Calendar Magic

1. The sum of 3 consecutive horizontal or vertical dates
2. Working the sum of 3 consecutive horizontal or vertical dates backwards.
3. The sum of 5 consecutive horizontal or vertical dates
4. The sum of a 3 by 3 cross or the sum of a 3 by 3 X.
5. The sum of a 5 by 5 cross.
6. The sum of any 3 by 3 square of dates
7. The sum of 4 circled dates in a 4 by 4 square of dates
8. The sum of any 4 by 4 square of dates
9. The change from the the Julian Calendar to the Gregorian Calendar,

The sum of any 3 consecutive horizontal or vertical dates on a calendar

The calendar page below is for April 2014. The trick would work for any month and year.

Hand the student a page from a calendar or a printed copy of a calendar and a dark pen. Ask them to box in any **3 consecutive horizontal dates** or any **3 consecutive vertical dates.** Look at the box to make sure they did this correctly and note the middle number. Write a number that is 3 times the middle number on a piece of paper, fold the paper, and put in on the desk. Ask the student to add up the 3 numbers in the box. When they get the total have them check the number you predicted on the folded paper.

Ask them to box in any 3 consecutive horizontal dates
or any 3 consecutive vertical dates
and find the sum of those 3 numbers

April 2014						
Sun	Mon	Tue	Wed	Thur	Fri	Sat
		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		

April 2014						
Sun	Mon	Tue	Wed	Thur	Fri	Sat
		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		

No matter which 3 consecutive horizontal or 3 consecutive vertical dates you chose
the sum of the 3 dates will be 3 times the number in the middle square.

The sum of the 3 horizontal dates selected is 3(9) = **27**

The sum of the 3 vertical dates selected is 3(12) = **36**

How does it work?

The calendar below has the far left date of the 3 dates labeled as x and each day after that will have a 1 added to it. The completed 3 dates are shown below.

Horizontal Row of 3 dates:

No matter which 3 consecutive horizontal dates you pick, if the far left square has a value of x, the other dates in the first row will be x + 1 and x + 2

Sun	Mon	Tue	Wed	Thur	Fri	Sat
		x	x+1	x+2		

The sum of the three horizontal dates will always be 3x + 3
which equals 3(x + 1) which is **3 times the middle date**

Vertical Column of 3 dates:

As you go down the column each date is 7 more than the last weeks date. If the upper left square has a value of x then the other 2 dates in the column will be x x + 7 and x + 14

Sun	Mon	Tue	Wed	Thur	Fri	Sat
			x			
			x+7			
			x+14			

The sum of the three dates will always be 3x + 21
which equals 3(x + 7) which is **3 times the middle date**

Working the 3 consecutive horizontal dates trick backwards

Hand the student a page from a calendar or a printed copy of a calendar and a dark pen. Ask them to box in any **3 consecutive horizontal dates** Ask them to add up those 3 dates. They give you the total and you are able to tell them the 3 dates.

How its done:

Divide the total by 3 and subtract 1 from the answer. That is the first date. The next two numbers are each one larger then the next.

Example

April 2014						
Sun	Mon	Tue	Wed	Thur	Fri	Sat
		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		

The students selects the **3 consecutive horizontal dates** shown above. They state that the total of the 3 numbers is 27. Divide 27 by 3 to get 9 and subtract 1. The answer is 8. The 3 dates are 8, 9 and 10.

Working the 3 consecutive vertical dates trick backwards

Hand the student a page from a calendar or a printed copy of a calendar and a dark pen. Ask them to box in any **3 consecutive vertical dates** Ask them to add up those 3 dates. They give you the total and you are able to tell them the 3 dates.

How its done:

Divide the total by 3 and subtract 7from the answer. That is your first number. The next two numbers are each 7 larger then the next.

Example

April 2014						
Sun	Mon	Tue	Wed	Thur	Fri	Sat
		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		

The students selects the **3 consecutive vertical dates** shown above. They state that the total of the 3 numbers is 24. Divide 24 by 3 to get 8 and subtract 7. The answer is 1. The 1 numbers are 8 and 15.

The sum of any 5 consecutive horizontal or vertical dates on a calendar

The calendar page below is for April 2014. The trick would work for any month and year.

Hand the student a page from a calendar or a printed copy of a calendar and a dark pen. Ask them to box in any **5 consecutive horizontal dates** or any **5 consecutive vertical dates.** Look at the box to make sure they did this correctly and note the middle number. Write a number that is 5 times the middle number on a piece of paper, fold the paper, and put in on the desk. Ask the student to add up the 5 numbers in the box. When they get the total have them check the number you predicted on the folded paper.

