The Research-Driven Solution to Raise the Quality of High School Core Courses

QualityCore®

Science

Template to Examine Assignments for Rigor and Relevance

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Template to Examine Assignments for Rigor and Relevance

This process is intended to critically analyze assignments for rigor and relevance while at the same time fostering collaboration among colleagues.

Definition of Assignments

Tasks (activities and assessments) that require students to demonstrate depth of understanding of content or concepts. Such assignments typically ask students to produce something, are linked to course objectives, include course-level content, and may include a prompt and a rubric.

Responsibilities for Meeting

Facilitator

- Select chair, timekeeper, and recorder
- Review the Facilitator's Guide

Participants

- Complete student assignment(s) in advance
- Review template steps
- Note assignment's strengths and weaknesses as well as potential improvements on the Rigor and Relevance Worksheet (p. 6)

Assignment Writers

- Prepare a brief summary that identifies the place and purpose of the assignment:
  1. How does the assignment fit into the curriculum?
  2. Which course objectives does the assignment address?

Examination Process

Step 1: Evaluate the assignment's place and purpose.

- Discuss at what point the assignment is given within the instructional unit and the course.
- Decide whether the course objectives represent the content and skills necessary to complete the assignment.
- Determine weighting of course objectives (i.e., importance of each objective to overall student performance).
- Revise the Assignment Writer's summary, if necessary, to reflect discussion.

Step 2: Examine the assignment using the definitions of rigorous and relevant assignments in Table 1 on page 5.

- Determine whether the assignment moves beyond the reproduction of information to the construction of knowledge and deep understanding (i.e., students are required to take what they already know and can do to create and/or explore new problems and ideas).
- Determine the relevance of the assignment to students' lives.

Step 3: Decide whether the assignment should be more rigorous and/or relevant.

- If the assignment SHOULD be modified, make the necessary changes in substance and form using Table 1 as a guide; then move on to Step 4.
- If the assignment SHOULD NOT be modified, move on to Step 4.
- If the assignment CANNOT be modified, begin the process again with another assignment.

Step 4: Review and, if necessary, revise the corresponding scoring guide; if one does not exist, create one to meet the demands of the assignment.

- Use Table 1 as a guide.
- Determine students' level of proficiency. (Consider situation, such as time of year.)
- Make scoring guide task specific.
- Address content, form, and correctness.
- Prepare file of student work to illustrate each score level, if time and circumstance allow.

Step 5: Identify ways to enhance and/or to eliminate barriers to student success.

- Review existing activities and corresponding teaching strategies that support both the content and the processes associated with the assignment.
- Ensure that appropriate supports (scaffolding) are in place.
- Consider interconnections across units.

Table 1. Rigor and Relevance in Science

Rigorous Assignments	Relevant Assignments
■ **Call for student work that focuses on the central organizing themes and underlying concepts of science.** Assignments focus on linking smaller pieces of science knowledge within the framework of central organizing themes (i.e., focus on understanding science within the context of central organizing themes rather than memorizing isolated facts). Some assignments ask students to construct knowledge and then to use this new knowledge to generate additional new understandings. ■ **Require students to make conjectures, present solutions, and argue about the validity of claims;** to explore old understandings in new ways; to reveal misconceptions; and to generalize and transfer their learning to new problems or to more robust understandings. ■ **Emphasize laboratory and inquiry experiences** in which students are challenged to formulate questions that can be answered experimentally, propose and support hypotheses, plan procedures, design data analyses, evaluate and discuss results, and repeat experiments with modifications. Such assignments ask students to apply scientific inquiry skills to real problems. ■ **Explicitly call for effective communication of scientific understanding.** Assignments that call for communication ask students to "explain or justify," providing insight into the clarity of the students' scientific understanding.	■ **Ask students to address scientific questions, issues, or problems similar to ones encountered in the experience of scientists and other professionals who use science to solve problems; in other words, they have a relevant context and real-world connections.** In addition, scorers examine the extent to which assignments specify an "authentic audience" for student work products. ■ **Allow student involvement in deciding which topics they will investigate, which problems they will study, and how they will tackle these topics and problems.** Scorers also examine the extent to which assignments give students guidance in making choices about topics and problems that meet their instructional goals. Rigor and relevance criteria from Mitchell, Shkolnik, Song, VeKawa, Murphy, Garet, et al. (2005, pp. 21, 23). *Rigor, Relevance, and Results: The Quality of Teacher Assignments and Student Work in New and Conventional High Schools*.

Rigor and Relevance Worksheet (for use in completing Step 2)

Directions: Using Table 1 (p. 5) as a guide, note the assignment's strengths and weaknesses as well as potential improvements in the chart below.

		Strengths	Weaknesses	Improvements
Rigor	Calls for student work that focuses on the central organizing themes and underlying concepts of science.			
	Requires students to make conjectures, present solutions, and argue about the validity of claims.			
	Emphasizes laboratory and inquiry experiences.			
	Explicitly calls for effective communication of scientific understanding.			
Relevance	Asks students to address scientific questions, issues, or problems similar to ones encountered in the experience of scientists and other professionals who use science to solve problems; in other words, have a relevant context and real-world connections.			
	Allows student involvement in deciding which topics they will investigate, which problems they will study, and how they will tackle these topics and problems.			

Bibliography

Mitchell, K., Shkolnik, J., Song, M., VeKawa, K., Murphy, R., Garet, M., et al. (2005). *Rigor, Relevance, and Results, The Quality of Teacher Assignments and Student Work in New and Conventional High Schools*. Seattle, WA: The Bill & Melinda Gates Foundation.