The Miniature Guide

For Those Who Teach

on

Practical Ways To Promote

Active & Cooperative Learning

by
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and
Dr. Richard Paul

Based on
Critical Thinking Concepts & Principles

Note: This guide is best followed up by the guide: “How to Improve Student Learning”

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Critical and Creative Thinking

Editors: *This series is edited by Dr. Richard Paul and Dr. Linda Elder of the Foundation for Critical Thinking.*

Contents

before the teacher shows slides of the human heart, study questions are handed out to the class. These questions test specific concepts and general principles. Here are some examples: a) What is a valve? What valves are contained in the heart? What purpose do they serve? b) What is the difference between a vein and an artery? c) What is cholesterol? Why is a high cholesterol level a hazard to one's health? d) Draw a picture of the heart, label each part, and explain how it functions in in the total activity of the heart. e) List five functions of the circulatory system and explain how each of these is accomplished. f) Explain how the blood is kept at a constant temperature. g) Define and illustrate by example the principle of "homeostasis". What bodily processes are regulated by this process?

3) Give a Five Minute Quiz at the Start of Each Class.

These can be a few multiple choice or true/false items derived from study questions. Such quizzes motivate students to go over their class room notes and keep up with their homework assignments. On their own, students quiz each other on study questions to prepare for exams. Those who are able to understand the material often explain it to the rest in informal groups after class and before tests.

4) Use Charts.

Public speakers have found that the use of charts and simple statements written on tablets placed in front of the audience serve to focus their attention on the question at hand. This method also facilitates assimilation and retention of material. Charts can also be used to tie everything together into a coherent whole — in which all the relationships between the parts are made explicit.

5) Teach the Principles of Critical Thinking Along with the Subject Matter.

Use the material as concrete examples of critical thinking. For instance when talking about the American Revolution ask the students to compare the *point of view* of the Colonists with that of the British Government in a *fairminded way*. The following study

questions could be used to get students to think more deeply and critically about their homework assignment: a) What was the *purpose* of the revolution? b) What were the Colonists' *concept* of freedom. How did it differ from the British concept? c) Why wouldn't the British allow the Colonists to secede from the British Empire? d) What *assumptions* were made by both sides? e) What *evidence* was cited by the Colonists which led them to *conclude* that they were being treated unjustly? Was this evidence *accurate*? Was it *biased*? Did they leave out any important facts? f) What were the immediate and long term *consequences* of the Declaration of Independence? Exam questions should be based on these study questions to make sure students will think about them, and hopefully quiz each other on them, outside of class. Throughout the lesson, students will learn the elements of reasoning in addition to American history. They will also learn a little about what it is to think fairmindedly and objectively about our nation's history.

6) Get Students to Know Each Other.

On the first day of class, arrange the students in pairs and have members of each pair ask each other questions about where they came from, their interests, hobbies, and opinions — taking notes to facilitate memory. Then each person introduces his or her partner to the whole class. In that way students get acquainted with each other at the outset. This serves to break the ice and facilitates their communication with each other when they are organized into small groups. It is also an effective exercise in attentive listening.

7) Put Students' Names on Index Cards and Call on All Students, Not Just Volunteers.

Have you noticed that when you ask questions in class, the same students always volunteered to give an answer. If you look around the class and pick less active students and ask them a question, they would feel that you were deliberately trying to show up their ignorance, and consequently resent it. So now try putting all the stu-

dents' names on index cards, shuffle them and ask students questions in a random order. In that way all of the students will listen to your questions, and all will become active in answering them. This simple technique avoids the common problem of four or five students doing most of the talking. It also makes a wider range of student thought available to the class (including the teacher). And it keeps the class more alert.

8) Promote Independent Thinking.

Present students with a problem that requires some independent thinking and has several possible solutions. Have the students write their solutions on a piece of paper. Then divide the class up into groups of three or four, and have them share their answers with their group. Afterwards have each group use the best ideas of each person and have them choose one person to communicate their integrated solution to the class as a whole. In this way all students becomes active in: 1) figuring out a solution to the problem, 2) communicating their solution to others, 3) obtaining feedback from others, 4) arriving at a more adequate solution to the problem, and 5) occasionally speaking in front of the whole class, thus giving them practice in public speaking.

9) Promote Careful Listening.

Frequently call on students to summarize in their own words what another student has said. This encourages students to actively listen to each other. It helps them realize that they can learn from each other. This serves to lessen their dependence on the teacher for everything. Hearing another student's comments and questions can be quite instructional. Becoming aware of another student's mistakes or misunderstandings and hearing another student correct them also contributes to a clearer understanding. Students who tune out their peers miss these clarifications. Therefore, you should encourage students to consistently and carefully listen to each other in class. One way of doing this is to frequently ask students to repeat what another student just said. That will keep them alert!

Another tactic we advocate fosters careful listening. Arrange students in pairs. Then ask a controversial question. The students then share their opinions with their partners and justify their positions. Their partners listen carefully and then repeat back what was said — but in their own words. The first speakers then point out any misunderstandings of the views they had expressed.

10) Speak Less so That Students Think More.

Try not to lecture more than 20% of total class time. Break off your lecture every ten minutes and have students talk to each other in pairs or threes, where they will retell the key points made, and then apply, assess, or explore the implications of the material.

When you are the one doing most of the talking, you are the one doing most of the thinking. As you explain what you know, you may have to express yourself differently, think of new examples, and make new connections. If you can get your students to do more of the talking, they will be thinking through the material and developing a deeper understanding. As one teacher put it "Next year my *students* will be taking my class; I've been taking it for 18 years."

People's minds drift in and out of long speeches, and so they miss much of what is said. Breaking up long lectures gives students a chance to be more active — and also assimilate and think about what they've heard. Smaller bits are easier to mentally digest than large hunks. And, by pooling their perceptions, students can sometimes correct each others' misunderstandings before they become deeply ingrained. Having them report on what they discussed helps the teacher correct their misunderstandings.

11) Be a Model.

Think aloud in front of your students. Let them hear you puzzling your way slowly through problems in the subject. Try to think aloud at the level of the students in the class. If your thinking is too advanced or proceeds too quickly, they will not be able to understand and assimilate it.