

Answers to Exercise 4.1

Connecting to Students' Lives

1. *Mr. Moyer's science class has been studying the Manhattan Project as an example of a scientific advancement that is remembered in both positive and negative ways. "What else is like this?" he asks. "Choose something you are interested in to make the comparison." Zane compares the Manhattan Project to spiders. "Some people think the atomic bomb saved a lot of lives in the long run and was a good thing, but some people think it was morally corrupt and made the world a more dangerous place. I think this is like spiders because a lot of people think spiders are gross or scary, but I really like them. I think they can spin really beautiful webs; and without spiders, entire ecosystems would be totally wiped out. They have a complex reputation, too, I guess."*

Mr. Moyer is asking his students to base their comparisons on characteristics of fame or notoriety. Zane compares the complex legacy of the Manhattan Project to spiders because he is interested in them. He notes that while he finds spiders interesting and important, some people just view them as gross or scary.

2. *Mr. Okpik's social studies class has been studying North and South Korea in a unit about current events. They have been looking specifically at the recent activities at the 38th parallel. "One of South Korea's responses to North Korea sinking one of their warships was to broadcast a South Korean pop song across the border at the 38th parallel. The song was chosen because of its sultry tone and its lyrics, which tout rebellion and independence. Acts like this are often referred to as psychological warfare. What do you think South Korea was trying to accomplish? What else can you think of that has a similar aim? Choose something you are interested in to make the comparison," he says. Torin compares South Korea's broadcast to some of the taunting that happens at his baseball games. He says, "I'm a catcher, and when a batter first comes to the box I sometimes make comments at him. They are harmless, but I'm trying to rattle him, break his concentration. I think South Korea's broadcast was similar in that it was harmless—no one was injured or killed because of it. I think they did it to rattle the North Koreans, to tease them a little and send a message that they aren't afraid of them." He also notes that while those mental games can seem kind of silly, they can also be quite effective. "I've been in the box as a batter before and been rattled by some of the comments the catcher has made to me," he says.*

Mr. Okpik's student makes a comparison based on psychological characteristics. Torin compares South Korea's psychological intent of implying superiority or strength through taunting North Korea with the pop-song broadcast to his actions as a catcher on the baseball team.

3. *Ms. Kwon's science class has been studying migration. "Animals of various species have migration patterns they follow generation after generation. Can you think of something you know about and are interested in that has the same relationship?" she asks. Emma compares migration to her family's recent move to a new city. "We don't move around regularly like animals that migrate do, but animals basically migrate in order to get what they need, whether its food or breeding grounds or a warmer climate. We moved because my mom got a job that she really wanted and because some of my cousins live here, too. So we came to a new place in order to get what we wanted," she says.*

Ms. Kwon has asked her students to make a comparison based on the characteristics of a particular process—migration. Emma points out that her comparison of the process is based on purpose rather than pattern, but she has clearly articulated the purpose of both migration as a whole and her family's recent move.

4. *Ms. Philips wants the students in her mathematics class to understand the nature of inverse processes such as multiplication and division. She explains that multiplication and division use the same numerical concept but in opposite ways. She says, "What are some things you know of that have the same basic relationship? Choose something you are interested in, and fill in the following statement: Multiplication is to division as what is to what?" Brandy completes the statement with the words toe loop and salchow. She explains that she is an ice skater. Both the toe loop and the salchow are jumps where the skater spins a certain number of times in the air, but what makes them opposite is the takeoff. In the toe loop the skater takes off on the back foot, the foot the spin revolves around. In the salchow though, the skater leads with the other foot, the foot that creates the revolution. So the two jumps are essentially opposites, just like multiplication and division.*

Brandy completes Ms. Philips's analogical reasoning statement. Ms. Philips begins the comparison by stating the relationship between multiplication and division, and Brandy completes the analogy by filling in the names for two ice skating jumps that have the same relationship.