Binary Search Cards

Version 5: 16 numbers
In order on 4 by 4 cards
with a two sided base card

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Procedure:

Hand a student the base card and ask them to think of a number on either side. Ask the student to place the base card on the desk with the side containing thier number face up. Have the student tell a friend the number or have them write it down on a piece of paper without you looking at the number.

Hand the student a second card (it does not matter which one you use after the first card).   Have them look on either side of the card to find their number and then place that side of the card with the number they selected facing on on top of the first card. To the same thing with the last two cards.

Pick up the entire stack of cards. Look closely at the numbers. One of them is a number on the base card. It will be in a large rectange. All the other numbers you see are on the hole cards. The number visible on the base card is their number. Announce their number! Have them state you predicted their number. If there is a question have the student show the number they wrote down or have the friend verify the number is correct if they told a friend.
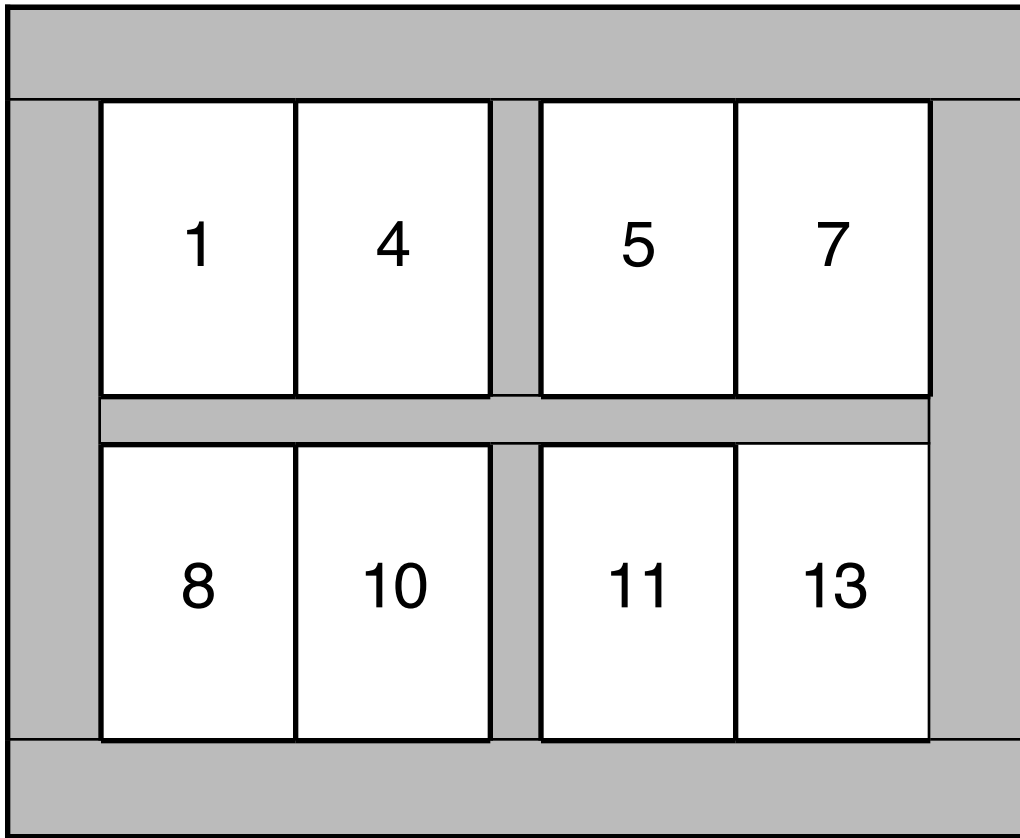
Preparation:

Print out the 4 pairs of cards on the next 4 pages (pages 3 to 6).   For each of the pages cut out the 2 cards along the outside gray borders. Glue the tow faces back to back with the numbers facing out. The numbers on the front and back will both face up and the cutout areas will match on both sides.

Cut out the inside white areas labeled **"cut out"** on each of the 3 hole cards. There are many ways to cut out the inside areas labeled **cut out** without bending the cards   The safest way I have found is to use a hand held paper hole punch.   I punch 3 holes next to each other inside the cutout area and then use a scissors to carefully cut out the rectangles.

