

The Magic Window Card

Using the numbers from 1 to 63.

Is it the Magic Card
or is it
an incredible display
of your mental abilities

A student picks a number from 1 to 63. They look at 6 cards and find all the cards that have their number on them. They stack all the cards that have their number on them on top of each other with the numbers facing up. They can stack the cards in any order.

You pick up the stack of cards and place the magic window card on top of the stack

You announce their number immediately

You do not know the cards they selected.

You only see the top card in the stack

But the Magic Window Card Sees All and Knows All

Joseph Eitel

amagicclassroom.com

Magic Windows Cards

Procedure:

Ask the student to pick a number from 1 to 63. Have them tell a friend that number. Put the 6 cards with numbers on the desk in front of the student. Turn your back so you cannot see the cards. Tell them to very carefully look at 6 cards and find all the cards with their number on them. Have the friend help. It is easy to miss a card because the numbers are not in order. Have them turn over the cards that do not contain their number. Have them stack the cards they did select on top of each other with the numbers facing up. They can stack the cards in any order.

You turn around and pick up the stack of cards with their numbers on them and place the magic window card on top facing up. Add the numbers that show in the holes. That will be their number.

Preparation.

Print out the pages with the cards. Any paper will do but the heavier the better. I print on card stock to make the cards more durable.

Cut out all 7 cards. Cut out the squares labeled cut. This is a lot of work but the trick is worth it. I use invisible tape to tape over the holes on the front and back of the areas where the hole are close together

There are many ways to cut out the inside areas labeled **cut** without bending the cards. The safest way I have found is to use a hand held paper hole punch. I punch 2 holes next to each other inside the cutout area and then use a scissors to carefully cut out the rectangles.

You could use a sharp hobby knife with a steel straight edge and a cutting board. DO NOT let students use this tool.

Card 1

51	35	61	37	29	5	31	45
11	Cut	53	Cut	13	61	Cut	7
39	21	25	19	59	43	49	23
33	Cut	3	47	1	15	Cut	63
17	31	55	9	57	27	41	15

Card 1
1 = 0 0 0 0 1 base 2

Contains the numbers
 1 , 3 , 5 , 7 , 9 , 11 , 13 , 15 ,
 17 , 19 , 21 , 23 , 25 , 27 ,
 29 , 31 , 33 , 35 , 37 , 39 ,
 41 , 43 , 45 , 47 , 49 , 51 , 53 ,
 55 , 57 , 59 , 61 , 63

Use repeat numbers to fill in
 any blank squares

Card 2

30	34	10	23	7	38	43	26
19	Cut	31	Cut	42	18	2	54
50	3	47	35	51	46	63	11
27	Cut	15	58	Cut	39	Cut	31
14	59	42	38	6	62	55	22

Card 2
2 = 0 0 0 0 1 0 base 2

Contains the numbers
 2 , 3 , 6 , 7 , 10 , 11 , 14 ,
 15 , 18 , 19 , 22 , 23 , 26 ,
 27 , 30 , 31 , 34 , 35 , 38 ,
 39 , 42 , 43 , 46 , 47 , 50 ,
 51 , 54 , 55 , 58 , 59 , 62 , 63

Use repeat numbers to fill in
 any blank squares

Card 3

47	30	15	39	6	15	28	54
52	Cut	45	Cut	14	38	Cut	12
13	44	29	23	55	46	62	37
61	4	53		Cut	7	Cut	63
22	31	21	60	20	36	45	21

Card 3
4 = 0 0 0 1 0 0 base 2

Contains the numbers
 4 , 5 , 6 , 7 , 12 , 13 , 14 ,
 15 , 20 , 21 , 22 , 23 , 28 ,
 29 , 30 , 31 , 36 , 37 , 38 ,
 39 , 44 , 45 , 46 , 47 , 52 , 53 ,
 54 , 55 , 60 , 61 , 62 , 63

Use repeat numbers to fill in
 any blank squares

Card 4

9	42	59	26	15	46	62	10
43	Cut	15	8	31	60	Cut	25
27	61	29	40	12	58	41	14
56	Cut	11	63	Cut	44	Cut	57
45	28	47	31	26	13	24	30

