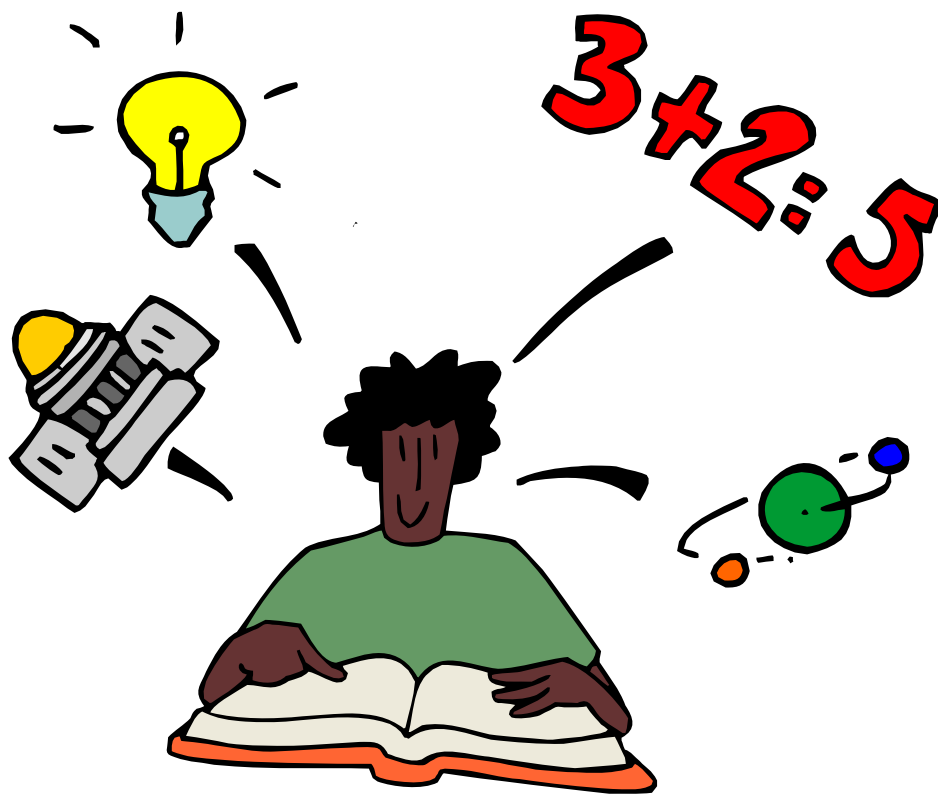


Overcoming Math Anxiety



OTED 785 Dr. Ritz

By
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Site Number 564
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Curriculum Foundations

Definition of Overcoming Math Anxiety

Overcoming Math Anxiety may defined as the strategies and techniques an individual can use to control their responses to the situations that produce the anxious feelings. Math Anxiety is an intense emotional feeling that people have about their inability to understand and do mathematics. People who suffer from math anxiety feel that they are not capable of doing any course or activity requiring mathematics.

Rationale for Overcoming Math Anxiety

Math anxiety among college students has risen in the last few years. Many students avoid mathematics and decide on their program of study based on the math courses needed to complete the degree requirement. Math anxiety is not an intellectual problem but an emotional problem, which can be overcome.

There is no single cause for math anxiety. Often a student has had negative experiences with a math teacher in previous years, such experiences can leave a student that they have deficient math ability. This belief is usually the result of poor performance, which confirms the student's belief that they are mathematically challenged. Overcoming their fear of Mathematics is necessary for the

