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CLASS _____

HISPANIC HERITAGE MONTH

Franklin Chang Díaz

From a Cardboard Rocket in Costa Rica to Seven Trips to Space

The Boy Who Would Not Give Up

Franklin Chang Díaz was born in San José, Costa Rica, in 1950. His family came from both Costa Rica and China. As a boy he read everything he could about space. He and his friends would climb into a big cardboard box, count down, and pretend they were blasting into orbit.

Franklin decided he was going to do it for real. As a teenager he traveled to the United States with very little money and almost no English. He finished high school, learned the language, and kept going all the way to a **doctorate** in applied plasma physics from MIT.

In 1980 NASA chose him as an astronaut. He flew on the space shuttle **seven** times — a record he shares with just one other astronaut. He helped build the International Space Station and ran science experiments in orbit.

Franklin was not finished. He started a company to build a rocket engine that runs on **plasma**, a super-hot gas. A plasma engine is gentle but it can keep pushing for months, so it could one day carry people to Mars faster than the rockets we use now.

WORDS TO KNOW

- **plasma:** A gas heated so hot that it becomes electrically charged. Stars, lightning, and neon signs are made of plasma.
- **doctorate:** The highest university degree, earned by studying a subject for many years and doing original research.
- **orbit:** The curved path an object takes as it travels around a planet or a star.

Part 1 • Reading Comprehension

1. Where was Franklin Chang Díaz born, and what did he pretend to fly as a boy?

2. Name two hard things Franklin had to overcome after moving to the United States.

3. How many times did Franklin fly on the space shuttle?

4. What is a plasma rocket engine, and why might it be useful for a trip to Mars?

Part 2 • Engineering Challenge: Slow and Steady

A regular rocket gives one huge push and then coasts. A plasma rocket gives a tiny push that never stops. Think about which is better for which job.

1 You need to lift off the ground from Earth. Which engine do you want — the huge push or the tiny push? Why?

2 You are already in space and want to travel to Mars. Which engine gets you there faster? Explain.

3 Franklin needed the same stubbornness for his career that a plasma rocket uses. Explain the comparison in your own words.

Part 3 • Think About It

Franklin arrived in a new country as a teenager without speaking the language, and still became an astronaut. What do you think helped him most? Explain your reasoning.
