



TEACHING TIPS OF THE MONTH FROM MC FACULTY



Brought to you by TIDES and PALS October 2016

The Faculty Program for Active Learning in STEM (GTSTEP/PALS) (www.montgomerycollege.edu/gtstep), the Teaching to Increase Diversity and Equity in STEM (TIDES - <http://cms.montgomerycollege.edu/TIDES/>) grant project, and ELITE (<http://cms.montgomerycollege.edu/elite/>) are happy to bring you the "Student Engagement Tips of the Month". Both PALS (with its focus on active learning in STEM) and TIDES (with its focus on active learning and culturally sensitive pedagogy) seek to incorporate highly engaging learning activities for diverse student populations into STEM courses. However, as you will see, many of these activities are not STEM-specific and can be applied to any course. We also welcome your general feedback about this publication, which you can send to tides@montgomerycollege.edu.

Classroom Assessment Techniques (CATs)

Tip 1—Documented Problem Solutions



Although the title suggests this technique is for math and science courses, humanities, social science, art, and English faculty have used it equally effectively. The purpose is to have students become aware of how they arrived at the answer, not just get the correct answer. If this is done before tests, it often helps

students achieve greater success on tests and in the course.

Descriptive Examples

For example, in having students learn about subordinate clauses, English instructors provided students with complex sentences. On a page divided into two parts, they asked students on the left hand side of the page to identify in each sentence whether the subordinate clause was an adjective, adverb, or noun clause. On the right hand side of the page, they asked students to explain how they arrived at that answer by indicating 1) the function of the subordinate clause in the sentence and 2) the type of word that introduced the clause.

Math instructors have done something quite similar. For example, in solving quadratic equations, math instructors have requested that students document and explain each step in solving one or more equations.

Using the resulting data

Students who do well in documenting their steps can lead small groups or the

class, explaining their solution processes. Or the instructor can use one of the successful documented problem solutions as an illustration in class. The instructor may also realize that more time needs to be spent in clarifying certain steps in the solution or that students need more practice in documenting their thinking process more precisely.

Strengths:

By asking students to explicitly identify each step in their thinking/solution process, this CAT encourages the development of students' metacognition skills in the discipline and allows the instructor to become aware of the students' thinking processes.



Weaknesses:

Many students have little experience in explaining how they solve problems; thus, some students may find this difficult at first. However, periodic practice will enhance students' critical thinking skills. This assessment can be time-consuming for both faculty and students, so the instructor may want to limit the number of problems and provide both easy and more challenging problems to solve.

Adapted by Professor [Joan Naake](#) from *Classroom Assessment Techniques: A Handbook for College Teachers* by Thomas Angelo and Patricia Cross. 2nd edition. San Francisco: Jossey-Bass Publishers, 1993.



TEACHING TIPS OF THE MONTH FROM MC FACULTY



October 2016, p. 2

Tip 2—One-Sentence Summary

The purpose of the One Sentence Summary assessment technique is to have students summarize completely and concisely significant information in one sentence, using **Who? Does What? To What or Whom? When? Where? How?**

Why? After answering these questions, students formulate **One-Sentence Summary**.

Descriptive Examples

- A political science professor had her students create a one-sentence summary for the presidential election in the United States. The results were as follows:

Who: registered voters

Does What: cast their votes

To/For Whom: for the one candidate of their choice

When: on the first Tuesday in November of every fourth year

Where: in thousands of official neighborhood polling places (or by mail-in absentee ballot)

How: by indicating their choice on a secret ballot

Why: in hopes that their preferred candidate will win the majority of votes in their states, be awarded the state's Electoral College votes as a result, and similarly, win the national election, thereby becoming President.

One-Sentence Summary: In a U.S. presidential election, registered voters cast their votes for the one candidate of their choice on the first Tuesday in November of every fourth year in thousands of official neighborhood polling places (or by absentee ballot), by indicating their choice on a secret ballot in hopes that their preferred candidate will win the majority of votes in their

states, be awarded the state's Electoral College votes as a result, and similarly, win the national election, thereby becoming President.

- A biology professor used the One-Sentence Summary to have students explain how HIV infects and affects the immune system. She stipulated that the HIV virus had to be the **Who**.
- A physics professor asked his students to summarize the hydro-electric power generation process, stipulating that water had to be the **Who**.

Using the resulting data

Faculty can analyze the elements in the One-Sentence Summary in order to ascertain what students understood best and least. Students can also review their one-sentence summary with other students to improve each other's summaries. Students can also create summaries in a group and then share with the entire class.



Strengths:

Provides students the opportunity to summarize a topic concisely and coherently and allows instructor to become aware of concepts that students do not understand.

Weaknesses:

Not all topics can be contained in a one-sentence summary, especially if it would oversimplify the material or if the **Who? What?** questions have multiple answers.

Adapted by Professor [Joan Naake](#) from *Classroom Assessment Techniques: A Handbook for College Teachers* by Thomas Angelo and Patricia Cross. 2nd edition. San Francisco: Jossey-Bass Publishers, 1993.