If you have a printer that supports printing on both sides you can save time. Print the templates on the pages 8 to 11 using the **print on two sides** option in the print command box. You may need to open a dialog box to find this option. You will get the 4 cards already in the correct orientation with a front and back. Cut out the four cards along the outside gray border. Do not cut out the gray borders. Cut out the inside white areas labeled **cut out.**

Note: The base card for this set of binary cards is **two sided.** The privious set of cards have has base cards that were one sided. In thise sets of cards the first hole card divied the base card into the numbers on the top and numbers in the bottom half. The 16 numbers on 4 by 4 card reuired 4 hole cards to find theselected number. In this set the base cards does the work fo thr first hole card. The sstudents places the correct side of the bases card face up and blocks out the other half of the numbers. Thsi reduces the problem to a 8 number 2 by 4 card. This reduces the number of hole cards required from 4 to 3.
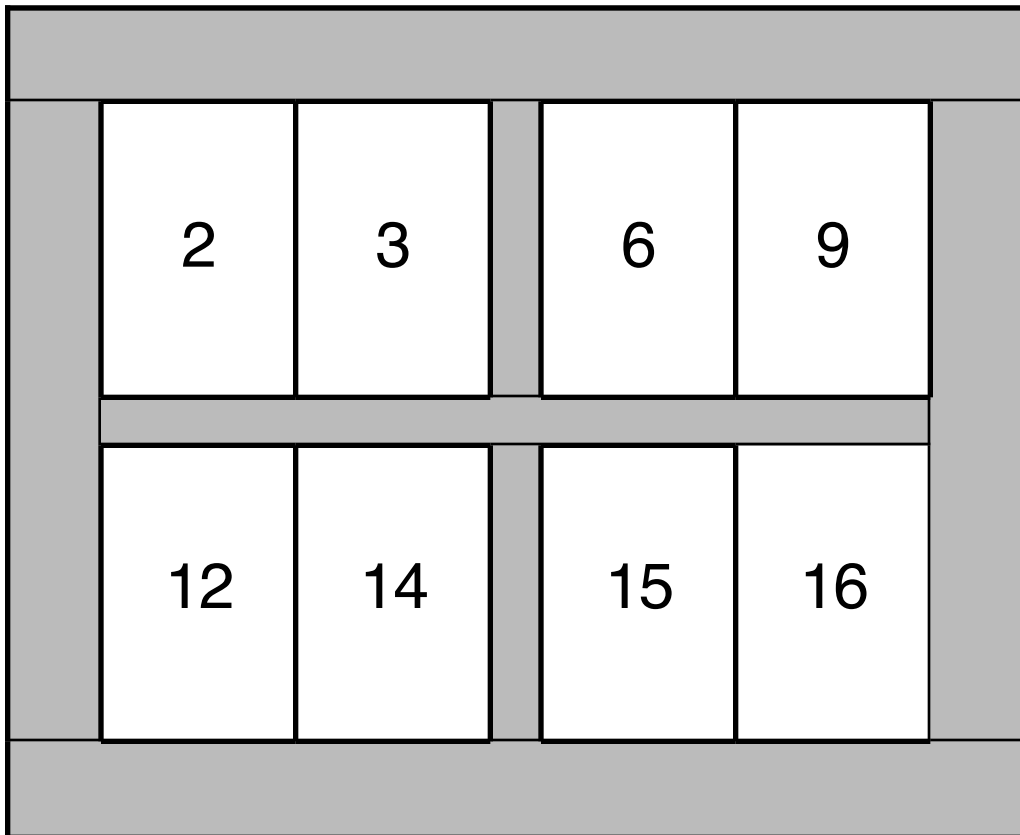
Front side of base card

