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The Big Read: Integrating Mathematics and Literature

The Big Read is an initiative of the National Endowment for the Arts (NEA), designed to restore reading to the center of American culture. In the Fall of 2009, Queensborough Community College (QCC) received a grant from the NEA, which provided copies of a book of our choosing to be distributed and incorporated into both curriculum and extra-curricular events.

QCC chose *The Things They Carried*, a work of fiction by Tim O'Brien, based on his experiences as a soldier in the Vietnam War. The novel is a collection of short stories that can be read individually, which makes it adaptable to many settings. During the Fall 2009 – Spring 2010 academic year, QCC hosted numerous community events for the Big Read initiative, including readings, discussion groups, and film festivals. These were held on campus at venues including the QCC Art Gallery and Veterans' Center, and off campus at local libraries and museums.

The QCC Big Read Initiative was asked to create a program for at risk students at a local high school. Using the novel as a centerpiece, a team of three QCC faculty members from the Basic Skills, English, and Mathematics departments at QCC developed a multidisciplinary curriculum, focused on basic reading, writing, mathematics, and study skills. The students in the program were over-age, under-credited high school seniors and juniors who were not on track to graduate.

The curriculum was presented during the Spring 2010 semester at QCC in nine integrated lessons. Our primary goal was to inspire and motivate these students to graduate from high school and continue their education in college. We also hoped to illustrate how academic skills are applied beyond academia in reading, writing, and mathematics.

The math component of the program included quantitative literacy, statistics, formulas, dimensional analysis, graphing, and geometry. Throughout the course, basic skills such as operations with fractions, decimals, and percents were reinforced. This was accomplished by relating mathematics to several chapters of the novel that mention numbers (including weights, money, and distance), and also by examining statistics related to the Vietnam War.

During today's presentation, the audience will read excerpts from *The Things They Carried* and suggest ways that the mathematical content could be incorporated into lesson plans for a variety of mathematics courses. I will then present my curriculum and share the outcomes of the program, including writing samples from the students, survey results, and test scores.

For further information about The Big Read, see: www.neabigread.org or www.nea.gov

Below are excerpts from five chapters of *The Things They Carried* by Tim O'Brien. During the presentation, I will read the entire paragraphs containing this material; however, only the relevant mathematical content is reproduced here.

The audience will work in groups to formulate ways that the mathematical content of the book could be incorporated into lesson plans based on these passages.

I. Design a lesson plan based on the facts in the chapter "The Things They Carried" (pp 2 – 11)

- "What they carried was partly a function of rank, partly of field specialty."
- Steel helmet – 5 pounds
- Jungle boots – 2.1 pounds
- Flak jacket – 6.7 pounds
- .45-caliber pistol – 2.9 pounds
- Claymore antipersonnel mine – 3.5 pounds
- Fragmentation grenades – 14 ounces each
- M-18 smoke grenade – 24 ounces
- M-16 assault rifle: 7.5 pounds unloaded, 8.2 pounds with full 20-round magazine
- Riflemen carried anywhere from 12 to 20 magazines, usually in cloth bandoliers, adding on another 8.4 pounds at minimum, 14 pounds at maximum.
- M-79 grenade launcher, 5.9 pounds unloaded, a reasonably light weapon except for the ammunition, which was heavy. A single round weighed 10 ounces. The typical load was 25 rounds. But Ted Lavender, who was scared, carried 34 rounds when he was shot and killed outside Than Khe, and he went down under an exceptional burden, more than 20 pounds of ammunition...plus the flak jacket and helmet...plus the unweighed fear.

II. Design a lesson plan based on the chapter "Sweetheart of the Song Tra Bong" (pp 89 – 90)

Vietnam was full of strange stories, some improbable, some well beyond that...Rat had a reputation for exaggeration and overstatement, a compulsion to rev up the facts...it was normal procedure to discount sixty or seventy percent of anything he had to say. If Rat told you... that he'd slept with four girls one night, you could figure it was about a girl and a half.

...when you listened to one of his stories, you'd find yourself performing rapid calculations in your head, subtracting superlatives, figuring the square root of an absolute and then multiplying by maybe.

III. Design a lesson plan based on the dialogue in the chapter “On the Rainy River” (pp 52 – 54)

- **Elroy:** “The basic rate is fifty bucks a night. Not counting meals ... This makes four nights...”
- **Tim O’Brien:** I nodded. I had three hundred and twelve dollars in my wallet.
- **Elroy:** “Now that’s an on season price ... to be fair, we should knock it down a peg or two. Forty a night. Then we tack on food – another hundred? Two hundred sixty total.”
- **Elroy:** “We forgot wages. Those odd jobs you done. ...we have to figure out what your time’s worth.” ...“Ten bucks an hour? Fifteen? Let’s make it fifteen. You put in twenty-five hours here, easy. That’s three hundred seventy-five bucks total wages. We subtract the two hundred sixty for food and lodging, I still owe you a hundred and fifteen.”

He took four fifties out of his shirt pocket and laid them on the table. “Call it even,” he said.

IV. Design a lesson plan based on the chapter “Speaking of Courage” (pp 137 - 140)

- Norman Bowker followed the tar road on its seven-mile loop around the lake...
- ...a seven-mile circumference that could be traveled by slow car in twenty-five minutes.
- Clockwise, as if in orbit, he took the Chevy on another seven-mile turn around the lake.
- ...he had passed...six times, forty-two miles, nearly three hours without stop.

V. Design a lesson plan based on the chapter “The Man I Killed” (pp 124 – 130)

- He liked books. He wanted someday to be a teacher of mathematics.
- He loved mathematics.
- ...the man I killed would have been determined to continue his education in mathematics.
- ...he avoided politics and paid attention to the problems of calculus.
- ...took pleasure in the grace and beauty of differential equations.

Bibliography

O'Brien, Tim. *The Things They Carried*. Boston: Houghton Mifflin, 1990.