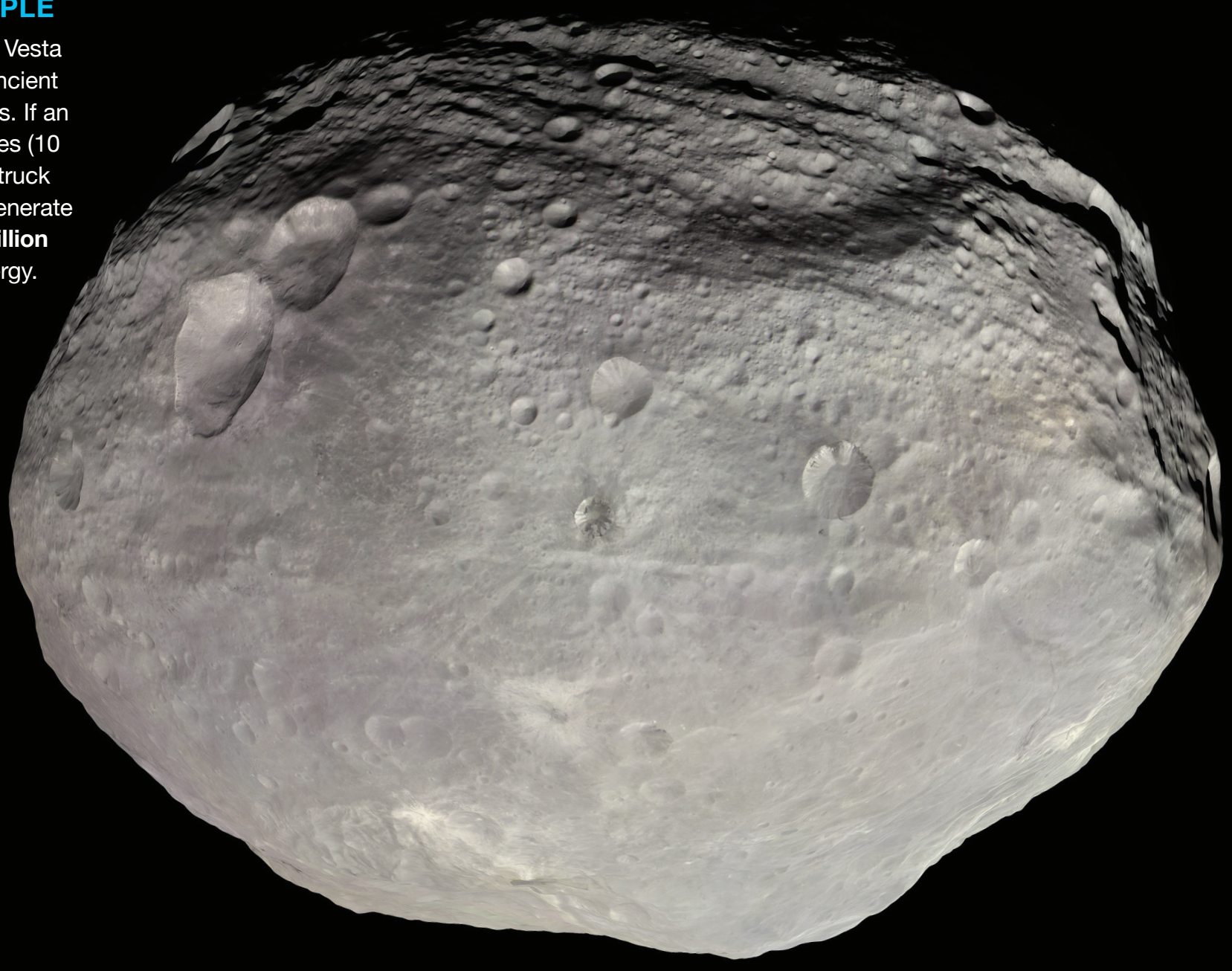
COSMIC PITCH

National Aeronautics and Space Administration

NASA

COSMIC EXAMPLE

The asteroid named Vesta bears evidence of ancient high-speed collisions. If an asteroid about 6 miles (10 kilometers) across struck the Earth, it could generate about 2×10^{23} **(200 billion trillion)** watts of energy.



Collisions

NASA / JPL / MPS / DLR / IDA



DEFINITION: When two or more moving objects come into contact and exchange forces with each for a brief period of time.

UNITS: Watts or Joules

On the pitch, collisions between players happen all the time. How much energy do these collisions generate? There is a relatively simple way to calculate this based on the size (mass) of the players and how fast they are moving. In space, we can do the same thing. Of course, when we shift from the soccer field to outer space, the stakes of these collisions get much, much bigger.

SOCCER EXAMPLE

A collision lasting about 0.1 seconds between two players of about 175 lbs (80 kg) and 220 lbs (100 kg) moving at top speeds will generate over **70,000 watts** of power.

nasa.gov
chandra.si.edu/cosmicpitch