COSMIC PITCH

National Aeronautics and Space Administration

NASA

COSMIC EXAMPLE

In Tycho's Supernova Remnant, an explosion violently accelerated stellar debris into space, creating powerful shock waves captured in X-ray light. The blast wave accelerates until it reaches about **10 million mph (16 million kph).**

Acceleration

DEFINITION: the change of velocity of an object over time.

UNITS: meters/seconds^2 (m/s^2), miles/hour/second (mi/hr/s), kilometers/hour/second (km/hr/s)

A top athlete can accelerate from standing still to full sprint in less than two seconds — about 7 meters per second squared. In the Universe, acceleration drives far grander feats: supernovae blast material outward at millions of times that rate, and galaxies continue to accelerate away from one another. From a sudden dash to an expanding cosmos, acceleration powers transformation.



SOCCER EXAMPLE

An elite soccer player can accelerate **from standing still** to their maximum speed at a rate of up to **7 m/s^2**

nasa.gov
chandra.si.edu/cosmicpitch