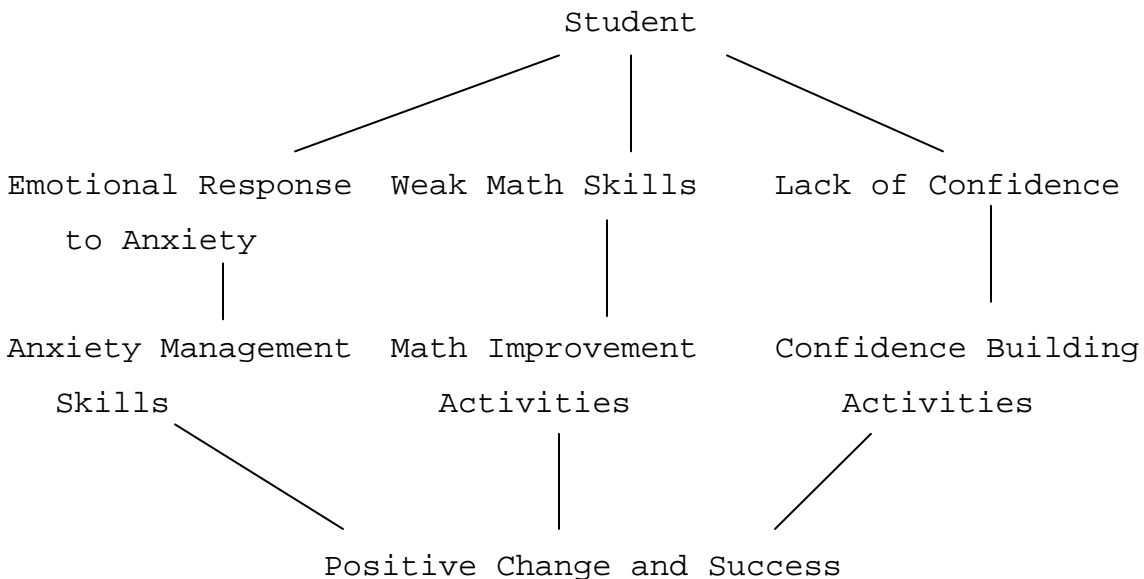
student to be able to become successful in Mathematics courses.

The participants of this program will be students of all ages, race, and sex that have demonstrated behaviors that indicate that they have fears and anxious feelings when it comes to performing tasks that require mathematical computations.

Content Source for Overcoming Math Anxiety

The field of psychology and mental health serves as a body of knowledge for deriving some of the content for this curriculum. To address the goals of the curriculum basic arithmetic and basic algebra will be incorporated into the program.

Content Structure for Overcoming Math Anxiety



Program Aims for Overcoming Math Anxiety

It is the intent of this curriculum to design a program for overcoming math anxiety. The program will meet the needs of the student having difficulty in succeeding in mathematics courses due to what is perceived to be math anxiety. The aim of this program is to provide the students with the information and skills necessary to manage and overcome their math anxiety.

Program Goals for Overcoming Math Anxiety

Students in the Overcoming Math Anxiety program will:

1. Learn the causes of Math Anxiety.
2. Utilize anxiety management skills in anxiety producing situations.
3. Practice positive self-talk.
4. Recognize math anxiety producing situations.
5. Acquire a solid mathematics base.
6. Develop a positive attitude towards mathematics.

Scope and Sequence

The Overcoming Math Anxiety Curriculum can be adapted for classes meeting once, twice, or three times a week. The curriculum can be covered in a fifteen-week period. The time frame for the course may be extended if additional time is needed to cover Unit 6, *Improving Problem Solving Skills*.

UNIT	TOPIC	CONCEPTS	HOURS
1	Investigating Your Math Anxiety	<ul style="list-style-type: none"> • Definition of Math Anxiety • Recognizing Math Anxiety 	3
2	Techniques for Reducing Your Math Anxiety	<ul style="list-style-type: none"> • Relaxation Techniques • Visualization • Positive Self-Talk 	3
3	Understanding Your Learning Style	<ul style="list-style-type: none"> • Learning Styles 	3
4	Improving Your Study Habits	<ul style="list-style-type: none"> • Effective Study Habits/Skills • Time Management 	3
5	Reducing Test Taking Anxiety	<ul style="list-style-type: none"> • Relaxation Techniques • Test Taking Strategies 	3
6	Improving Mathematics Skills	<ul style="list-style-type: none"> • Problem Solving Techniques/Strategies • Whole Number Arithmetic • Decimal Arithmetic • Fraction Arithmetic 	15 or more if needed

Overcoming Math Anxiety
Unit One
Investigating Your Math Anxiety
3 Hours

Unit Goals

1. Define Math Anxiety.
2. Identify fears about Mathematics.

Unit Rationale

Having a clear definition of Math Anxiety will enable the learners to discuss their own anxiety in terms that are similar to each other. Identifying the emotions of Math Anxiety is the beginning to understanding the condition. Recognizing situations, which provoke the anxiety, is key to overcoming the condition.

