

## KEEPING TRACK OF UNITS



Mars climate orbiter.

**W**hy do scientists worry about units? The National Aeronautics and Space Administration (NASA) recently was reminded of just why keeping track of units is so important. In 1999 a \$125 million satellite (figure) was lost in the atmosphere of Mars because scientists made some improper assumptions about units. NASA's scientists at the Jet Propulsion Lab (JPL) in Pasadena, California, received thrust data from the satellite's manufacturer, Lockheed Martin Aeronautics in Denver, Colorado.

Unfortunately, the Denver scientists used American units in their measurements and the JPL scientists assumed the units were metric. This mistake caused the satellite to fall 100 km lower into the Mars atmosphere than planned. The spacecraft burned up from the friction with the atmosphere. Measuring and using units correctly is very important. In fact, it can be critical, as we have just seen. For example, a Canadian jet almost crashed when the tanks were filled with 22 300 pounds (instead of kilograms) of fuel.

Calculations for distance were based on kg, and the jet almost ran out of fuel before landing at the destination. Correct units are also important to ensure perfect fits for household purchases such as drapes, carpet, or appliances. Be sure to pay attention to units in both your chemistry problems and in everyday life!

**Leggi attentamente il testo e rispondi alle domande che seguono.**

- A** Why did the satellite burn up in Mars' atmosphere?
- B** Why is it so important to pay attention to units?

# VERSO IL CLIL

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