Ask them to box in any
5 consecutive horizontal dates or **any 5 consecutive vertical dates**
and find the sum of those 5 numbers

April 2014						
Sun	Mon	Tue	Wed	Thur	Fri	Sat
		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		

April 2014						
Sun	Mon	Tue	Wed	Thur	Fri	Sat
		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		

No matter which 5 consecutive horizontal or 3 consecutive vertical dates you chose
the sum of the 3 dates will be 3 times the number in the middle square.

The sum of the 3 horizontal dates selected is 5(8) = 40

The sum of the 3 vertical dates selected is 5(16) = **80**

How does it work?

The calendar below has the far left date of the 3 dates labeled as x and each day after that will have a 1 added to it. The completed 3 dates are shown below.

Horizontal Row of 5 dates:

No matter which 3 consecutive horizontal of dates you pick, if the far left square has a value of x then the other dates in the first row will be x + 1 and x + 2

Sun	Mon	Tue	Wed	Thur	Fri	Sat
		x	x+1	x+2	x+3	x+4

The sum of the 5 horizontal dates will always be 5x + 10

which equals 5(x + 2) which is **5 times the middle date**

Vertical Column of 5 dates:

As you go down the column each date is 7 more than the last weeks date. If the top square has a value of x then the other 2 dates in the column will be x x + 7 and x + 14

Sun	Mon	Tue	Wed	Thur	Fri	Sat
			x			
			x+7			
			x+14			
			x+21			
			x+28			

The sum of the three dates will always be 5x + 70

which equals 5(x + 14) which is **5 times the middle date**

The Sum of any 3 by 3 PLUS Sign + or X Sign on a calendar

Hand the student a page from a calendar or a printed copy of a calendar and a dark pen. Ask them to box in any **3 consecutive horizontal dates** or any **3 consecutive vertical dates to make a plus sign or ask them to box in 2 diagonals of 3 dates that make a multiply sign. like the letter x.** Look at the box to make sure they did this correctly and note the middle number. Write a number that is 5 times the middle number on a piece of paper, fold the paper, and put in on the desk. Ask the student to add up the 5 numbers in the box. When they get the total have them check the number you predicted on the folded paper.

Ask them to box in any 3 consecutive horizontal dates and vertical dates to **make a plus sign** or any **2 diagonals of 3 dates that make a multiply sign.** and find the sum of those 5 numbers.

ADD Sign with center date of 9

April 2014						
Sun	Mon	Tue	Wed	Thur	Fri	Sat
		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		

X Sign with center date of 10

April 2014						
Sun	Mon	Tue	Wed	Thur	Fri	Sat
		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		

No matter which 3 by 3 plus sIgn or 3 by 3 X sign of dates you chose
the sum of the 5 dates will be 5 times the number in the middle square.

The sum of the 5 dates in the ADD sign is 5 (9) = **45**

The sum of the 5 dates in the X Sign is 5 (10) = **50**

How does it work?

The calendar below has the far left date of the 3 dates labeled as x and each day after that will have a 1 added to it. The completed 3 dates are shown below.

Plus sign of 3 dates per row:

No matter which 5 dates you pick, if the middle square has a value of x then date above it will be 7 less than x and the date below it will be 7 more than x. The date to the left of it will be 1 less than x and the date to the right will be 1 more than x.

Sun	Mon	Tue	Wed	Thur	Fri	Sat
			x – 7			
		x – 1	x	x + 1		
			x + 7			

The sum of the 5 dates will always be x which is **the middle date**

Multiply sign of 3 dates per diagonal:

No matter which 5 dates you pick, if the top left square has a value of x then dates below it will be 7 more then the last date and the dates to the left of each date in the first column it will be 1 more than the date before it.

Sun	Mon	Tue	Wed	Thur	Fri	Sat
		x	x +1	x+2		
		x+7	x+8	x + 8		
		x+14	x + 15	x+16		

The sum of the 5 dates in the x will always be 5x + 40

which equals 5(x + 8) which is **5 times the middle date**

The Sum of any 5 by 5 ADD Sign

Hand the student a page from a calendar or a printed copy of a calendar and a dark pen. Ask them to box in any **5 consecutive horizontal dates** or any **5 consecutive vertical dates to make add ADD sign.** Look at the box to make sure they did this correctly and note the middle number. Write a number that is 9 times the middle number on a piece of paper, fold the paper, and put in on the desk. Ask the student to add up the 9 numbers in the box. When they get the total have them check the number you predicted on the folded paper.