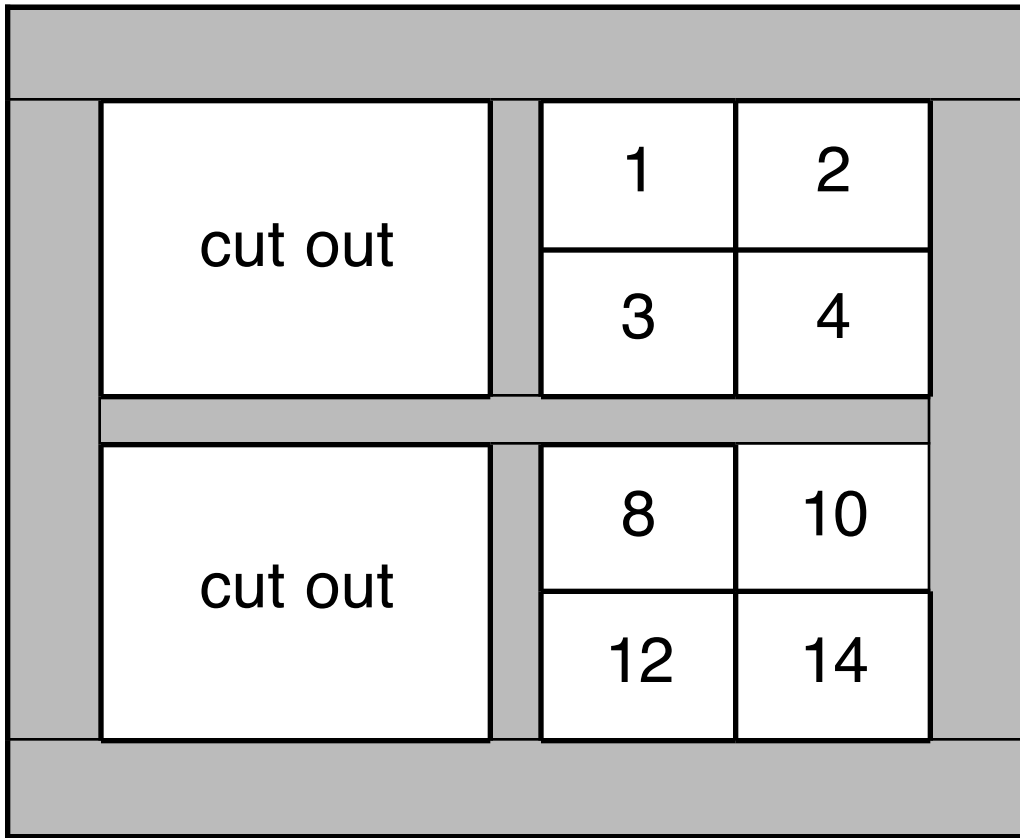|			
1	4	5	7
8	10	11	13

Base Card
Cut out the two sides. Use a glue stick to glue the sides back to back.with the numbers on both sides facing up.

Note: This base card is two sided. The student will find thier number and put the side with their nuber facing up.
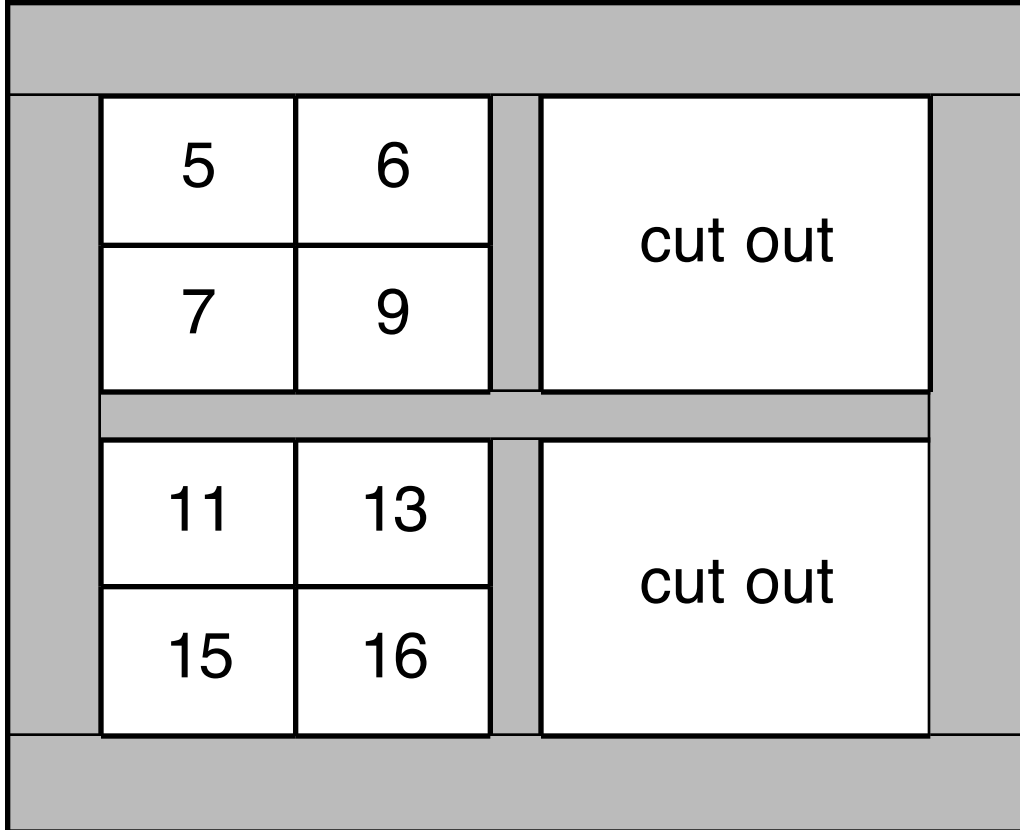
Back Side side of Base Card

