

The following tips are courtesy of Lower Columbia College's *Tutor Training Handbook*,  
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[http://www.educ.uidaho.edu/bestpractices/peer\\_train\\_math.html](http://www.educ.uidaho.edu/bestpractices/peer_train_math.html)

### Five basic steps for assisting math students

- I. Always look at the problem in the book. Never trust that a student has set it up correctly.
- II. Ask student to explain the procedure s/he is using to solve the problem. You can troubleshoot and listen for erroneous logic or incorrect procedures at that time.
- III. Reinforce any correct procedures (e.g. "This part is done correctly", or "You are on target here".) Then identify incorrect logic and ask the student to consider what else s/he might try. You can provide a hint, but avoid explanations until after the student has attempted a guess. (E.g. "When you evaluate an integral, what do you evaluate first, the upper or lower part?")
- IV. To check for understanding have the student re-explain the procedure to you. Avoid asking questions like, "Does that make sense to you?" and "Do you understand now?"
- V. Disengage!  
Encourage the student to work the next problem on his/her own, but let him/her know you will check back. Do not get drawn into working the next problem with an insecure student. S/he needs to develop the ability to apply what s/he is learning without your supervision.

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### Tips for math tutors

#### Come prepared

Walking into a tutorial session prepared sends a clear, strong message to the students of the importance and pride you as a tutor place on the upcoming session. It is especially meaningful to follow up with the plan of action, objectives, and goals set during the last tutorial session. To do this, tutors model to the student a commitment and enthusiasm by coming prepared. Coming prepared includes:

- Overcoming personal anxieties
- Feeling comfortable with the subjects/material
- Having a positive attitude and utilizing all available resources

#### Guide student:

1. A math tutor should guide a student through the solution process. Ask the student leading questions that will direct the student towards the correct steps.
2. Avoid doing problems for the student.
3. If the student cannot get the correct answer and asks for help, the tutor should look at what the student has done and try to locate the error. Then have the student work a similar problem to make sure he/she has grasped the concept or procedure.

## Teach Concepts

Tutoring goal should be to help students become an independent learner. In mathematics, it is important to teach concepts rather than just processes or procedures. For example, the tutor should explain why it is important to follow the "order of operations" rule, PEMDAS, rather than just showing the student how to do it.

Understanding the concepts makes remembering the procedures easier.

## Don't Confuse the Student!

If the tutor is unsure of a mathematical procedure or concept, check with a math instructor. It is helpful to find out what approach the text or instructor is using on a particular problem. A tutor using the same technique as the text or instructor will reinforce the concept or procedure, whereas using a different approach can confuse the student.

## Address Math Anxiety

Tutors will deal with students with varying degrees of math anxiety. Tutors should avoid using phrases such as, "this is easy." Such phrases intimidate the student. If the student suffers from a high degree of math anxiety it may be helpful to refer the student to a counselor. Sometimes it is helpful to learn about the student's math background. If the tutor believes the student is enrolled in a course the tutee is not ready for, talk to the instructor.

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## Overcoming math and science anxiety

Many people believe mathematics and sciences can be conquered only by certain kinds of people. This myth destroys potential, provides excuses and limits our possibilities. What is required is persistence and patience.

Learning Math and Science takes time and effort, but it is worth the investment!  
Five suggestions for overcoming math/science anxiety include:

**Do not confine yourself to exact answers or processes.** Most problems have more than one method for reaching an answer. Sometimes it is easier to work from an answer to a problem/question than vice-versa.

**Do not use self-defeating talk.** Use constructive self-talk when referring to your abilities in mathematics and science.

**Do not run away from your intuition** since it could lead you towards a possible solution and understanding of the concept and application.

**Do not consider your questions dumb** or stupid when something is unclear or questionable.

**Do not run away from math/science frustrations.** Try to keep a journal where you jot down strengths, triumphs, areas to further address, and emotions about areas of study.