Unit Objectives

1. Explore the definition of Math Anxiety.
2. Describe the feelings/emotions that doing mathematics causes you to have.
3. Discuss a situation or situations when you felt anxious about doing mathematics.

Unit Activities (Suggested)

1. Have students read part one in Overcoming math anxiety and complete the accompanying exercises, or read chapters one and two in Conquering math anxiety and complete the accompanying exercises.
2. Have students do a free write on their feelings about mathematics.

3. Have students share their previous experiences in mathematics (either in small groups or with entire group).
4. Have students read and discuss: *You can conquer, but not divide: It must be math anxiety* or *Learning what counts: overcoming math anxiety*.

Unit References

Arem, C. (2003). Conquering math anxiety (2nd ed., pp. 95 - 127). Pacific Grove, CA: Brooks Cole.

Bryant, B. (2002, April 1). You can conquer, but not divide: It must be math anxiety. Knight-Ridder/Tribune News Service {on-Line}. Available FTP: web7.infotrac.galegroup.com/itw/infomark/305/584/23092686w7/purl=rcl_ITOF_0_CJ84

Davidson, R. & Levitv, E. (2000). Overcoming math anxiety (2nd ed.). New York: Addison Wesley.

Gibson, D. S. (1994, May). Learning what counts: overcoming math anxiety. Better Homes and Gardens, 72, 38 - 39.

Overcoming Math Anxiety
Unit 2
Techniques for Reducing Your Math Anxiety
3 Hours

Unit Goal

1. Examine Anxiety reducing techniques.
2. Practice Positive Self-Talk.

Unit Rationale

Having tools that can be used in reducing math anxiety will enable the learner to be more confident and successful.

Unit Objectives

1. Demonstrate deep breathing exercises.
2. Practice Muscle relaxation.
3. Produce a list of phrases used for positive self-talk.
4. Utilize visualizations to relax in anxious situations.
5. Visualize oneself as being successful at mathematics.

Unit Activities (Suggested)

1. Have students read chapters five and six in Overcoming math anxiety and complete the accompanying exercises, or read chapters three and four in Conquering math anxiety and complete the accompanying exercises.

2. Have students in groups discuss and prepare lists of phrases to be used for positive self-talk.
3. Have an expert in stress management speak on stress reduction techniques.
4. Listen to relaxation tapes.
5. Have students practice anxiety-reducing techniques while completing an appropriate level mathematics worksheet.

Unit References

Arem, C. (2003). Conquering math anxiety (2nd ed., pp. 95 - 127). Pacific Grove, CA: Brooks Cole.

Davidson, R. & Levitv, E. (2000). Overcoming math anxiety (2nd ed.). New York: Addison Wesley.

Overcoming Math Anxiety
Unit 3
Understanding Your Learning Style
3 Hours

Unit Goal

Differentiate between types of Learning Styles.

Unit Rationale

A learner who understands and works with their unique Learning Style can enhance their math achievement. Learners can choose instructors whose teaching styles best match their Learning Style, thus improving their chances of success.

Unit Objectives

1. Complete a Learning Styles Inventory.
2. Discuss the different Learning Styles.
3. Construct a list of strategies that can be used to enhance learning based on Learning Style.

Unit Activities (Suggested)

1. Have students read chapter seven in Conquering math anxiety and complete the accompanying exercises.
2. Complete a Learning Styles Inventory.
3. Have a counselor speak to the class on Learning Styles.
4. Group students based on their Learning Styles and have them develop a list of ways that math topics could be

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taught or the teaching enhanced to their Learning
Style.

5. Have students research Learning Styles and write a
summary of their findings.

Unit References

Arem, C. (2003). Conquering math anxiety (2nd ed.,
pp. 95 - 127). Pacific Grove, CA: Brooks Cole.