Ask them to box in any 5 consecutive horizontal dates and vertical dates to **make an ADD sign** and find the sum of those 9 numbers.

ADD Sign with center date of 16

April 2014						
Sun	Mon	Tue	Wed	Thur	Fri	Sat
		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		

No matter which 5 by 5 ADD SIgn of dates you chose
the sum of the 5 dates will be 5 times the number in the middle square.

The sum of the 9 dates in the ADD sign is 9 (16) = **144**

How does it work?

The calendar below has the date far left date of the 3 dates labeled as x and each day after that will have a 1 added to it. The completed 3 dates are shown below.

Plus sign of 5 dates per row:

No matter which 5 dates per row you pick, if the middle square has a value of x then each date less then x it will be 7 less than the date before it and the dates above x will each be 7 more than the date before it. The dates to the left of x will each be 1 less than the date after it and the date to the right of x will each be 1 more than the date before it.

Sun	Mon	Tue	Wed	Thur	Fri	Sat
			x –14			
			x – 7			
	x – 2	x – 1	x	x + 1	x+2	
			x + 7			
			x+14			

The sum of the 5 dates will always be x which is **the middle date**

The Sum of any 3 by 3 square on a calendar

The calendar page below is for April 2014. The trick would work for any month and year.

Hand the student a page from a calendar or a printed copy of a calendar. Ask them to draw a box around any 3 by 3 square of 9 numbers. Look at the box to make sure they did this correctly and note the middle number. Write a number that is 9 times the middle number piece of paper, fold the paper and put in on the desk. Ask the student to add up the nine numbers in the box. When they get the total have them check the number you predicted on the folded paper.

Ask them to draw a box around any 3 by 3 square of 9 numbers and
find the sum of those 9 numbers

April 2014						
Sun	Mon	Tue	Wed	Thur	Fri	Sat
		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		

No matter which 3 by 3 square of dates you chose
the sum of the 9 dates will be 9 times the number in the middle square.

The sum of the nine dates selected is 9 (9) = **81**

How does it work?

The calendar above has the date in the upper left corner of the 4 by 4 square labeled as x and each day after that has a 1 added to it. The completed 16 dates are shown below

Sun	Mon	Tue	Wed	Thur	Fri	Sat
		x	x+1	x+2		
		x+7	x+8	x+9		
		x+14	x+15	x+16		

ROW 1: No matter which 4 by 4 square of dates you pick, if the upper left square has a value of x then the other dates in the first row will be x + 1 and x + 2

Column 1: As you go down the Tuesday column each Tuesday date is 7 more than the last weeks date. If the upper left square has a value of x then the other tuesday dates in the first column will be x + 7 and x + 14

ROW 2: No matter which 3 by 3 square you pick, if the upper left square has a value of x then the second row will start with an x + 7 and the other dates in the row will be x + 8 and x + 9

ROW 3: No matter which 3 by 3 square you pick, if the upper left square has a value of x then the third row will start with an x + 14 and the other dates in the row will be x + 15 and x + 16

x	x+1	x+2
x+7	x+8	x+9
x+14	x+15	x+16

The total of the 9 square will be 9x + 72
9 (x + 8)
9 (the number in the middle square)

No matter which 3 by 3 square of dates you chose
the sum of the 9 dates will be 9 times the number in the middle square.

Examples using April 2014

April 2014						
Sun	Mon	Tue	Wed	Thur	Fri	Sat
		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		

1	2	3
8	9	10
15	16	17

The sum of the nine dates is 9 (9) = **81**

3	4	5
10	11	12
17	18	19

The sum of the nine dates is 9 (11) = **99**

13	14	15
20	21	22
27	28	29

The sum of the nine dates is 9 (21) = **189**

4 by 4 squares on a calendar

The calendar page below is for April 2014. The trick would work for any month and year.

April 2014						
Sun	Mon	Tue	Wed	Thur	Fri	Sat
		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		

Pick any number in the 4 by 4 square **of white dates**. The example has those dates in white.

1. Circle that number and cross out all the other number in that row and column. Circle that number and cross out all the other numbers in that row and column
2. Select any remaining unmarked number in a white square and repeat step 1
3. Select any remaining unmarked number in a white square and repeat step 1
4. Select any remaining unmarked number in a white square and repeat step 1

Each of the 4 circled numbers will be in a different row and a different column

Sun	Mon	Tue	Wed	Thur	Fri	Sat
		~~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		

Find the total of the 4 circled numbers

No matter which 4 numbers are circled following the directions given, **the total will be 52.**

The magic total for ANY square of 16 numbers can be found by multiplying the number in the upper left hand square times 4 and adding 48.