2	3	6	9
12	14	15	16

Hole Card 1 front

cut out	1 2 3 4
cut out	8 10 12 14

Hole Card 1
Cut out the two sides. Use a glue stick to glue the sides back to back with the numbers on both sides facing up. Make sure the cut out areas on both side match up.

Hole Card 1 back

5 6 7 9	cut out
11 13 15 16	cut out

Hole Card 2 front

cut out	5	cut out	14
	6		16

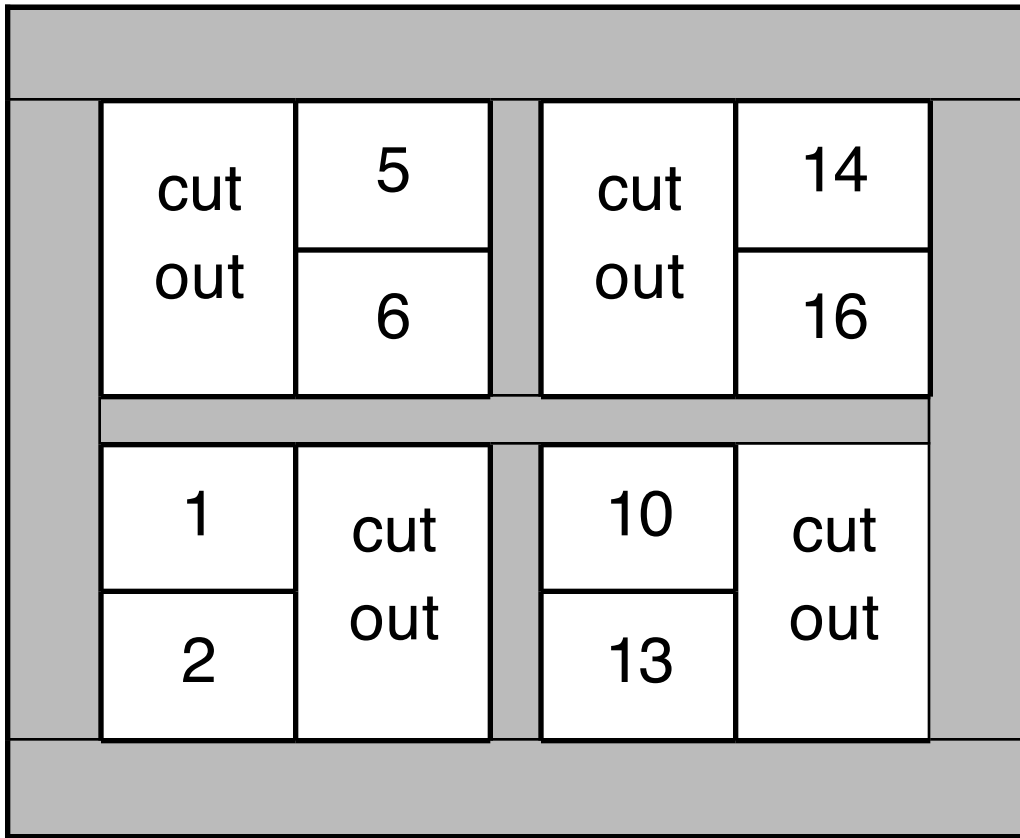| 1	cut out	10	cut out
2		13	

Hole Card 2
Cut out the two sides. Use a glue stick to glue the sides back to back with the numbers on both sides facing up. Make sure the cut out areas on both side match up.
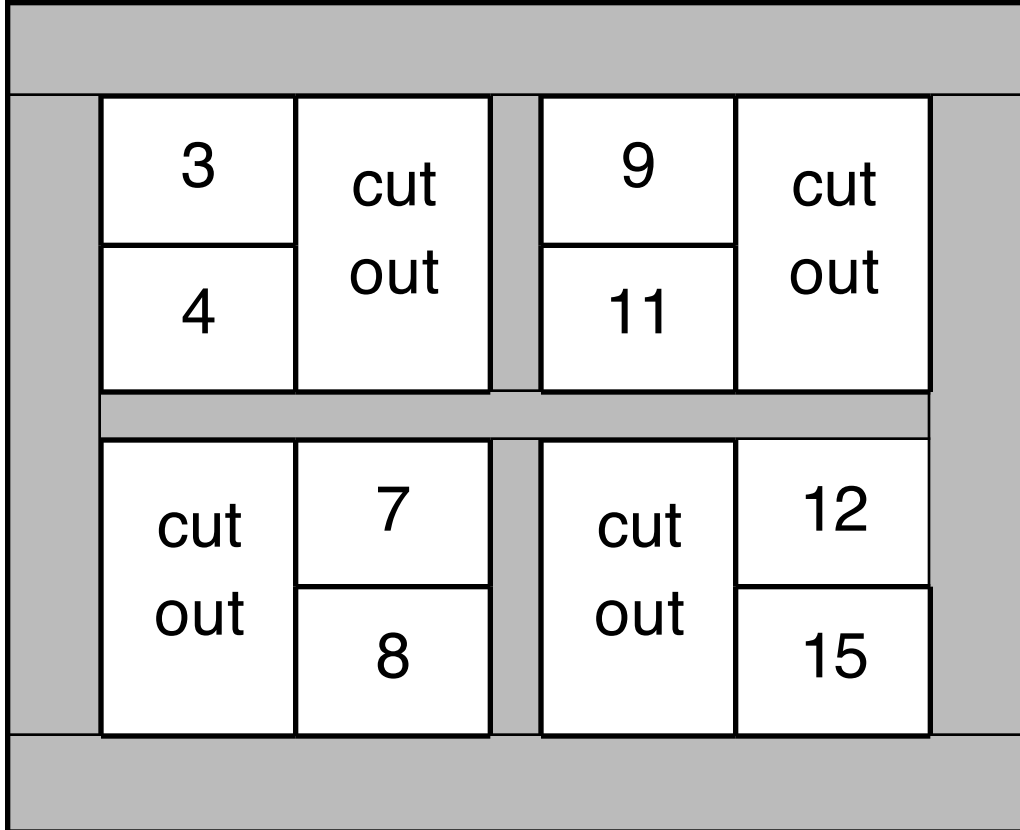
Hole Card 2 back

