A royal flush in poker consists of the ace, king, queen, jack and ten, all in the same suit. Our magic begins by having the spectator choose one of the cards in any of the four royal flushes. This choice could be by random draw or the spectator can merely think of one of the 20 cards. In either case he does not inform the magician of his choice but will write it on a slip of paper for future reference.

The spectator is handed six colored slips with ten playing cards printed on each. If he has chosen a black card (spades or clubs), he is to turn over the slips which contain his card. If he has chosen a red card (hearts or diamonds) he is to lie and turn over any slips that DO NOT contain his choice. These turned slips will be his “yes” responses.

The magician glances at the slips and correctly identifies the spectator’s card.

Listed below are the six slips colored red, blue, green, yellow, whitish and iron grey.
Notice that red has 3 letters, blue has 4, green has 5, yellow has 6, whitish has 7 and iron grey has 8. This allows the magician to be able to identify the colors in order, even after they have been mixed.

It happens that the slips are constructed so that the spectator always will have exactly three yes responses. In fact combinatorially the 20 possibilities trace out the yes-no edges of part of a six-dimensional binary cube. It is not necessary for the magician to know the mathematics behind the effect but he must have some way of using the yes responses to locate the chosen card. We have two methods.

METHOD 1: This employs the method of punched cards Martin Gardner wrote about in his article “The Binary System” on page 13 of his New Mathematical Diversions, revised, 1995, MAA.

The reader should put holes and slots in the 20 cards to conform to this list.
To use these cards turn the stack so that the cards face out to the spectator and from the back push a small rod (we use a golf tee) through the holes corresponding to the spectator’s three choices. From the back, the six holes are left to right red through iron grey. When the rod is placed, shake out the cards that fall through slots, retaining those that catch on the rod. After three shakes one card will remain and it will be the chosen one.

**METHOD 2:** We mentally label the cards red through iron grey, using the six letters of AMUSER. AMUSER is a word for which any subset of three letters can be transposed into a legitimate three letter word. Our list of 20 words that works with the slips follows:

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<tr>
<td>SPADES</td>
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<td>K</td>
<td>Q</td>
<td>J</td>
<td>10</td>
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<tr>
<td>HEARTS</td>
<td>MAU</td>
<td>SUR</td>
<td>USA</td>
<td>EMS</td>
<td>ARS</td>
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<tr>
<td>DIAMONDS</td>
<td>RUE</td>
<td>RAM</td>
<td>MRS</td>
<td>SEA</td>
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<td>CLUBS</td>
<td>ERS</td>
<td>MEA</td>
<td>MER</td>
<td>UAR</td>
<td>EMU</td>
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</tbody>
</table>
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The magician could have this table printed small enough to palm and when he transposes the three letters from the spectator he will be able to search for the chosen card in the table. After a little practice you will find you can locate the correct entry very quickly. A little more practice and you may find you could dispense with the table altogether. If you wish print the letters of AMUSER on the back of the slips and omit coloring the slips.

**NAME CATEGORIES**

**LACEY ECHOLS**
Carmel, Indiana

To begin, write your last name across the top of the grid. You should have enough columns for each letter in your name. For each category in the left column, fill in the cells with a word beginning with the letter in the top row. If duplicate letters appear in the top row, then you should think of two different words for that category. Additional categories could be added or exchanged for the ones below.

Example: Last name ECHOLS

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</table>

**An animal**
- Elephant
- Cougar
- Hamster
- Otter
- Lion
- Seal

**A boy's name**
- Edward
- Charles
- Henry
- Oliver
- Leo
- Stanley

**A girl's name**
- Elise
- Christine
- Henrietta
- Ophelia
- Lisa
- Susan

**Occupation**
- Education
- Cook
- Harrier
- Obstetrics
- Law
- Soldier

**A color**
- Ecru
- Charcoal
- Hazel
- Orange
- Lilac
- Salmon