

3rd

## Gravity vs. Inertia

- an object launched at 8,000 m/s will orbit Earth.
- orbits result from the balance between inertia and gravitational force

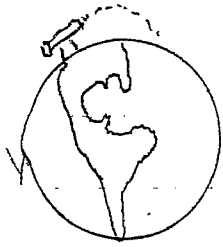
- Sir Isaac Newton's  
1<sup>st</sup> law

An object at rest will remain at rest unless acted upon by an unbalanced force. An object in motion continues in motion with the same speed and in the same direction unless acted upon by an unbalanced force.

"Law of Inertia"

Planet's inertia = gravity between planet and sun  
will result in an orbit

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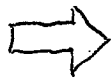
TOO SLOW = Gravity WINS



TOO FAST = INERTIA WINS



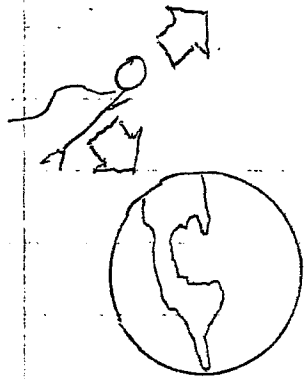
inertia = Gravity



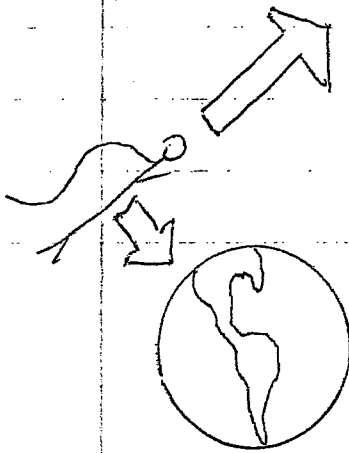
vectors show force  
bigger / longer arrow = more force

z

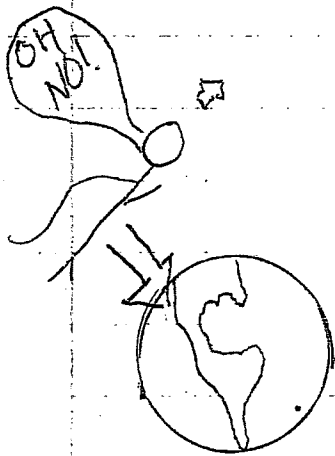
# Gravity vs. Inertia



Gravity is equal to inertia so Super Stickman will orbit the planet.



Inertia is stronger than gravity so Super Stickman will fly off into space on a straight line.



Gravity is stronger than inertia so Super Stickman will be pulled towards Earth and crash into the surface crust.