3	cut out	9	cut out
4		11	

cut out	7	cut out	12
	8		15

Hole Card 3 front

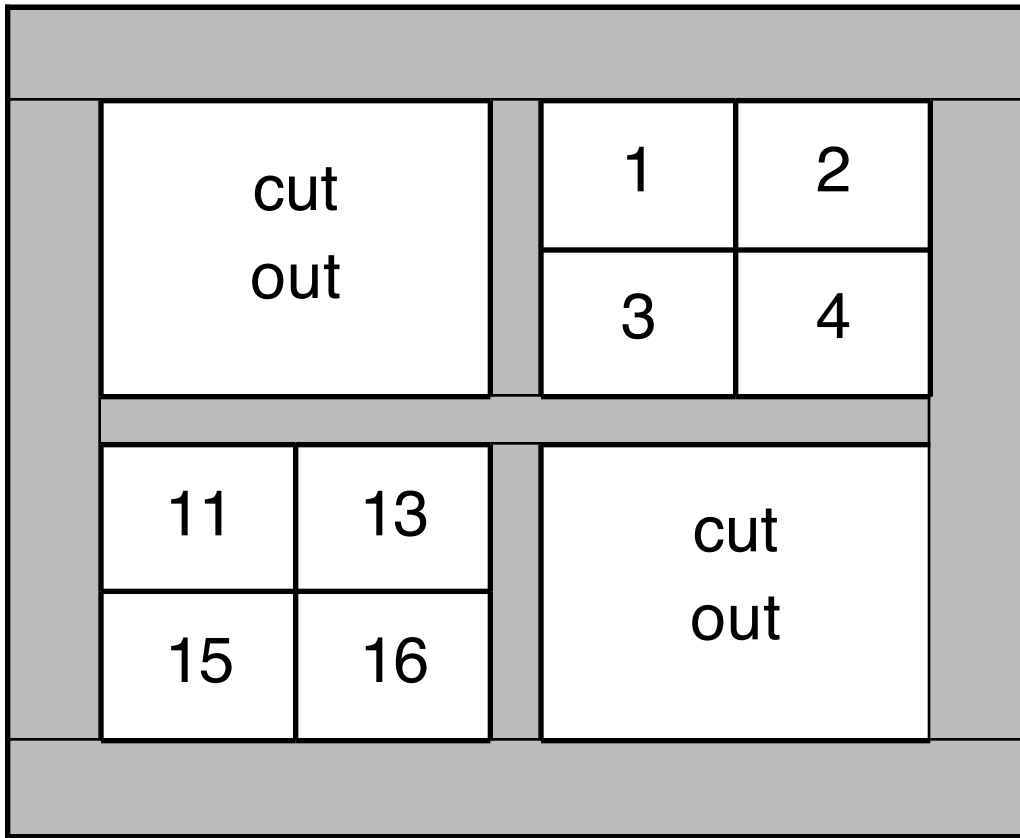|	
cut out	1 2 3 4
11 13 15 16	cut out

Hole Card 3
Cut out the two sides. Use a glue stick to glue the sides back to back with the numbers on both sides facing up. Make sure the cut out areas on both side match up.
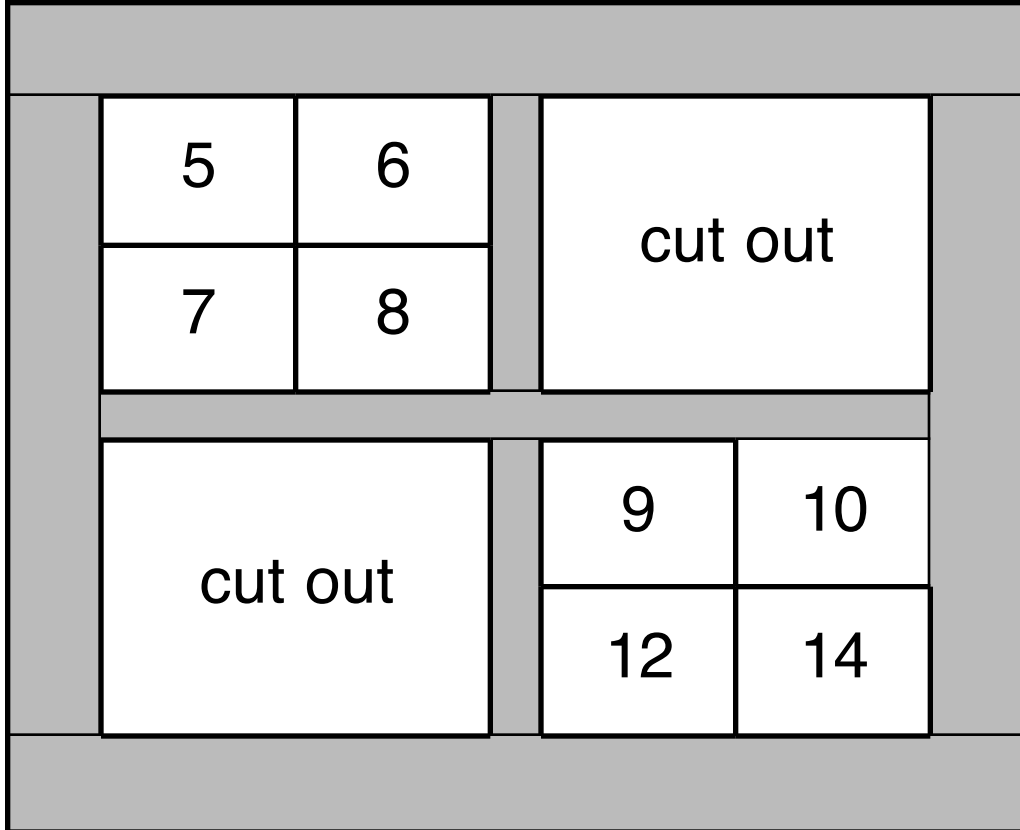
Hole Card 3 back

