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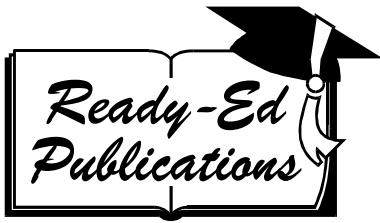
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# **Mad Math for Intermediate Students Book 2**

**Stimulating problem solving  
activities for students aged  
8 to 10 years.**

Written by Greg Mitchell. Illustrated by Terry Allen.

© Ready-Ed Publications - 2001

Published by Ready-Ed Publications P.O. Box 276 Greenwood WA 6024

Email: [info@readyed.com.au](mailto:info@readyed.com.au) Website: [www.readyed.com.au](http://www.readyed.com.au)

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ISBN 1 87526 883 9

# Teachers' Notes

## Mad Maths 2

### 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.

### Grade 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 Grades 6 - 7 students. 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.

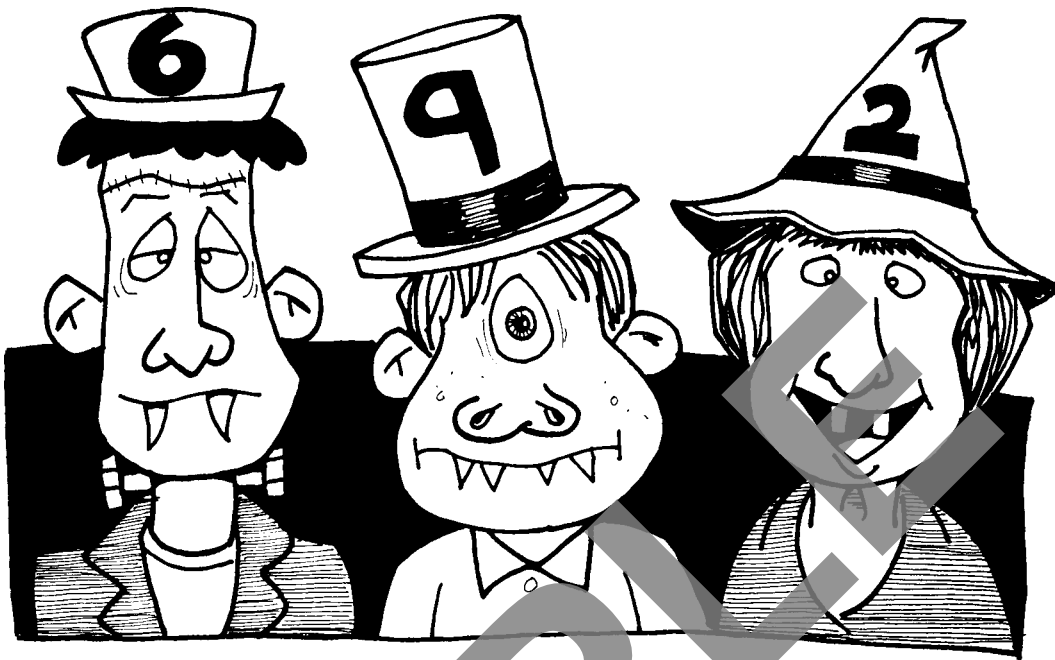
**Do not** forget to evaluate your own presentation of the material ... using materials such as this as 'busy work' may indeed cause more work than was intended.

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Name: \_\_\_\_\_

# Worksheet 1



In the chuck-the-ball game you have to try and score exactly 34 by knocking off the hats of the mad monsters.

When they were asked why they wore these silly hats on their heads the monsters said that when they put them on their feet they kept falling over.

## Questions

1. What is the least number of throws with which you can score 34? \_\_\_\_\_
2. What is the most number of throws with which you can score 34? \_\_\_\_\_
3. Can you throw 34 exactly if you throw three 9's? \_\_\_\_\_
4. With which numbers can you score exactly 34? (Under 10.) \_\_\_\_\_
5. If the target number has changed to 50, what would be the least number of throws needed to make 50? \_\_\_\_\_  
What would be the most? \_\_\_\_\_
6. Would the game work if you doubled the scores on the hats but kept the score at 34? \_\_\_\_\_

## Madness

Play the game with ice-cream containers.

Name: \_\_\_\_\_

## Worksheet 2

When the seeds of the zib zub tree fall on, or are thrown at Hairy Mountain Monster they stick to his hair. Little Mountain Monster likes to see how high he can score by throwing the zib zub seeds at his big brother.

