FInd a Persons Birthday

Step 1. Ask a student to write down on a sheet of paper the number of the month in which they were born. January is 1, February is 2, March is 3 and so on. **Note:** You may need to have the student count as you say the months in order. You may want to have a second student watch so they can check that the math is done correctly.

Step 2. Have them multiply that number by 5.

Step 3. Have then add 6 to that new number.

Step 4. Ask them to write that number on the paper and then multiply that number by 4. Wait while the students does the math. Be sure they check their work.

Step 5. Ask them to add 9 to that number.

Step 6. Ask them to multiply that number by 5.

Step 7. Ask them to **add the day of the month they were born** to that number.

Step 8.   At this point, ask them to call out the final number. You subtract 165 from that number.

The number they announce will be a 3 or 4 digit number.   The hundreds and thousands digits are the birth month. The last two digits on the right (the ones and tens digits) are the day they were born. Say, you were born on ------(month) ----- day."

Example 1: They were born in Dec and are 19 th.

Step 1. December = 12   **Note:** You may need to have the student count as you say the months
Step 2. 5*12 = 60
Step 3. 60 + 6 = 66
Step 4. 66*4 = 264   Wait on each step while the students does the math.
Step 5. 264 + 9= 273
Step 6. 273 *5 = 1365
Step 7. 1365 +19 = 1384
Step 8. 1384 – 165 = 1219   <u>12</u>   <u>35</u> Say, you were born on December 12th
                                         Month   day

Why does this work?

1. Let m = month and d = day.
2. Multiply the month number by 5: $5m$
3. Add 6: $5m + 6$
4. Multiply by 4: $20m + 24$
5. Add 9: $20m + 33$
6. Multiply by 5: $100m + 165$
7. Add the Day on which you were born: $100m + d + 165$
8. Subtract 165: $100m + d$. (The 100 just moves the month over 2 places)