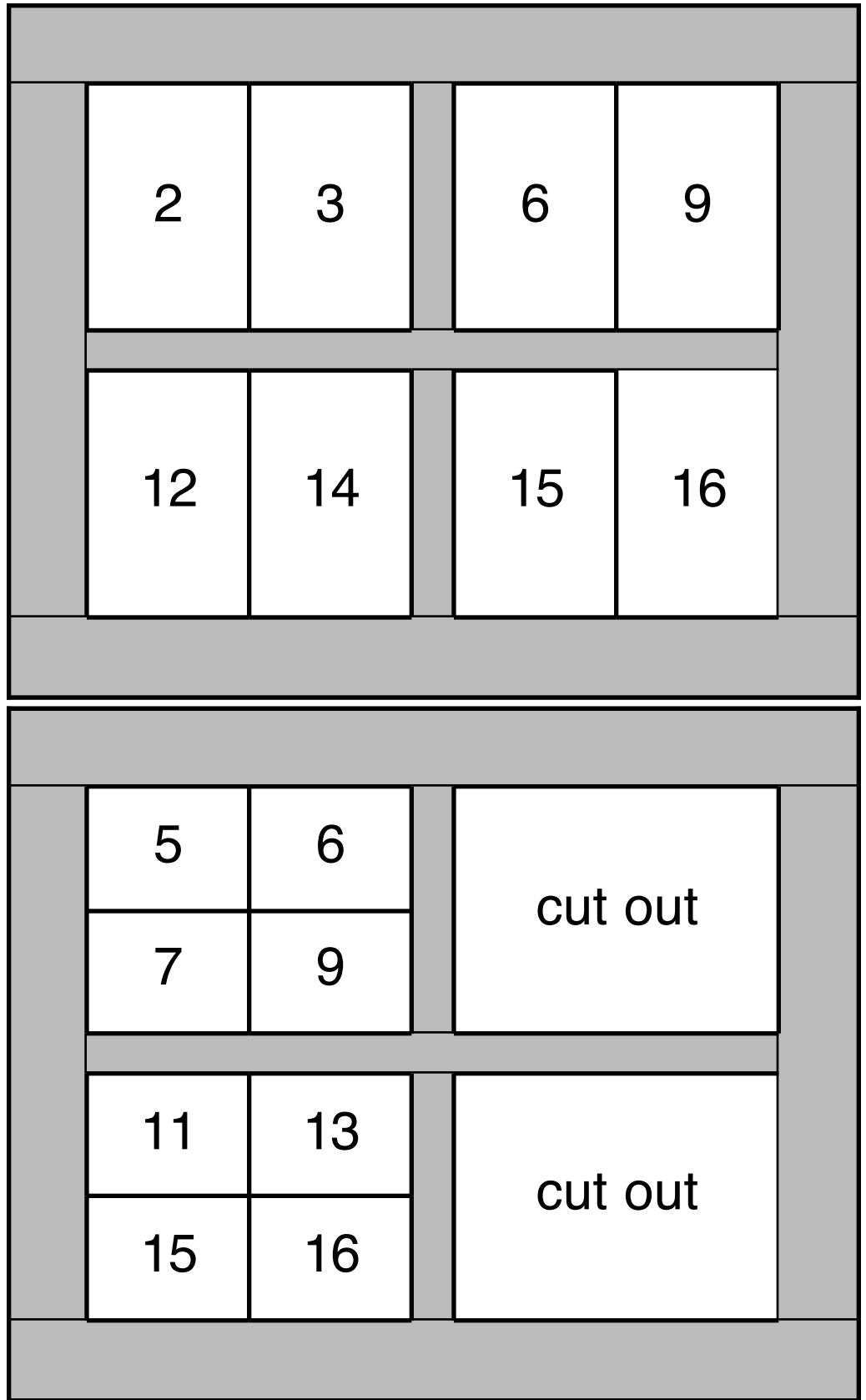|	
5 6 7 8	cut out
cut out	9 10 12 14

**The following 4 pages
are set up to print the 4 sets
of cards back to back.**

**If you have a printer that prints
on 2 sides these templates
can save you time.**

1	4	5	7
8	10	11	13

cut out	1	2
	3	4

cut out	8	10
	12	14

2	3
12	14

6	9
15	16

5	6
7	9

cut out

11	13
15	16

cut out

| cut out | 1 | 2 |
| | 3 | 4 |

| 11 | 13 | cut out |
| 15 | 16 | |

| cut out | 5 | cut out | 14 |
| | 6 | | 16 |

| 1 | cut out | 10 | cut out |
| 2 | | 13 | |

5	6
7	8

cut out

cut out

9	10
12	14

cut out	5
	6

cut out	14
	16

1	cut out
2	

10	cut out
13	

Extra templates