

## Humor and Music in the Mathematics Classroom

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### Abstract

The purpose of this article is to encourage appropriate humor in the mathematics classroom as a way of diminishing anxiety and antipathy and promoting interest among mathematics students. The use of music as a vehicle for some of this humor is given particular emphasis. An original song (set to a traditional melody) is included for this purpose.

### Humor and Math Anxiety

In the first meeting with my class in *Quantitative and Qualitative Reasoning*, many of the attending Liberal Arts students willingly admit to having math anxiety. With a large lecture hall full of students it isn't possible to deal individually with this problem, but it is necessary to respond in some way to these feelings. First, I assure my students that help with the course is available from me and also from two Learning Centers we are fortunate to have on our campus. Second, I tell them about a student in last semester's class who was so anxious about mathematics that he wasn't able to sleep through any of my lectures. We all laugh a little and some of the tension is dissipated.

I also assure my students that you don't have to be a genius to succeed at mathematics. I tell them (tongue-in-cheek) that I didn't pass most of the math courses I took as a student. But I reassure them that I was always at the top of the group that failed, and that is how I managed to get assigned to teaching this class.

My experience in science and mathematics teaching leads me to believe that the majority of students consider mathematics the most difficult of the many courses they will encounter. As Sheila Tobias [1] tells us in the revision of her classic work, students struggle with mathematics and often enter their math classes with a great deal of anxiety. There are two ways I attempt to help my students with their anxiety. The first is to try to guide the students into successful experiences in the course to build their self-confidence and convince them that they *are* capable of doing mathematics. The second approach, which is the focus of this article, is to inject appropriate humor into the classroom in an effort to relieve stress, anxiety, and antipathy, and to bring a little fun and interest to the experience.

### Humor and Health

There is a considerable literature suggesting not only that humor can help with anxiety, but that it can also have a profoundly positive effect on our mental and physical health [2, 3] as well as enhance our creativity and problem solving abilities [4]. Probably the best-known story of humor

and healing is that of Norman Cousins, former editor of *Saturday Review*, and his struggle with chronic pain and an "incurable" disease [5]. With his physician's approval he treated himself with "laughter therapy" by watching videos of Marx Brothers movies, clips from *Candid Camera* TV shows, cartoons, and anything else that would make him laugh. Cousins found that ten minutes of continuous laughter provided him with about two hours of pain relief. Eventually he recovered and lived many years beyond what anyone had expected. Of course, all of this modern insight into the value of humor was anticipated thousands of years ago when the wise King Solomon was inspired to write in the Book of Proverbs that, "A cheerful heart is good medicine, but a crushed spirit dries up the bones [6]."

### Forms of Classroom Humor

Appropriate classroom humor comes in many forms and can include stories, jokes, cartoons, limericks, and, yes, even songs. But where can an interested teacher find mathematical humor? My favorite source of math jokes is a fun-filled book by mathematician Desmond MacHale [7] called *Comic Sections*. (Even the title of this wonderful collection is a pun.) The math background required to "get" MacHale's jokes ranges from the very basic to quite advanced.

Timing is everything with humor. Thus, it just doesn't work to walk into any class and simply share your favorite math jokes, cartoons, or limericks with your students. Classroom humor should wait until the concept at the heart of the story has been learned by your students. A riddle I enjoy goes "What do you get when you divide the circumference of a pumpkin by its diameter?" The answer, "pumpkin pi," is only funny to the student who has already studied the geometry of circles. Thus, classroom humor can also be viewed as a reward for mastering a particular topic or subject.

Sometimes a joke can help with a problem. The two jokes which introduced this article are from MacHale's book [8] and he doesn't suggest any particular context for any of his stories. You can certainly tell them anywhere you wish, but I can't think of a better place to use these two than to help students suffering with math anxiety.

The artwork of Sidney Harris is a rich source of cartoons about mathematics and science. His drawings grace the pages of periodicals ranging from *The New Yorker* to *Physics Today*, and are also collected in many books which are available in most bookstores. One with a particularly mathematical bent is *What's So Funny about Science?* [9]. In one cartoon from this collection Harris shows two mathematicians standing before a black board. One of them has filled the board with a lengthy proof of a theorem that has an interesting second step. It says, "Then a miracle occurs." The other mathematician comments, "I think you should be more explicit here in step two." Once you start looking for cartoons on mathematics you will be surprised how many places they appear. Even *Peanuts* and *Frank and Ernest* of the newspaper comic-strip page have an occasional math howler. And any of your favorites can easily be copied on to a transparency or scanned into *Power Point* notes for classroom use.

Limericks on mathematical and scientific subjects also have a long and honorable history. The famous physicist Sir Arthur Eddington wrote one many years ago on probability that goes:

There once was a brainy baboon,  
Who always breathed down a bassoon.  
For he said, "It appears,  
That in billions of years,  
I shall certainly hit on a tune."

A creative chemistry prof at Michigan Tech named Fred Williams [10] encourages his students to write limericks on various aspects of chemistry. He then shares the best with the students in his class. The idea will work with almost any subject.

