Math & science anxiety: What's behind it?

Outdated mental pictures

People who like math and science are really smart. Labs are full of nerdy looking guys.

Faulty assumptions

Math is about logic, not imagination.
There's only one correct way to do a math problem or science experiment.

Negative self-talk

I'll never be good at math. I just don't understand numbers.
I can't function in a science lab.
I'm a 'word person, not a 'numbers' person. I'm not smart enough.

Poor reading skills

Math and science courses follow the format of the text very closely. So, mastering the text and staying current with the assigned readings will go a long way to reducing your anxiety.

Doing it alone

Trying to learn math and science alone can lead to confusion and frustration. To do well in these subjects requires active involvement with others.

Inadequate current knowledge and/or learning strategies

Math and science are cumulative and, therefore, not having an adequate base of knowledge or skill in the subject may lead to a fear of failure. Also, not knowing how to learn, i.e. the best learning strategies, may also lead to anxiety.

Not being prepared for homework or assigned readings for class labs

Adapted from Ellis, D. (2000). *Becoming a Master Student*. Canadian 3rd Edition. Boston: Houghton Mifflin. pp.179-182.

Overcoming math & science anxiety … And you can!

First off, you have to deal with the negative self-talk. Try these 3 steps:

1. Be aware of the negative statements. Write them down.
2. Determine the veracity of the statement: Is this really true or just your fears talking?
3. Create a new statement that affirms your ability to succeed.

E.g. “When learning math, I proceed with patience.” “I’m a good learner, even if I make errors.”

Learn how to learn

Learn from specific to general

Many subjects require you move from an overview of concepts to detail. However, jumping to conclusions in math or science is dangerous. Instead, try to comprehend one specific concept before moving on to gradually build up a picture of the whole. Sometimes you may feel you‘re going backward! Math and science principles often contain exceptions and conflicting evidence.

Focus on the big picture questions

Pause regularly to ask: “What is this all about?” “What basic problem am I trying to solve?” “How is this applied in daily life?”

Read slowly and actively

Slowly: Math and science call for attention to detail which requires you to read slowly and carefully. A single paragraph might need to be read several times. You also need to read the sections as they are laid out in the text, as concepts build upon each other in a sequential order. Regardless, start by previewing headings, diagrams, and sample problems to get an overview.

Actively: Math and science are not just knowledge, but also activities. When you read, you should also DO. Active reading includes studying visuals (e.g. diagrams, charts); copying (e.g. diagrams, equations); and working out examples. Sometimes examples are the main points.

Use cooperative learning

Speak up in class: ask questions, have homework prepared, voice your thoughts. Get extra help from your T.A. and professor. Join a study group. Work with a good ‘problem solver‘. Ask them to speak their steps and thoughts out loud, and then compare to your method.

Use lab sessions to your advantage

Lab work is often critical. Be prepared: know what the procedure will be and what materials you‘ll need. Bring your notebook to record and summarize your findings.

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