Factoring Quadratics a=1 KEY

1. Create <u>at least</u> 5 examples of binomials using the same variable (without coefficient or exponent) and a constant (such as x+3). Use constants that only have one digit and use a variety of positive and negative numbers. Avoid using a pattern of constants.
2. Multiply pairs of your binomials to create a few trinomials. Do you see any pattern emerging? Compare the constants in your binomial factors with your coefficients and constants in your trinomials. Describe any relationship you see.
3. Investigate and try to find a method to work backwards from your trinomial that results in the two factors.
4. Explain the process you used, whether it worked for one trinomial or multiple trinomials. If you found more than one way, describe it.
5. Test it against other trinomials created by multiplying other pairs of your binomials. Does your process work in all cases? Describe the cases where it does work and the cases where it does not work.

<u>Limited</u>:
- noticed that the trinomial's variable was squared with a coefficient of 1
- noticed that the trinomial's constant was the product of the two constants of the binomial

<u>Adequate</u>:
- noticed that the trinomial's variable was squared with a coefficient of 1
- noticed that the trinomial's constant was the product of the two constants of the binomial
- noticed that the coefficient of the trinomial's middle term was the result of adding the two constants from the binomial

<u>Substantial</u>:
- noticed that the trinomial's variable was squared with a coefficient of 1
- noticed that the trinomial's constant was the product of the two constants of the binomial
- noticed that the coefficient of the trinomial's middle term was the result of adding the two constants from the binomial
- realized that if the trinomial's constant was a prime number, the binomial's constants would be the factors of the prime OR if the trinomial's constant was a square, the binomial's constants could be the square roots of the square OR that if the trinomial's constant was a negative number, one of the binomials would have addition and the other would have subtraction.

<u>Excellent</u>:
- noticed that the trinomial's variable was squared with a coefficient of 1
- noticed that the trinomial's constant was the product of the two constants of the binomial
- noticed that the coefficient of the trinomial's middle term was the result of adding the two constants from the binomial
- realized that finding the factors of the trinomial's constant that added up to the coefficient of the trinomial's middle term would provide the constants in the binomials