**Walking on a Comet - Movie-Mini-Lab**

Movie: Deep Impact (1998) Robert Duvall, Tea Leoni, Elijah Wood, Morgan Freeman.

Purpose: To determine if it would be possible to walk on the Wolfe-Biederman Comet.

Background: In the 1998 blockbuster ‘Deep Impact’ a crew of astronauts land on the surface a comet named Wolf-Biederman. The comet is headed for Earth with potentially disastrous results! The film leads the audience to believe that the force of gravity at the surface of the comet is strong enough to keep the astronauts gravitationally bound to the surface. We will determine if that in fact would be possible.

Parameters To Be Used For The Analysis

|  |  |  |
| --- | --- | --- |
| **Assumption** | **Size** | **Comment** |
| **Diameter of the comet** | 7 miles | Standard comet size |
| **Composition of the comet**  | 920 kg/m3 | Assuming 100% ice |
| **Average Female Vertical Leap** | 35.8 cm | Jump! Jump! |
| **Average Male Vertical Leap** | 56.1 cm | Jump! Jump! |
| **Michael Jordan Vertical Leap** | 122 cm | I believe I can fly!!!! I believe I can touch the sky! |

Analysis: First…. Find the escape velocity for the Wolfe-Biederman Comet.

*Determine if a man, woman, and Michael Jordan would be able to walk on the surface of the Wolfe-Biederman Comet!* ***Hint: Connect your findings to the Kinematics Unit!***