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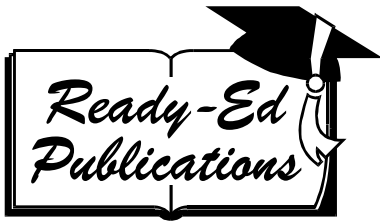
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Mad Math

for

Intermediate/Middle

School Level Students

Book 3

**Stimulating problem solving
activities for students aged
9 - 12 years.**

Written by Greg Mitchell. Illustrated by Terry Allen.

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Teachers' Notes

Mad Math 3

Background

Mad Math is a problem solving based set of math activities for primary students. The basic aim of the series is to cloak the cognitive processes involved in problem solving in an attractive, enjoyable exterior. The activities are often fun ... mad even, but the basic underlying principles are sound.

Year Levels

Ordering these activities according to difficulty is extremely hard to do because student readiness for problem solving relies greatly upon their previous experiences and how the material is presented in the classroom. Similarly, it is hard to classify these books according to year level. Basically, Book 1 is framed for Primary (Grades 1 - 3), Book 2 for Intermediate (Grades 3 - 5), and Book 3 for Middle School students working at Grade 6 - 7 levels. These levels are not prescriptive, thus materials should be selected to suit the student, group or class.

Calculators ... and other things

The aim of Mad Math is to develop problem solving skills rather than other, more mechanical number skills.

Any aid which assists in getting the problem solved is to be encouraged as the process is much more worthwhile than the answer in this case.

Calculators, blocks, counters, squared paper, pieces of paper to draw on, and indeed anything that helps the process of problem solving should be encouraged and made available.

To get the best out of Mad Math

Each Mad Math page has three parts to it:

1. The Problem

Read through the problem with the student, group, or class you are using it with.

Whilst reading for meaning is a very important skill major emphasis here is problem solving skills not reading. So, ensure that all students understand and are fully aware of the problem presented.

Discuss the problem before progressing to the questions, perhaps developing your own questions before moving on.

2. The Questions

Ensure that all the students **understand** the question and its context before they tackle the answer. The benefits flow from the process not the answer. In fact many students will have difficulty in framing a form of attacking the problem. Discussing the questions helps overcome this. Independence will develop with experience.

3. Madness ... The Extension

The final task adds a further fun dimension to those on the page. These activities may not be totally math orientated but they lend an enjoyable end to a math session.

The 'Madness' boxes are intended to be optional.

Assessment

In assessing these activities it is essential to consider more than just the answers.

"Did the student understand the problem?" is probably the most important question to be asked and evaluated. Questions about computational accuracy are of secondary importance ... but important nevertheless.

Do not forget to evaluate your own presentation of the material ... using materials such as this as 'busy work' may indeed cause more work than was intended.

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Name: _____

Worksheet 1

Betty Big Brain drives her teacher, Mr. Slack, crazy. Every time he sets her a math problem she finishes it in next to no time.

To keep her busy one day Mr. Slack told Betty to add up all the numbers from one to a hundred.

"Easy!" said Betty. "I'll be back in a minute."

And she was. Mr. Slack scratched his head.

"How about adding the numbers one to one thousand?"

"Easy!" said Betty.



Questions

1. What drives Mr. Slack crazy? _____
2. What is the total of all numbers 1 to 10? _____
3. What is the total of all numbers 11 to 20? _____
4. What is the total of all numbers 21 to 30? _____
5. What is the total of all numbers 31 to 40? _____
6. What is the total of all numbers 41 to 50? _____
7. What is the total of all numbers 51 to 60? _____
8. What is the total of all numbers 61 to 70? _____
9. What is the total of all numbers 71 to 80? _____
10. What is the total of all numbers 81 to 90? _____
11. What is the total of all numbers 91 to 100? _____
12. What is the total of all the numbers 1 to 100?

Betty did the sum by adding $99 + 1$, $98 + 2$, $97 + 3$, etc. _____

13. What is the total of all numbers to 1000 (the quick way)? _____

Madness

Write down ten things you would like to do if you finished all your work.
Give the list to your teacher ... if you dare!



Crazy Chris the carpenter made a wooden car with wooden wheels and a wooden engine that wouldn't go!

"Wouldn't you know it!" Chris sighed.

He took it to the local markets where he sold it to a boy called Chip who saw through it right away and paid him a dollar for it in 15 coins.

Questions

1. From what was Chris's car made? _____
2. How much did Chip pay for the car? _____
3. What coins did Chip give Chris? _____
4. If it cost Chris 47 cents to make the car, how much profit did he make?
\$ _____
What percentage profit did he make? _____ %
5. If Chip painted the car and sold it for two dollars to his mate Chop, how much profit would he make? (Amount and percentage.)
\$ _____ ; _____ %

Madness

What form of transport do you like the most?
Draw you coming to school in it.