How does it work?

The calendar above has the date in the upper left corner of the 4 by 4 square labeled as x and each day after that has a 1 added to it. The completed 16 dates are shown below

Sun	Mon	Tue	Wed	Thur	Fri	Sat
		x	x+1	x+2	x+3	
		x+7	x+8	x+9	x+10	
		x+14	x+15	x+16	x+17	
		x+21	x+22	x+23	x+24	

ROW 1: No matter which 4 by 4 square of dates you pick, if the upper left square has a value of x then the other dates in the first row will be x + 1 , x + 2 and x + 3

Column 1: As you go down the Tuesday column each Tuesday date is 7 more than the last weeks date. If the upper left square has a value of x then the other tuesday dates in the first column will be x + 7 , x + 14 and x + 21

ROW 2: No matter which 4 by 4 square you pick, if the upper left square has a value of x then the second row will start with an x + 7 and the other dates in the row will be x + 8 , x + 9 and x + 10

ROW 3: No matter which 4 by 4 square you pick, if the upper left square has a value of x then the third row will start with an x + 14 and the other dates in the row will be x + 15 , x + 16 and x + 17

ROW 4: No matter which 4 by 4 square you pick, if the upper left square has a value of x then the fourth row will start with an x + 21 and the other dates in the row will be x + 22 , x + 23 and x + 24

Sun	Mon	Tue	Wed	Thur	Fri	Sat
x	x+1	x+2	x+3			
x+7	x+8	x+9	x+10			
x+14	x+15	x+16	x+17			
x+21	x+22	x+23	x+24			

Any 4 by 4 square of dates on a calendar that has the upper left date labeled as x will have the following values for the 16 dates

x	x+1	x+2	x+3
x+7	x+8	x+9	x+10
x+14	x+15	x+16	x+17
x+21	x+22	x+23	x+24

The process used to circle the 4 numbers ensures that each of the 4 circled numbers will be in a different row and a different column. The easiest way to see 4 numbers in a different row and a different column. is to look at the 4 numbers in the diagonal of the 4 by 4 square. **The sum of those 4 numbers is 4x + 48.** Any other 4 circles numbers will have the same sum.

No matter which 4 numbers are circled following the directions given,
the total will be 4x + 48.

The magic total for the 4 circled numbers in ANY square of 16 numbers can be found by multiplying the number in the upper left hand square times 4 and adding 48.

4 by 4 squares on a calendar extension

The sum of all 16 dates

Any 4 by 4 square of dates on a calendar that has the upper left date labeled as x will have the following values for the 16 dates

x	x+1	x+2	x+3
x+7	x+8	x+9	x+10
x+14	x+15	x+16	x+17
x+21	x+22	x+23	x+24

The sum of all 16 numbers is 16x + 192.

It may seem that finding this sum is too hard for most people. That may be true but remember the value for x will be small.

April 2014						
Sun	Mon	Tue	Wed	Thur	Fri	Sat
		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		

The calendar for April, 2014 shows that there are only a few choices for the value of x. The most common choices for x will be 1 or 2. The only other choices are 6 , 7 .

If x = 1 the total of the 16 squares is 16 (1) + 192 = 16 + 192 = **208**

If x = 2 the total of the 16 squares is 16 (2) + 192 = 32 + 192 = **224**

If you are doing the 4 squares on a calendar trick and see that they have chosen the 1 or 2 then add this trick to it as an extensions.

The Switch from the Julian Calendar to the Gregorian Calendar

The Gregorian Calendar, also known as the “Western Calendar” or “Christian Calendar”, is the most widely accepted calendar around the world today. Its predecessor, the Julian Calendar, was replaced because it did not correctly reflect the solar year marked by Earth's revolution around the Sun. To get back in step with astronomical reality, a number of days were dropped in the new calendar, creating irregular months with only 18 days and odd dates like

Pope Gregory XIII in 1582 decreed that 10 days be dropped when switching to the Gregorian Calendar. However, many countries chose to introduce the new calendar in later years. Mots of Europe switched to the new calendar in 1582. England, Canada and the United States did not switch to the new calendar until 1752. The later the switch occurred, the more days had to be omitted. The calendar below shows the September 1752 dates for England, Canada and the United States and the 11 missing days.

One of the shortest months ever

September 1752 England USA and Canada						
Sun	Mon	Tue	Wed	Thur	Fri	Sat
		1	2	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30