

This document provides a summary of Recommendation 5 from the WWC practice guide *Organizing Instruction and Study to Improve Student Learning*. Full reference is on the last page.

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CONTENT **General**

GRADE LEVEL(S) **K-12**

LEVEL OF EVIDENCE **Low**

## Recommendation

# Use questions to introduce new content and to provide additional exposure.

Questioning is a tool that can be used to introduce students to new content as well as provide additional exposures to already learned content. Pre-questions (or pre-tests) help students identify what material they do not yet know, and primes students for what they need to learn. In addition, responding to pre-questions automatically activates any relevant prior knowledge in the student's mind. These processes contribute to improved student learning.

Use quizzes or games to re-expose students to key course content. A delayed re-exposure to course content helps students remember key information longer. In addition, quizzes or tests that require students to actively recall specific information (e.g., questions that use fill-in-the-blank or short-answer formats, as opposed to multiple-choice items) directly promote learning and help students remember information longer.

## How to carry out the recommendation

1. Use pre-questions to introduce a new topic.

### South Carolina standards alignment

**TEACHERS:** INST.PIC.2, INST.PIC.4, INST.PIC.5, INST.PIC.6, INST.Q.2, INST.Q.3, INST.Q.4, INST.Q.5, INST.Q.6, INST.Q.7

**ACADEMIC STANDARDS:** ELA.K-12.I.1, M.K-12.MPS.C.1, SCI.K-12.S.1.1

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The pre-questions should address a few of the important concepts that are covered in the new material. Because one purpose of pre-questions is to direct students' attention to key facts and concepts, teachers should avoid creating pre-questions that highlight extraneous information.

Provide students with questions that are readily available upon entering class and starting a lesson. These questions should be relatively quick to answer but should require students to describe or explain their responses to the questions allowing students to preview classroom instruction for the day. Engagement with pre-questions allows for students to activate prior knowledge and make connections with key concepts and topics.

## 2. Use quizzes or games to provide additional exposure to material.

### South Carolina standards alignment

**TEACHERS:** INST.AM.1, INST.AM.2, INST.AM.3, INST.AM.4, INST.AM.5, INST.AM.6, INST.AM.7, INST.AM.8, INST.AM.9, INST.AM.10, INST.AM.11, P.A.5

**ACADEMIC STANDARDS:** ELA.K-12.I.3, M.K-12.MPS.C.1, SCI.K-12.S.1.

Use closed-book quizzes between the initial exposure to content and the final assessment to provide additional exposure to the content. These quizzes can be both formal quizzes and informal assessments, such as playing a Jeopardy-like game. Requiring students to actively recall information gives them opportunities to practice recalling or retrieving that information, and this practice helps to solidify that knowledge in the student's memory. It is not necessary to grade these activities. It is important to provide feedback on the correct answers so that the student is exposed to the correct information.

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## Potential roadblocks and how to address them

| <b>Roadblock</b>   | <b>Suggested Approach</b>   |
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| <i>A teacher might wonder how they will get their students to attend to the non-questioned as well as the pre-questioned material, particularly when quizzes and spaced study also focus on key concepts.</i>  | To avoid students' attending to only pre-questioned material, teachers can emphasize (emphatically) that it is important for the students to attend to all of the daily lesson and all of the reading. This idea could be reinforced by noting that the pre-questions could not cover all of the important concepts that students would be expected to learn.   |
| <i>Some teachers might object that this is 'giving students the answer' before they have even covered the new material—that no mental work is left for the student, and that this is simply feeding into the frenzy of, 'Just tell me what I need to know so I can do well on the test,' with little regard left for sparking a student's intrinsic motivation to learn.</i> | To foster students' involvement in learning, teachers could focus class discussion on explaining correct and incorrect alternatives to the pre-questions. For example, a pre-question used in a middle school social studies class on ancient Egypt was "What were the ancient doctors NOT able to do?" with the alternatives "give shots," "cure illnesses," "measure heartbeats," and "fix broken bones." The teacher could use the alternatives to stimulate discussion on why some medical practices in ancient Egypt were possible and others not. Further, to encourage learning of a complex fact, rather than learning of a particular answer when given a particular question, teachers could change the wording of test items from those used for pre-questions. A concept from a college-level course covered by the quiz question, "All preganglionic axons, whether sympathetic or parasympathetic, release what neurotransmitter?" could be tested with the question "What axons, whether sympathetic or parasympathetic, release acetylcholine as a neurotransmitter?" |

For more information on the research evidence and references to support this recommendation, please refer to sources cited here:

Pashler, H., Bain, P., Bottge, B., Graesser, A., Koedinger, K., McDaniel, M., and Metcalfe, J. (2007) *Organizing Instruction and Study to Improve Student Learning* (NCER 2007-2004). Washington, DC: National Center for Education Research, Institute of Education Sciences, U.S. Department of Education. Retrieved from <http://ncer.ed.gov>.