He can't figure out what the highest score could be if he could throw four seeds at Hairy Mountain and land only two seeds on any one number.

The only trouble is getting the seeds off afterwards. They pull out most of Hairy Mountain's hair and people start calling him Bald Mountain.



### Questions

1. What is the highest score possible with four seeds if only two can land on each number? \_\_\_\_\_
  2. What is the lowest? \_\_\_\_\_
  3. What throws (combination of four throws) could score 16? \_\_\_\_\_
  4. What throws of four shots could score 28? \_\_\_\_\_
  5. What is the highest score that could be made with six seeds? \_\_\_\_\_
  6. What is the lowest score that could be made with six seeds? \_\_\_\_\_
- What is the difference between highest and lowest? \_\_\_\_\_

### Madness

Make a scoreboard out of paper and play the game using counters instead of seeds.

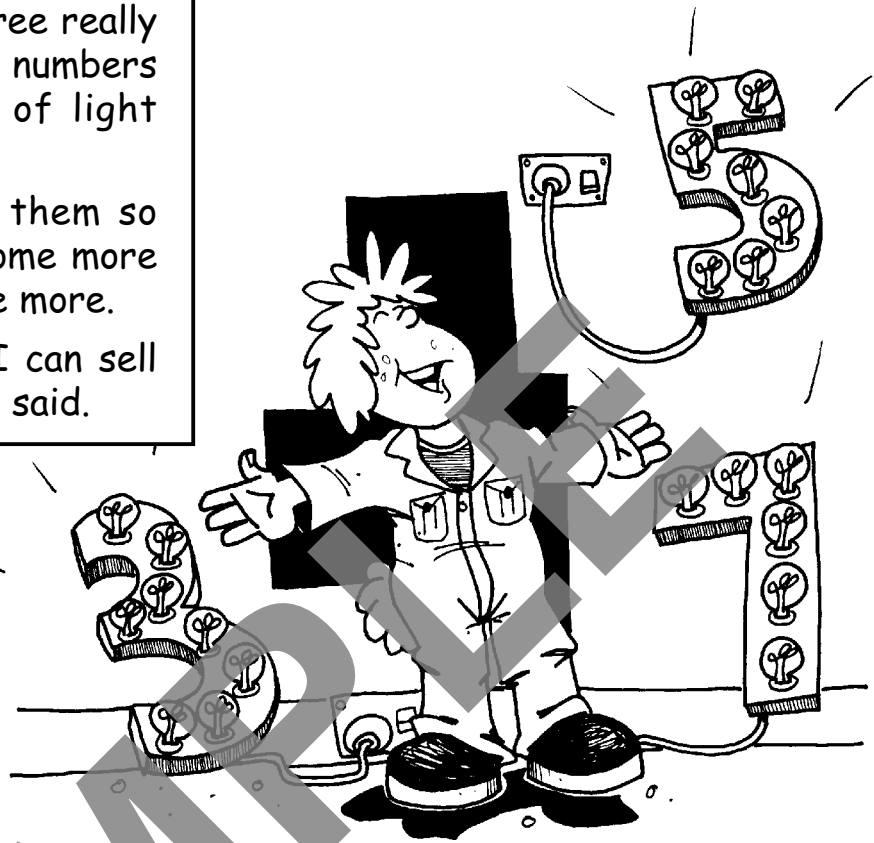
Name: \_\_\_\_\_

## Worksheet 3

Nancy Neon made three really bright, fancy lights in numbers before she ran out of light globes.

She decided to sell them so that she could buy some more globes and make some more.

"I'll be delighted if I can sell them all at once," she said.



### Questions

1. What numbers did Nancy make? \_\_\_\_\_
2. If she charged \$25 a light how much would she earn? \_\_\_\_\_
3. If Nancy earned \$90 from her lights how much would she have charged for each? \_\_\_\_\_
4. If each light cost \$12 to make how much would Nancy make if she sold them for \$25 each? \_\_\_\_\_
5. How many different combinations of numbers could be made if Nancy sold them as house numbers? \_\_\_\_\_

Write the combinations. \_\_\_\_\_

6. If each light cost \$12 to make how much would Nancy have to sell the three numbers for so she could make ten new numbers? \_\_\_\_\_

### Madness

Draw your house number as a neon light.  
Draw your name with it.