Hind Ali

* Mathematical Topic:

Binomial Expansion with Pascal's Triangle

* General Purpose:

To have the students explore some of the many patterns found within Pascal’s triangle. Students will describe the patterns and learn to express some of these patterns in algebraic terms.

* Overview: expand a binomial
* Learning Objective/Common Core State Standard:

CCSS.MATH.CONTENT.HSA.APR.C.5: (+) Know and apply the Binomial Theorem for the expansion of (x + y)n in powers of x and y for a positive integer n, where x and y are any numbers, with coefficients determined for example by Pascal’s Triangle.

* Grade level(s): 9, 10, 11, 12
* Background knowledge required of students:
* Students must know the definition of coefficient and term. A coefficient is the numerical factor in a term. A term is a number, a variable, or the product of a number and one or more variables.
* Students must know how to multiply two or three binomials together to see the relationship between the coefficients of their answer and the coefficients in Pascal's Triangle.
* Time: 30 minutes
* Materials needed: pencils, calculators(optional)
* Type of activity: Worksheet
* Why I picked this activity:

To enable students to use Pascal's Triangle to expand binomial relationships with 100% accuracy.

* Follow-up activities/extensions:
* Use Pascal's Triangle to expand this binomial:

open parentheses a plus 3 b close parentheses to the power of 4

* Weaknesses/limitations of activity: no limitations
* Procedure:

Teacher can fill in rows 0 to 4 with students and then students can continue to the pattern to fill in the rest of the triangle.

* Source:

<http://www.cpalms.org/Public/PreviewResourceLesson/Preview>