Card 4
8 = 0 0 1 0 0 0 base 2

Contains the numbers
 8 , 9 , 10 , 11 , 12 , 13 , 14 ,
 15 , 24 , 25 , 26 , 27 , 28 ,
 29 , 30 , 31 , 40 , 41 , 42 ,
 43 , 44 , 45 , 46 , 47 , 56 , 57 ,
 58 , 59 , 60 , 61 , 62 , 63

Use repeat numbers to fill in
 any blank squares

Card 5

22	16	63	28	17	48	57	21
50	Cut	59	Cut	31	51	Cut	60
26	53	18	55	23	62	31	27
30	Cut	29	48	Cut	52	16	58
19	24	56	25	61	54	20	49

Card 5
16 = 0 1 0 0 0 0 base 2

Contains the numbers
 16 , 17 , 18 , 19 , 20 , 21 ,
 22 , 23 , 24 , 25 , 26 , 27 ,
 28 , 29 , 30 , 31 , 48 , 49 ,
 50 , 51 , 52 , 53 , 54 , 55 ,
 56 , 57 , 58 , 59 , 60 , 61 ,
 62 , 63

Use repeat numbers to fill in
 any blank squares

Card 6

50	61	47	51	36	57	40	34
55	32	56	Cut	57	41	Cut	58
43	51	49	38	48	33	53	45
42	Cut	63	62	Cut	41	Cut	39
35	54	46	44	59	37	60	52

Card 6
32 = 1 0 0 0 0 0 base 2

Contains the numbers
 32 , 33 , 34 , 35 , 36 , 37 ,
 38 , 39 , 40 , 41 , 42 , 43 ,
 44 , 45 , 46 , 47 , 48 , 49 ,
 50 , 51 , 52 , 53 , 54 , 55 ,
 56 , 57 , 58 , 59 , 60 , 61 ,
 62 , 63

Use repeat numbers to fill in
 any blank squares.

The Magic Window Card

The Magic Window Card							
	Cut		Cut			Cut	
	Cut			Cut		Cut	
Sees All				Knows All			

How the cards work

You need to look at the base 2 number cards tricks to better understand this trick. Those tricks have a card for each binary place value. Depending on how high the numbers go each set of cards use the following cards. A '1s card a 2's card a 4's card an 8's card a 16's card and a 32's card.

Predict a Number from 1 to 7

A basic review for the set of number from 1 to 7 is shown below. Express each number in base 2..

Base 10		card 3 $2^2 = 4$	card 2 $2^1 = 2$	card 1 $2^0 = 1$	the number is on
1	$0 + 0 + 1$	0	0	1	Card 1
2	$0 + 2 + 0$	0	1	0	Card 2
3	$0 + 2 + 1$	0	1	1	Card 2 , 1
4	$4 + 0 + 0$	1	0	0	Card 3
5	$4 + 0 + 1$	1	0	1	Card 3 , 1
6	$4 + 2 + 0$	1	1	0	Card 3 , 2
7	$4 + 2 + 1$	1	1	1	Card 3 , 2 , 1

You need 3 cards a '1s card a 2's card and a 4's card for the number 1 to 7. Make 3 cards and put a 1 a 2 and a 4 in the first square of each respective card. Use the table to know what numbers go on each card. If the number has a 1 in any place value that number is listed on that base card. For example the number 5 goes on Card 3 and Card 1

Card 3		Card 2		Card 1	
4	5	2	3	1	3
6	7	6	7	5	7

Procedure:

A student is asked to think of a number from 1 to 7 inclusive. You ask the student to look at the cards and hand you all the cards that have their number on it. You announce their exact number!

How it's done:

Find the **smallest number** on each of the cards given to you. For these cards the smallest number is in the top left square. Add up those numbers. The total will be the number that they thought of.

Example: Their number is on card 1 and 2. $1 + 2 = 3$ then their number is 3

Example: Their number is on card 1 , 2 and 3. $1 + 2 + 4 = 7$ then their number is 7

The Magic Window requires that you do this exact process for the number 1 to 63. Express the number 1 to 63 in base 2. Create a '1s card a 2's card a 4's card an 8's cards a 16's card and a 32's card. Use the table below to see what numbers go on each card. If the number has a 1 in any base 2 place value that number is listed on that base card. For example the number 5 goes on Card 3 and Card 1

