

Table 11.1 Great Middle-School Books for Ratio and Proportions

Literature with Proportional Situations	
Many books include multiplicative comparisons and therefore can be used for proportional reasoning. Here are two that are favorites in middle school.	
<i>If You Hopped Like a Frog</i> Schwartz, 1999	David Schwartz compares features of various creatures with those of humans. For example, in the title comparison, Schwartz deduces that if a person had a frog's jumping ability, he or she could jump from home plate to first base in one hop. This short picture book contains 12 more fascinating comparisons. Schwartz also provides the factual data on which the proportions are based. Students can figure out how strong or tall they would be if they were one of the featured animals.
<i>Holes</i> Sachar, 2000	A popular book and movie, this novel tells the story of boys in a "camp" who are digging holes every day, which provides an opportunity to look at daily rates of dirt removal. Pugalee, Arbaugh, Bay-Williams, Farrell, Mathews, and Royster (2008) describe an excellent activity with this book that involves not only proportional reasoning but also measurement and algebra.
Literature with Large and/or Small People	
There is a plethora of literature involving very little or very big people (or animals). With any of these books, lengths of arms, legs, or noses can be compared as a way to explore within and between ratios. Several favorites are shared below.	
<i>Alice's Adventures in Wonderland</i> Carroll, 1865/1982	In this classic, Alice becomes very small and very tall, opening doors to many ratio and proportion investigations. See Taber (2005) for ideas on using this book to teach proportions.
<i>The Borrowers</i> Norton, 1953	A classic tale of little folk living in the walls of a house. Furnishings are created from odds and ends of the full-size human world.
<i>Gulliver's Travels</i> Swift, 1726; amended 1735/1999	Yet another classic story. In this case, Gulliver first visits Lilliput, where he is 12 times the size of the inhabitants, and then goes to Brobdingnag, where he is one-tenth the size of the inhabitants.
<i>Harry Potter and the Sorcerer's Stone</i> Rowling, 1997	In the book, Hagrid is described as twice as tall and nearly five times as wide as the usual man. Students can measure their own shoulder width and height and create a scatter plot. Placing Hagrid's measurements on the graph illustrates that he is not made in proportion to the usual person. In the movie, he is more proportional to the other characters, although still nearly twice their height. Students can explore the size of his house, furniture, and motorcycle based on an estimated scale of how much bigger he is than the usual person.
<i>Jim and the Beanstalk</i> Briggs, 1970	What happened to the giant after Jack? Jim comes along. Jim wants to help the poor, pessimistic giant. This heartwarming story is great for multiplicative or proportional reasoning.
<i>Kate and the Beanstalk</i> Osborne, 2000	This version of the traditional <i>Jack and the Beanstalk</i> tale includes a giantess. The giantess falls to earth, and Kate finds out that the castle belongs to her family.
<i>The Lord of the Rings</i> Tolkien, 1965	Hobbits are described as approximately 3 feet tall (which can be estimated at 100 cm). This height can be used to set up a ratio with the height of the typical sixth grader and the ratio then used to determine the size of various objects. To connect to the movie, ask students to be in the role of producer and figure out the size of objects used in the movie. See Beckman, Thompson, and Austin (2004) for elaboration on this activity.
"One Inch Tall" in <i>Where the Sidewalk Ends</i> Silverstein, 1973	Shel Silverstein is a hit with all ages. This poem asks what it would be like if you were one inch tall.
<i>Swamp Angel</i> Isaacs, 1999	A swamp angel named Angelica grows into a giant. Students can compare birth height with current height or compare Angelica's measurements with their own.