Overcoming Math Anxiety
Unit 4
Improving Math Study Habits
3 Hours

Unit Goals

1. Examine effective Study Skills and Habits.
2. Develop a Time Management Plan.

Unit Rationale

Mathematics is different from other subjects and must be studied differently. Mastering effective Study Techniques for Mathematics will enhance mathematics performance. Better use of time and developing a study schedule will also assist in improving mathematics performance.

Unit Objectives

1. Complete a study skills inventory.
2. Examine study skills appropriate to mathematics.
3. Recognize good study habits.
4. Utilize effective study skills and habits.
5. Explore the use of time management.
6. Develop a daily schedule.

Unit Activities (Suggested)

1. Have students read chapter seven in Overcoming math anxiety and complete the accompanying exercises, or read chapter eight in Conquering math anxiety and complete the accompanying exercises.
2. Complete a study skills inventory.

3. Discuss effective study skills.
4. Have students in small groups demonstrate good and bad study habits and skills by performing mini skits.
5. Have students keep a study journal.
6. Brainstorm good study habits in large or small groups.
7. Have a guest speaker on time management and/or study skills.
8. Have students develop a daily schedule.

Unit References

Arem, C. (2003). Conquering math anxiety (2nd ed., pp. 95 - 127). Pacific Grove, CA: Brooks Cole.

Davidson, R. & Levitv, E. (2000). Overcoming math anxiety (2nd ed.). New York: Addison Wesley.

Overcoming Math Anxiety
Unit 5
Reducing Test Taking Anxiety
3 Hours

Unit Goal

Identify test anxiety reducing techniques.

Unit Rationale

The ability to perform well on math tests is severely handicapped when the feelings of panic and doom are overwhelming to the learner.

Unit Objectives

1. Outline strategies for test taking.
2. Formulate a stress reduction plan for test taking.

Unit Activities (Suggested)

1. Have students read chapter nine in Conquering math anxiety and complete the accompanying exercises.
2. Have students complete math practice tests.
3. Discuss test-taking strategies.
4. Have a guest speaker on reducing test-taking anxiety.
5. Practice taking math tests.

Unit References

Arem, C. (2003). Conquering math anxiety (2nd ed., pp. 95 - 127). Pacific Grove, CA: Brooks Cole.

Overcoming Math Anxiety
Unit 6
Improving Math Problem Solving Skills
15 Hours (Additional Hours if Needed)

Unit Goals

1. Apply problem-solving skills to successfully complete mathematics problems.
2. Develop confidence in mathematical ability.

Unit Rationale

Mathematics is process based. Understanding and practicing sound problem solving skills will improve mathematical success. Feeling confident in mathematical ability will reduce anxiety levels.

Unit Objectives

1. Demonstrate a sound foundation in basic whole number arithmetic.
2. Apply problem-solving strategies to word problems involving whole numbers.
3. Demonstrate a sound foundation in basic decimal number arithmetic.
4. Apply problem-solving strategies to word problems involving decimal numbers.
5. Demonstrate a sound foundation in basic fraction arithmetic.
6. Apply problem-solving strategies to word problems involving fractions.

Unit Activities (Suggested)

1. Have students read chapters eight and nine in Overcoming math anxiety and complete the accompanying exercises, or read chapter ten in Conquering math anxiety and complete the accompanying exercises.
2. Review basic whole number arithmetic.
3. Discuss and give examples of problem solving strategies.
4. Have students complete in class and outside of class assignments involving problem solving using whole numbers.
5. Review basic decimal number arithmetic.
6. Have students complete in class and outside of class assignments involving problem solving using decimal numbers.
7. Review basic fraction arithmetic.
8. Have students complete in class and outside of class assignments involving problem solving using fractions
9. Have students complete graded assignments throughout the unit beginning with assignments with an easy degree of difficulty (to assure success) and gradually increasing to build their confidence level.

Unit References

Arem, C. (2003). Conquering math anxiety (2nd ed., pp. 95 - 127). Pacific Grove, CA: Brooks Cole.

Davidson, R. & Levitv, E. (2000). Overcoming math anxiety (2nd ed.). New York: Addison Wesley.

Suggested References for Curriculum Facilitator

Arem, C. (2003). Conquering math anxiety (2nd ed., pp. 95 - 127). Pacific Grove, CA: Brooks Cole.