The numbers 1 to 31 base 10 expressed in base 2

Base 10		card 5 $2^4 = 16$	card 4 $2^3 = 8$	card 3 $2^2 = 4$	card 2 $2^1 = 2$	card 1 $2^0 = 1$	the number is on Cards
1	$0 + 0 + 0 + 0 + 1$	0	0	0	0	1	Card 1
2	$0 + 0 + 0 + 2 + 0$	0	0	0	1	0	Card 2
3	$0 + 0 + 0 + 2 + 1$	0	0	0	1	1	Card 2 , 1
4	$0 + 0 + 4 + 0 + 0$	0	0	1	0	0	Card 3
5	$0 + 0 + 4 + 0 + 1$	0	0	1	0	1	Card 3 , 1
6	$0 + 0 + 4 + 2 + 0$	0	0	1	1	0	Card 3 , 2
7	$0 + 0 + 4 + 2 + 1$	0	0	1	1	1	Card 3 , 2 , 1
8	$0 + 8 + 0 + 0 + 0$	0	1	0	0	0	Card 4
9	$0 + 8 + 0 + 0 + 1$	0	1	0	0	1	Card 4 , 1
10	$0 + 8 + 0 + 2 + 0$	0	1	0	1	0	Card 4 , 2
11	$0 + 8 + 0 + 2 + 1$	0	1	0	1	1	Card 4 , 2 , 1
12	$0 + 8 + 4 + 0 + 0$	0	1	1	0	0	Card 4 , 3
13	$0 + 8 + 4 + 0 + 1$	0	1	1	0	1	Card 4 , 3 , 1
14	$0 + 8 + 4 + 2 + 0$	0	1	1	1	0	Card 4 , 3 , 2
15	$0 + 8 + 4 + 2 + 1$	0	1	1	1	1	Card 4 , 3 , 2 , 1
16	$16 + 0 + 0 + 0 + 0$	1	0	0	0	0	Card 5
17	$16 + 0 + 0 + 0 + 1$	1	0	0	0	1	Card 5 , 1
18	$16 + 0 + 0 + 2 + 0$	1	0	0	1	0	Card 5 , 2
19	$16 + 0 + 0 + 2 + 1$	1	0	0	1	1	Card 5 , 2 , 1
20	$16 + 0 + 4 + 0 + 0$	1	0	1	0	0	Card 5 , 3
21	$16 + 0 + 4 + 0 + 1$	1	0	1	0	1	Card 5 , 3 , 1
22	$16 + 0 + 4 + 2 + 0$	1	0	1	1	0	Card 5 , 3 , 2
23	$16 + 0 + 4 + 2 + 1$	1	0	1	1	1	Card 5 , 3 , 2 , 1
24	$16 + 8 + 0 + 0 + 0$	1	1	0	0	0	Card 5 , 4
25	$16 + 8 + 0 + 0 + 1$	1	1	0	0	1	Card 5 , 4 , 1
26	$16 + 8 + 0 + 2 + 0$	1	1	0	1	0	Card 5 , 4 , 2
27	$16 + 8 + 0 + 2 + 1$	1	1	0	1	1	Card 5 , 4 , 2 , 1
28	$16 + 8 + 4 + 0 + 0$	1	1	1	0	0	Card 5 , 4 , 3
29	$16 + 8 + 4 + 0 + 1$	1	1	1	0	1	Card 5 , 4 , 3 , 1
30	$16 + 8 + 4 + 2 + 0$	1	1	1	1	0	Card 5 , 4 , 3 , 2
31	$16 + 8 + 4 + 2 + 1$	1	1	1	1	1	Card 5 , 4 , 3 , 2 , 1