Name: _____

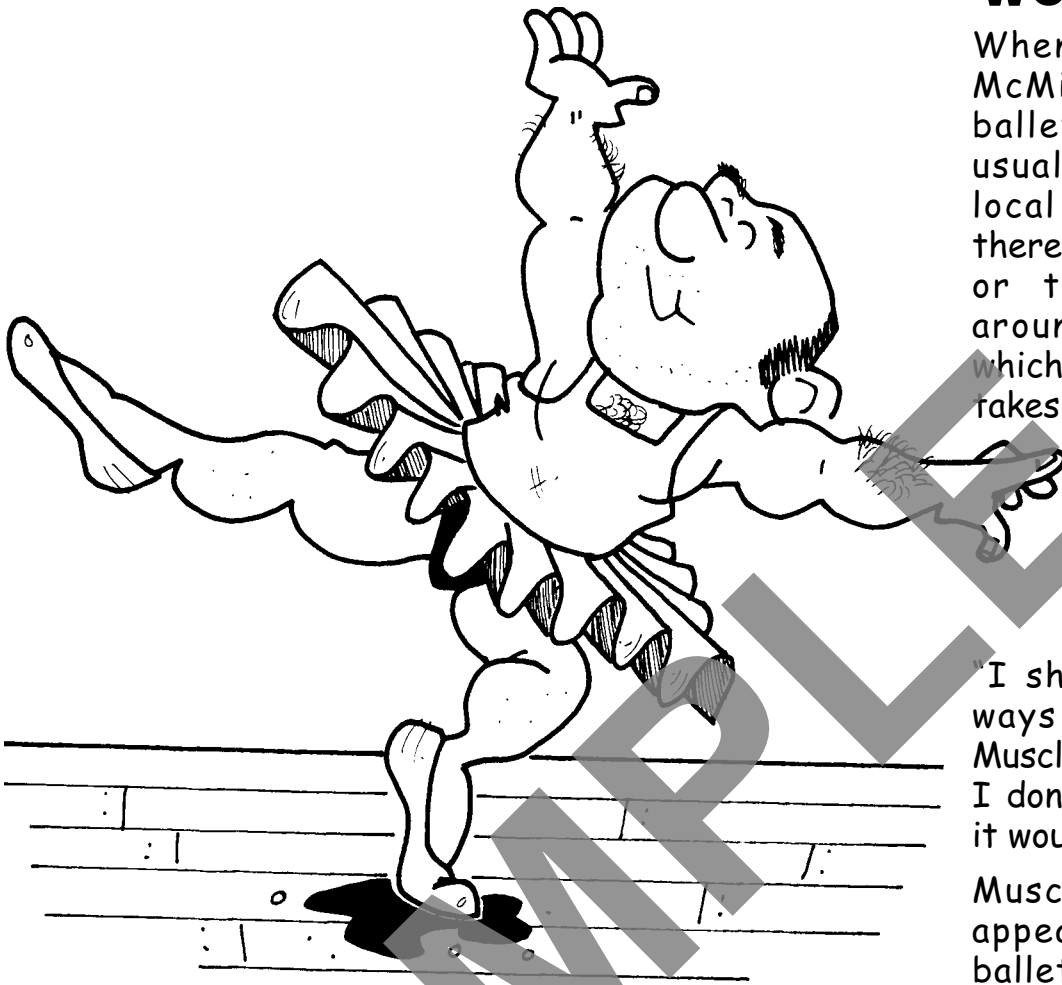
Worksheet 3

When Muscles McMidget goes to ballet lessons he usually catches the local rocket ferry there and walks home, or the other way around. No matter which way he goes, it takes one hour.

If he takes the rocket ferry there and back he only takes 30 minutes.

"I should walk both ways to get fit," Muscles admitted, "but I don't know how long it would take."

Muscles is now appearing in a new ballet called 'Swamp Lake'.



Questions

1. Where does Muscles go to? _____
2. How long does it take him to go on the ferry and walk? _____
3. How long does it take using the ferry both ways? _____
4. How long does it take using the ferry one way? _____
5. How long would it take Muscles to walk one way? _____
6. How long would it take Muscles to walk both ways? _____
7. If ballet lessons started at 5 o'clock when would Muscles have to leave to walk there?

8. If it costs Muscles 5 cents a minute to travel both ways by ferry how much would he save over five days if he walked? _____

Madness

Draw the rocket ferry or you at ballet lessons.