# The Magic
# Window Card

## Using the numbers from 1 to 31

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

A student picks a number from 1 to 31. They look at 5 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 Widow Card Sees All and Knows All**

Joseph Eitel

amagicclassroom.com

# Magic Windows Cards

**Procedure:**

Ask the student to pick a number from 1 to 31.  Have them tell a friend that number.  Put the 5 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**

| | | | | |
|---|---|---|---|---|
| 3 | cut | 29 | 9 | 5 |
| 11 | 27 | 23 | 17 | cut |
| cut | 15 | 1 | 31 | 21 |
| 19 | 7 | 25 | 13 | 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

**Card 2**

| | | | | |
|---|---|---|---|---|
| 11 | cut | 30 | 7 | 15 |
| 22 | 6 | 26 | 19 | 2 |
| cut | 27 | cut | 31 | 23 |
| 14 | 3 | 18 | 10 | 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

**Card 3**

| | | | | |
|---|---|---|---|---|
| 12 | cut | 28 | 5 | 13 |
| 23 | 29 | 14 | 21 | cut |
| 4 | 31 | cut | 30 | 6 |
| 20 | 15 | 7 | 22 | 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

**Card 4**

| 12 | 8 | 24 | 31 | 10 |
|----|----|----|----|----|
| 26 | 30 | 29 | 13 | cut |
| cut | 14 | cut | 28 | 15 |
| 11 | 27 | 25 | 9 | cut |

**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

**Card 5**

| 24 | 16 | 29 | 20 | 18 |
|----|----|----|----|----|
| 30 | 27 | 23 | 26 | cut |
| cut | 19 | cut | 31 | 21 |
| 22 | 28 | 25 | 17 | cut |

**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

**The        Magic        Window**

| | cut | | |
|----|----|----|----|
| | | | cut |
| cut | | cut | |
| | | | cut |

**Sees All      Knows All**

**Base 2 digits for the numbers 1 to 31 base 10**

| 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 |

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