The numbers 32 to 63 base 10 expressed in base 2

Base 10		card 6 $2^5 = 32$	card 5 $2^4 = 16$	card 4 $2^3 = 8$	card 3 $2^2 = 4$	card 2 $2^1 = 2$	card 1 $2^0 = 1$	the number is on cards
32	$32 + 0 + 0 + 0 + 0 + 0$	1	0	0	0	0	0	6
33	$32 + 0 + 0 + 0 + 0 + 1$	1	0	0	0	0	1	6, 1
34	$32 + 0 + 0 + 0 + 2 + 0$	1	0	0	0	1	0	6, 2
35	$32 + 0 + 0 + 0 + 2 + 1$	1	0	0	0	1	1	6, 2, 1
36	$32 + 0 + 0 + 4 + 0 + 0$	1	0	0	1	0	0	6, 3
37	$32 + 0 + 0 + 4 + 0 + 1$	1	0	0	1	0	1	6, 3, 1
38	$32 + 0 + 0 + 4 + 2 + 0$	1	0	0	1	1	0	6, 3, 2
39	$32 + 0 + 0 + 4 + 2 + 1$	1	0	0	1	1	1	6, 3, 2, 1
40	$32 + 0 + 8 + 0 + 0 + 0$	1	0	1	0	0	0	6, 4
41	$32 + 0 + 8 + 0 + 0 + 1$	1	0	1	0	0	1	6, 4, 1
42	$32 + 0 + 8 + 0 + 2 + 0$	1	0	1	0	1	0	6, 4, 2
43	$32 + 0 + 8 + 0 + 2 + 1$	1	0	1	0	1	1	6, 4, 2, 1
44	$32 + 0 + 8 + 4 + 0 + 0$	1	0	1	1	0	0	6, 4, 3
45	$32 + 0 + 8 + 4 + 0 + 1$	1	0	1	1	0	1	6, 4, 3, 1
46	$32 + 0 + 8 + 4 + 2 + 0$	1	0	1	1	1	0	6, 4, 3, 2
47	$32 + 0 + 8 + 4 + 2 + 1$	1	0	1	1	1	1	6, 4, 3, 2, 1
48	$32 + 16 + 0 + 0 + 0 + 0$	1	1	0	0	0	0	6, 5
49	$32 + 16 + 0 + 0 + 0 + 1$	1	1	0	0	0	1	6, 5, 1
50	$32 + 16 + 0 + 0 + 2 + 0$	1	1	0	0	1	0	6, 5, 2
51	$32 + 16 + 0 + 0 + 2 + 1$	1	1	0	0	1	1	6, 5, 2, 1
52	$32 + 16 + 0 + 4 + 0 + 0$	1	1	0	1	0	0	6, 5, 3
53	$32 + 16 + 0 + 4 + 0 + 1$	1	1	0	1	0	1	6, 5, 3, 1
54	$32 + 16 + 0 + 4 + 2 + 0$	1	1	0	1	1	0	6, 5, 3, 2
55	$32 + 16 + 0 + 4 + 2 + 1$	1	1	0	1	1	1	6, 5, 3, 2, 1
56	$32 + 16 + 8 + 0 + 0 + 0$	1	1	1	0	0	0	6, 5, 4
57	$32 + 16 + 8 + 0 + 0 + 1$	1	1	1	0	0	1	6, 5, 4, 1
58	$32 + 16 + 8 + 0 + 2 + 0$	1	1	1	0	1	0	6, 5, 4, 2
59	$32 + 16 + 8 + 0 + 2 + 1$	1	1	1	0	1	1	6, 5, 4, 2, 1
60	$32 + 16 + 8 + 4 + 0 + 0$	1	1	1	1	0	0	6, 5, 4, 3
61	$32 + 16 + 8 + 4 + 0 + 1$	1	1	1	1	0	1	6, 5, 4, 3, 1
62	$32 + 16 + 8 + 4 + 2 + 0$	1	1	1	1	1	0	6, 5, 4, 3, 2
63	$32 + 16 + 8 + 4 + 2 + 1$	1	1	1	1	1	1	6, 5, 4, 3, 2, 1

The six cards based on the table above

We have a '1s card a 2's card a 4's card an 8's cards a 16's card and a 32's card. The table above lists which numbers go on each card. If the number has a 1 in any base 2 place value that number is listed on that base card. For example the number 5 goes on Card 3 and Card 1

Card 1							
1	3	5	7	9	11	13	15
17	19	21	23	25	27	29	31
33	35	37	39	41	43	45	47
49	51	53	55	57	59	61	63

Card 2							
2	3	6	7	10	11	14	15
18	19	22	23	26	27	30	31
34	35	38	39	42	43	46	47
50	51	54	55	58	59	62	63

Card 3							
4	5	6	7	12	13	14	15
20	21	22	23	28	29	30	31
36	37	38	39	44	45	46	47
52	53	54	55	60	61	62	63

Card 4							
8	9	10	11	12	13	14	15
24	25	26	27	28	29	30	31
40	41	42	43	44	45	46	47
56	57	58	59	60	61	62	63

