories. • Summarize different types of thinking strategies. • Use types of thinking strategies to analyze and evaluate their own thinking. • Practice choosing the best type of thinking strategy to use in different real-world situations and explaining why their choice is superior. • Detect and identify flaws and fallacies in thinking. • Identify and explain instances of open- and closed-mindedness. • Identify and explain instances of responsible versus irresponsible and accurate versus inaccurate applications of thinking strategies.

	<p>analyzing data or information.</p> <ul style="list-style-type: none"> • Ask questions that make students explain why they are doing what they are doing. • Explain and model how to conduct systematic inquiry, detect flaws and fallacies in thinking, and adjust patterns of thinking. 	<ul style="list-style-type: none"> • Answer questions that require persistence in discovering and analyzing data or information.
Evaluate	<ul style="list-style-type: none"> • Create conflict or perplexity by posing paradoxes, dilemmas, or other situations to challenge students' concepts, beliefs, ideas, and attitudes. • Explain how to recognize and generate proof, logic, argument, and criteria for judgments. • Explain and show students the consequences of choices, actions, or behaviors. • Provide relevant human or social models that portray the desired choices, actions, or behaviors. • Explain with examples how factors such as culture, experience, desires, interests, and passions, as well as systematic thinking, influence choice and interpretations. 	<ul style="list-style-type: none"> • Evaluate the validity of given information, results, or conclusions. • Draw inferences from observations, and make predictions from limited information. • Explain how they form new judgments and how and why their current judgments differ from their previous ones. • Identify factors that influence choice and interpretations, such as culture, experience, desires, interests, and passions, as well as systematic thinking. • Detect mistakes, false analogies, relevant vs. irrelevant issues, contradictions, and faulty predictions. • Critique a research study. Use research and analysis to devise the best available solutions to problems, and explain why they are the best. • Choose among possible behaviors, perspectives, or approaches, and provide justifications for these choices.
Create	<ul style="list-style-type: none"> • Promote careful observation, analysis, description, and definition. • Explain the process and methods of scientific inquiry. • Explain and provide examples of how to identify a research problem, speculate about causes, formulate testable hypotheses, and identify and interpret results and consequences. • Model inquiry and discovery processes. 	<ul style="list-style-type: none"> • Explain their experiences with inquiry activities and the results. • Resolve a situation or solve a problem that requires speculation, inquiry, and hypothesis formation. • Resolve a situation or solve a problem requiring a novel approach. • Design a research study to resolve a conflicting finding. • Write the limitations section of a research study.

Source: Nilson, L. B. (2010). *Teaching at its best: A research-based resource for college instructors* (3rd ed.). San Francisco, CA: Jossey-Bass. Reproduced by permission.

	<ul style="list-style-type: none"> • Encourage independent thinking and avoid dead ends and simplistic answers. • Show students examples of creativity to solve problems. • Encourage students to take novel approaches to situations and problems. • Explain phenomena using metaphors and analogies. • Give students examples of reframing a problem—turning it upside down or inside out or changing perceptions about it. • Explain and encourage brainstorming. • Pose questions and problems with multiple good answers or solutions. • Give students opportunities for ungraded creative performance and behavior. 	<ul style="list-style-type: none"> • Write the conclusions section of a research study. • Develop products or solutions to fit within particular functions and resources. • Manipulate concrete data to solve challenging thinking situations. • Practice reframing a problem—turning it upside down or inside out or changing perceptions about it. • Explain phenomena using metaphors and analogies.
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