**Gravity - Movie-Mini-Lab**

Movie: Gravity (2013) Sandra Bullock, George Clooney.

Purpose: To determine if the movie Gravity makes Physics Sense!

Background: Dr. Ryan Stone (Sandra Bullock) is a biomedical engineer aboard the NASA space shuttle Explorer for her first space mission. Veteran astronaut Matt Kowalski (George Clooney) is commanding his final mission. During a spacewalk to service the Hubble Space Telescope and Stone's upgrades to the Telescope, Mission Control in Houston warns the team about a Russian missile strike on a defunct satellite, which has inadvertently caused a chain reaction forming a cloud of debris in space.

Parameters To Be Used For The Analysis

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| --- | --- | --- |
| **Assumption** | **Size** | **Comment** |
| **Hubble’s orbital height** | 569 km | From the surface of the Earth. |
| **Telescopes Orbital Period** |  | From above. |
| **Telescopes Orbital Velocity** |  | From above. |

Analysis: In the opening scene of Gravity astronauts connect with the Hubble satellite for repairs. ***Determine both the Orbital Period and Orbital Velocity of the Hubble Space Telescope***.

Background: *High-speed debris from the Russian satellite strikes the Explorer and Hubble, detaching Stone from the shuttle and leaving her tumbling through space.*

Parameters To Be Used For The Analysis (from previous page!

|  |  |  |
| --- | --- | --- |
| **Assumption** | **Size** | **Comment** |
| **Hubble’s orbital height** | 569 km | From the surface of the Earth. |
| **Telescopes Orbital Period** |  | From previous page! |
| **Telescopes Orbital Velocity** |  | From previous page! |

Parameters To Be Extracted From the Movie Clip!

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| **Assumption** | **Size** | **Comment** |
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Analysis: ***Determine if the collision between the debris and the astronauts makes “Physics Sense”.***