Calendar Magic

File RA3-22 **For further resources click M1Maths.com**

April 2006						
S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

May 2006						
S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

June 2006						
S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

July 2006						
S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

Instructions

Select any one of the above four monthly calendars.

From that calendar, select any four dates that make a 2 x 2 square (the 4 shaded numbers are an example).

Add the numbers together.

Tell the teacher your total.

The teacher will tell you all four of the cells you selected.

What is the secret of this amazing magic trick?

Hint: It uses ALGEBRA!

August 2000						
S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	35	26
27	28	29	30	31		

September 2000						
S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

October 2000						
S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

November 2000						
S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

Instructions

Cut the previous page up, giving one calendar to each student.

Ask each student to:

- **Select any four dates that make a 2 x 2 square.**
- **Add the numbers together.**
- **Tell the teacher the total.**

The teacher will tell the student the four cells that were selected.

What is the secret of this amazing magic trick?

Hint: It uses ALGEBRA!

Model Solution to Calendar Magic Trick!

The Trick

1. Circle any 2x2 block of dates on any calendar.
2. Add up the dates and tell the teacher the total.
3. The teacher will tell you the dates you circled!

How the Trick Works

From the total, mentally subtract 16 (subtract 10 then subtract 6, or subtract 20 then add 4).

Divide the answer by 4 (the easiest way is to ÷2, then ÷2). This gives the first number in the block.

To get the other numbers, add 1, 7 and 8 to this number.

Why the Trick Works

Let n = the number in the upper left.

Then the other numbers are n+1, n+7 and n+8.

The total of the 4 numbers is:

$n + (n + 1) + (n + 7) + (n + 8) = 4n + 16$.

To find n, we have to first subtract 16, and then divide by 4.