### Musical Humor

Songs about math are also available for those who look. The best known is probably Tom Lehrer's [11] song *New Math*. But there is even some mathematical humor in part of the high-spirited *The Modern Major-General* which is sung in the Gilbert and Sullivan comic opera *The Pirates of Penzance* [12]. So you can carry a boombox and a CD into the classroom to play a math-based song for your students, or, if you play a musical instrument which is good for accompanying songs (I happen to play the guitar), you can screw up your courage, bring it to class, and sing a song for (or with) your students. Generally speaking, students are a wonderful audience to amateur musicianship. They are delighted that you are not lecturing on a new concept at the moment, and most of them are too polite to get up and leave.

I have found in the last few years that writing a song to meet your own classroom needs is not as difficult as it might sound. The first step is to "borrow" the melody of a familiar traditional song that is in the public domain. (This approach to song writing is not usually thought of as plagiarizing, because everyone knows the melody already. A "nicer" descriptive is "musical hitchhiking" or "piggybacking.") Then pick words for each line with the right number of syllables to fit the melody and with a little help from a rhyming dictionary, *voilà*, you have a song.

I wanted to come up with a song for my math students which acknowledged how hard many of them were working, despite the fact that some would no doubt prefer a root canal session to taking a math course. A blues tune seemed the perfect choice. I selected the melody of a traditional song which is a favorite with many bluegrass bands and old-time string bands called *Brown's Ferry Blues*. (Brown's Ferry is a small town in northern Alabama.) The written melody is available in books by Asch [13] and others [14], while recordings containing the song have been made by The New Lost City Ramblers [15] and Doc Watson [16]. The chorus line, which is sung twice in each verse, goes "Lord, Lord, I've got *The Mathematics Blues*." All of my students (whom I encourage to sing along) seem to relate with delight to that sentiment. (I can't imagine why.) The tune is called *The Mathematics Blues* and the lyrics follow below.

### The Mathematics Blues

(Sung to the Melody of *Brown's Ferry Blues*)

Pythagoras, Euclid, and Zeno I'm told,  
Began mathematics in days of old.

Lord, Lord, I've got *The Mathematics Blues*.  
Even though these guys are dead and gone,  
I gotta study this stuff till the break of dawn.

Lord, Lord, I've got *The Mathematics Blues*.

Commutative laws and associative too,  
So many laws I don't know what to do.

Lord, Lord, I've got *The Mathematics Blues*.  
And on top of that the distributive law,  
It's just too much, the very last straw.

Lord, Lord, I've got *The Mathematics Blues*.

Some numbers are rational, they're my kind,  
But irrational numbers bother my mind.  
Lord, Lord, I've got *The Mathematics Blues*.  
And then there's numbers like  $e$  and  $\pi$ ,  
And worst are complex numbers like  $i$ .  
Lord, Lord, I've got *The Mathematics Blues*.

Algebra, trig, and calculus too,  
It's all stirred together, my mind's in a stew.  
Lord, Lord, I've got *The Mathematics Blues*.  
Formulas spinning around in my head,  
Till opening my textbook fills me with dread.  
Lord, Lord, I've got *The Mathematics Blues*.

Adding up numbers that go on forever,  
Infinite series--what a hopeless endeavor.  
Lord, Lord, I've got *The Mathematics Blues*.  
And then there are limits that go on to naught,  
Which give us derivatives, so I've been taught.  
Lord, Lord, I've got *The Mathematics Blues*.

My confusion is climbing, it's reaching its peak,  
My chances of passing are really quite bleak.  
Lord, Lord, I've got *The Mathematics Blues*.  
My mind's reeling from equations quadratic,  
I'm sure that I'll fail, it's axiomatic.  
Lord, Lord, I've got *The Mathematics Blues*.

If ever I finish this impossible class,  
And if by God's grace I should even pass.  
Lord, Lord, I've got *The Mathematics Blues*.  
I'll read no more theorems ever again,  
And I'll give a good rest to my tired old brain.  
Lord, Lord, I'll lose *The Mathematics Blues*.

I know there are some educators who believe it is better not to acknowledge in class that some students "just don't like math." My own belief is that talking occasionally about these negative feelings helps to dissipate them, especially if it is done with compassion and good humor.

This song is suited for students with a modest background in mathematics. If you want something for a more advanced class, why not try writing your own tune--perhaps one called *The Calculus Blues*?

### Conclusion

If appropriately used, a little humor and song in the classroom can go a long way toward relieving the anxiety and stress experienced by students and teachers alike. It can also put a more human face on the entire mathematical endeavor. As Mary Poppins rightly told us many years ago, a spoonful of sugar really does help the medicine go down.

### References

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- [6] *The Holy Bible, New International Version*, Grand Rapids: Zondervan, 1978, Prov. 17:22.
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- [11] Tom Lehrer, *Too Many Songs by Tom Lehrer*, New York: Pantheon Books, pp. 109-111, 1981. See also his recording *That Was the Year That Was*, Reprise Records, CD 6179-2.
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- [16] Doc Watson, *On Stage*, Vanguard: USA, CD 9/10-4.

