LESSON 5.3 Interdisciplinary Application
For use with the lesson "Solve Multi-Step Inequalities"

People in Flight

History In 1905 Orville and Wilbur Wright became the first people to build a plane that successfully flew any measurable distance. Their first attempt at flying was in 1900 at Kitty Hawk, NC. They flew between 300 and 400 feet in a glider. They were pleased with their results because they had never done anything like this before.

They returned to North Carolina in 1901, but they made their attempts from Kill Devils Hills because it had large hills. The glider had larger wings, but the farthest they could fly was 389 feet. After their attempts in 1901, Wilbur thought that flying was a failure because of the time and money used and the progress that still had to be made. He said that men would fly at some point, just not during their lifetime.

At the end of 1901, the Wrights knew that there was something wrong in the calculation of lift. They turned to a wind tunnel to correct the lift calculations. The Wrights were the first to make precise measurements of lift and drag in a wind tunnel. They discovered that the coefficient of lift that was accepted at the time was too high and that a long and narrow wing was much more efficient.

The flyer they made in 1902 counted as a glider because it did not have a propulsion system. They built their own engine and tested propeller designs in the wind tunnel and added these parts in 1903. On December 17, 1903, the first controlled, sustained flight in an aircraft was made, lasting 12 seconds and traveling 120 feet. Three more flights occurred that day with the longest one lasting 59 seconds and traveling 852 feet. After the fourth flight, a gust of wind overturned and destroyed the plane. After continually improving upon their plane design they came up with their first marketable plane in 1908. This plane, which was sold to the U.S. government, was capable of carrying two men for 125 miles at speeds up to 40 miles per hour.

1. In 1927 Charles Lindbergh became the first person to fly non-stop alone from New York to LeBourget, France. He traveled 3614 miles in $33\frac{1}{2}$ hours. The speed of planes increased each year between 1908 and 1927 approximately 3.5 miles per hour over the Wright brothers' plane speed of 40 miles per hour. Write an inequality that describes the increase in flight speeds between 1908 and 1927.

2. In 1947 Charles "Chuck" Yeager broke the sound barrier in his Bell X-1 rocket plane. He attained speeds over 700 miles per hour. This is a speed increase of 29.6 miles per hour per year over Charles Lindbergh's 1927 flight. Lindbergh's flight speed was 108 miles per hour. Write an inequality representing the change from 1927 to 1947.

3. The average speed increase from the Wright brothers' flight to Yeager's flight was 16.9 miles per hour per year. Write an inequality representing the change from 1908 to 1947.