Card 5							
16	17	18	19	20	21	22	23
24	25	26	27	28	29	30	31
48	49	50	51	52	53	54	55
56	57	58	59	60	61	62	63

Card 6							
32	33	34	35	36	37	38	39
40	41	42	43	44	45	46	47
48	49	50	51	52	53	54	55
56	57	58	59	60	61	62	63

The Magic Window Cards are the same cards with the same numbers

That explains how I determined which numbers are on each card. The numbers are not in order so they look different. The key number for each card is not in the first square so this trick will not work by looking at the first square. There are 3 extra squares on the Windows Cards so we repeated any 3 numbers already on the card to fill in the blank squares.

But what about those holes in the cards

and the holes in the Magic Window?

How do they make the Magic window work?

That is the best part of the story

The key number for all the numbers on Card 1 is 1. **Do this along with me.** Take your Card 1 and place the Window Card on top of it. You only see the key number 1. You cannot see any of the other numbers on the card below. This is the brilliance of the Window Card.

Card 1

	cut		cut			cut	
	cut			1		cut	

The Magic Window							
	cut		cut			cut	
	cut			cut		cut	
Sees All Knows All							

The key number for all the numbers on Card 2 is 2. **Do this along with me.** Take your Card 2 and place the Window Card on top of it. You only see the key number 2. You cannot see any of the other numbers on the card below.

Card 2

	cut		cut			2	
	cut			cut		cut	

The Magic Window							
	cut		cut			cut	
	cut			cut		cut	
Sees All Knows All							

The key number for all the numbers on Card 3 is 4. **Do this along with me.** Take your Card 3 and place the Window Card on top of it. You only see the key number 4. You cannot see any of the other numbers on the card below.

Card 3

	cut		cut			cut	
	4			cut		cut	

The Magic Window							
	cut		cut			cut	
	cut			cut		cut	
Sees All Knows All							

The Window Card has 6 windows labeled **cut**. Each of the 6 number cards has 5 windows labeled **cut** in the same locations as the Window card. The 6th window that should say cut has the key number for that card placed in it. If you put each of the 6 different key numbers in a different window square for the 6 numbered cards the Window Card will only see the key numbers for the cards you selected. That total is the number the student selected.

How to make the Cards

Get a blank card and write the word **cut** in the 5 squares as shown. Place a 1 in the 6th square as shown. Put the other numbers listed on Card 1 into the empty squares. Chose any numbers from Card 1 to fill the 3 extra empty squares.

	cut		cut			cut	
	cut			1		cut	

Card 1							
1	3	5	7	9	11	13	15
17	19	21	23	25	27	29	31
33	35	37	39	41	43	45	47
49	51	53	55	57	59	61	63

Get a blank card and write the word cut in the 5 squares as shown. Place a 2 in the 6th square as shown. Put the other numbers listed on Card 2 into the empty squares. Chose any numbers from Card 2 to fill the 3 extra empty squares.

	cut		cut			2	
	cut			cut		cut	

Card 2							
2	3	6	7	10	11	14	15
18	19	22	23	26	27	30	31
34	35	38	39	42	43	46	47
50	51	54	55	58	59	62	63

Get a blank card and write the word cut in the 5 squares as shown. Place a 4 in the 6th square as shown. Put the other numbers listed on Card 3 into the empty squares. Chose any numbers from Card 3 to fill the 3 extra empty squares.

	cut		cut			cut	
	4			cut		cut	

Card 3							
4	5	6	7	12	13	14	15
20	21	22	23	28	29	30	31
36	37	38	39	44	45	46	47
52	53	54	55	60	61	62	63

Get a blank card and write the word cut in the 5 squares as shown. Place a 8 in the 6th square as shown. Put the other numbers listed on Card 4 into the empty squares. Chose any numbers from Card 4 to fill the 3 extra empty squares.

	cut		8			cut	
	cut			cut		cut	

Card 4							
8	9	10	11	12	13	14	15
24	25	26	27	28	29	30	31
40	41	42	43	44	45	46	47
56	57	58	59	60	61	62	63

Get a blank card and write the word cut in the 5 squares as shown. Place a 16 in the 6th square as shown . Put the other numbers listed on Card 5 into the empty squares. Chose any numbers from Card 5 to fill the 3 extra empty squares.