Bryant, B. (2002, April 1). You can conquer, but not divide: It must be math anxiety. Knight-Ridder/Tribune News Service {on-Line}. Available FTP: web7.infotrac.galegroup.com/itw/infomark/305/584/23092686w7/purl=rcl_ITOF_0_CJ84

Davidson, R. & Levitv, E. (2000). Overcoming math anxiety (2nd ed.). New York: Addison Wesley.

Gibson, D. S. (1994, May). Learning what counts: overcoming math anxiety. Better Homes and Gardens, 72, 38 - 39.

Stevick, E. Doing the math on anxiety levels. (2002, January 20). The Daily Herald [News Bank News File].

Stuart, V. (2002, January). Math curse or math anxiety. Teaching Children Mathematics, 6, 330 - 338.

Student Evaluation for Overcoming Math Anxiety

Students should keep a journal in which they record their emotional and physical response to activities, which require the use of mathematics. They should rate their levels of anxiety on a scale of zero to ten, with zero being no significant anxiety. These journals will be used to determine if the students are controlling and overcoming their anxiety.

Pretest and Posttests scores can be used to determine if the student is improving their Math Skills. These tests may be either multiple choice or single answer style tests. The test materials that accompany the text for the mathematics course can be used as a basis for these tests.

The student understanding of the anxiety and stress reducing techniques along with the other unit topics can be evaluated by an interview process with the student using a check off sheet.

Check Off Sheet Example

Unit	Concept	Shows Sufficient Understanding
1	Definition of Math Anxiety	
2	Relaxation Techniques	
	Visualization	
	Positive Self-Talk	
3	Learning Styles	
4	Effective Study Habits/Skills	
	Time Management	
5	Test-Taking Strategies	
6	Problem Solving Techniques	

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November 15, 2002

Germanna Community College
Mrs. Ann Lyons
Tutoring Center Coordinator
10000 Germanna Point Drive
Fredericksburg, Virginia 22408

Dear Mrs. Lyons,

I have developed a new curriculum for the use in Overcoming Math Anxiety. Given your experience in this field I am asking you if you could please lend your expertise in validating this document. As the coordinator for the Tutoring Center at the college, I hope that you will find this curriculum to be effective for educators to use with students suffering from Math Anxiety.

I have enclosed a survey form and a copy of the curriculum for your review. Please return the survey and any additional comments in the enclosed envelope. Thank you for your time and advise.

Sincerely,

Shelia Chewning

Enc. (2)

Survey of Overcoming Math Anxiety Curriculum

Please Answer all Questions and give Explanation and Suggestions as Necessary

1. Is the definition of Math Anxiety appropriate or does it need to be revised?

2. Does the rationale convince the reader that Overcoming Math Anxiety is necessary?

3. Does the content source clearly explain the background of Overcoming Math Anxiety?

4. Does the content structure provide a well-devised plan for the curriculum?

5. Is the program aim attainable and reasonable?

6. Are the program goals for Overcoming Math Anxiety easily comprehended?

7. Does the scope and sequence provide an easy to follow overview of Overcoming Math Anxiety?

For each of the six units please answer the following questions.

8. Are the goals for the Unit reasonable and attainable?

Unit	Reasonable (Please Give Comments as Necessary)	Attainable (Please Give Comments as Necessary)
1		
2		
3		
4		
5		
6		

9. Is the rationale for each unit appropriate and convincing?

Unit	Appropriate (Please Give Comments as Necessary)	Convincing (Please Give Comments as Necessary)
1		
2		
3		
4		
5		
6		

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10. Do the objectives relate to the suggested activities and are they easy to understand?

Unit	Relate to Activities (Please Give Comments as Necessary)	Understandable (Please Give Comments as Necessary)
1		
2		
3		
4		
5		
6		

11. Do the suggested Unit Activities present a variety of ways to learn the material and relate to the objectives of the units?

Unit	Variety (Please Give Comments as Necessary)	Relate to Objectives (Please Give Comments as Necessary)
1		
2		
3		
4		
5		
6		

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16. What are some of the strengths in the curriculum?

17. Other remarks, suggestions, observations, or
explanations?