



by Bob Albrecht and Brian Hanna (InvestigationBP@aol.com)

INVESTIGATION BACKPACK BEGAN IN the September 2007 issue of *TOMT*. Here we are again — welcome again. We will briefly describe two investigations. For more information about investigations that we suggest in Investigation Backpack, do this:

- Send email to InvestigationBP@aol. We will respond.
- Go to [www.curriki.org](http://www.curriki.org) and in the search box, type in “investigation.”

This time we suggest an investigation that intertwines math and words, and an investigation that intertwines math and basketball:

## WordsWorth Investigations

**Level and Subject:** Grades 1, 2, 3, and up. Math and language arts at every level from, say, grade 1 through college, then on to life-long learning. Up, up, and away!

**The Hook:** The investigators investigate intertwinings of math and words. These Investigations can require amounts of time from a few minutes to — well — weeks, months.

Grab your favorite dictionary and do WordsWorth Investigations. We’ll show you how to calculate the WordsWorth of a word and suggest investigations. As you investigate, you’ll learn about anagrams, palindromes, permutations, reverses, semordnilaps, prime numbers, composite numbers, square numbers, triangular numbers, cubic numbers, factorial numbers, Fibonacci numbers, ratios, functions, domain, range, et cetera, et cetera.

Assign a letter score to each letter in the alphabet, a through z, as follows:

a = 1	b = 2	c = 3	d = 4	e = 5	f = 6	g = 7	h = 8	i = 9
j = 10	k = 11	l = 12	m = 13	n = 14	o = 15	p = 16	q = 17	r = 18
s = 19	t = 20	u = 21	v = 22	w = 23	x = 24	y = 25	z = 26	

The WordsWorth Plus of a word is the sum of the letter scores of the word’s letters. Investigations can begin in grade 1.

The WordsWorth Times of a word is the product of the letter scores of the word’s letters. Investigations can begin in, say, grade 4. A calculator is appropriate technology.

Send email to InvestigationBP@aol.com and we will tell you how to get WordsWorth instructional materials (free, of course).

## Basketball and the Binomial Theorem

**Level and Subject:** Algebra I and up. I typically use this with my Algebra II students when studying Pascal’s triangle. Using basic statistics (analyzing only two shots in a row), this activity can be applied to even earlier math courses, as well.

**The Hook:** So, why is it that the Hack-a-Shaq method at the end of a basketball game is employed by opposing teams? Does it always work? Does it make a difference during the play-offs? The 2007 NBA play-offs revealed some interesting statistics that warrant a closer look.