	32		cut			cut	
	cut			cut		cut	

Card 5							
16	17	18	19	20	21	22	23
24	25	26	27	28	29	30	31
48	49	50	51	52	53	54	55
56	57	58	59	60	61	62	63

Get a blank card and write the word cut in the 5 squares as shown. Place a 32 in the 6th square as shown . Put the other numbers listed on Card 6 into the empty squares. Chose any numbers from Card 6 to fill the 3 extra empty squares.

	cut		cut			cut	
	cut			1		16	

Card 6							
32	33	34	35	36	37	38	39
40	41	42	43	44	45	46	47
48	49	50	51	52	53	54	55
56	57	58	59	60	61	62	63

Get a blank card and write the word cut in the 6 squares as shown. Add the Titles.

The Magic Window							
	cut		cut			cut	
	cut			cut		cut	
Sees All Knows All							

A set of blank cards are given below.

Card 1

	Cut		Cut			Cut	
	Cut			1		Cut	

Card 1
1 = 0 0 0 0 0 1 base 2

Contains the numbers
 1 , 3 , 5 , 7 , 9 , 11 , 13 , 15 ,
 17 , 19 , 21 , 23 , 25 , 27 ,
 29 , 31 , 33 , 35 , 37 , 39 ,
 41 , 43 , 45 , 47 , 49 , 51 , 53 ,
 55 , 57 , 59 , 61 , 63

Use repeat numbers to fill in
 any blank squares

Card 2

	Cut		Cut			2	
	Cut			Cut		Cut	

Card 2
2 = 0 0 0 0 1 0 base 2

Contains the numbers
 2 , 3 , 6 , 7 , 10 , 11 , 14 ,
 15 , 18 , 19 , 22 , 23 , 26 ,
 27 , 30 , 31 , 34 , 35 , 38 ,
 39 , 42 , 43 , 46 , 47 , 50 ,
 51 , 54 , 55 , 58 , 59 , 62 , 63

Use repeat numbers to fill in
 any blank squares

Card 3

	Cut		Cut			Cut	
	4			Cut		Cut	

Card 3
4 = 0 0 0 1 0 0 base 2

Contains the numbers
 4 , 5 , 6 , 7 , 12 , 13 , 14 ,
 15 , 20 , 21 , 22 , 23 , 28 ,
 29 , 30 , 31 , 36 , 37 , 38 ,
 39 , 44 , 45 , 46 , 47 , 52 , 53 ,
 54 , 55 , 60 , 61 , 62 , 63

Use repeat numbers to fill in
 any blank squares

Card 4

	Cut		8			Cut	
	Cut			Cut		Cut	

Card 4
 $8 = 001000$ base 2

Contains the numbers
 8 , 9 , 10 , 11 , 12 , 13 , 14 ,
 15, 24 , 25 , 26, 27 , 28 ,
 29, 30 , 31, 40 , 41 , 42 ,
 43, 44, 45 , 46, 47, 56 , 57,
 58, 59 , 60 , 61 , 62 , 63

Use repeat numbers to fill in
 any blank squares

Card 5

	Cut		Cut			Cut	
	Cut			Cut		16	

Card 5
 $16 = 010000$ base 2

Contains the numbers
 16 , 17 , 18 , 19 , 20 , 21 ,
 22 , 23, 24 , 25 , 26 , 27 ,
 28, 29 , 30 , 31, 48 , 49 ,
 50 , 51, 52 , 53 , 54 , 55 ,
 56 , 57, 58, 59 , 60, 61 ,
 62, 63

Use repeat numbers to fill in
 any blank squares

Card 6

	32		Cut			Cut	
	Cut			Cut		Cut	

Card 6
 $32 = 100000$ base 2

Contains the numbers
 32 , 33 , 34 , 35 , 36 , 37 ,
 38 , 39, 40 , 41 , 42, 43 ,
 44 , 45 , 46 , 47, 48 , 49 ,
 50 , 51, 52 , 53 , 54, 55 ,
 56 , 57, 58, 59 , 60, 61 ,
 62, 63

Use repeat numbers to fill in
 any blank squares.

The Magic Window Card

The Magic Window Card							
	Cut		Cut			Cut	
	Cut			Cut		Cut	
Sees All				Knows All			