Experiment 3: Collisions Part 3A– Linear Collisions With a Fixed Object

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| Name | Partner | Date |
| Glider Mass, m:  | Sonic Ranger Calibration (Gain and Offset):Gain = 172.2 m/s Offset = 1.90 m |
| Force Probe Calibration (Gain and Offset):Gain = -12.54 N/V Offset = 0.0045 N |
| Data for glider colliding with different object types

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| Object | Initial Momentum $p\_{i}$(kg m/s) | Final Momentum $p\_{f}$(kg m/s) | Impulse$$J$$(N s = kg m/s) | Momentum Change$$Δp=p\_{f}-p\_{i}$$(kg m/s) | Coefficient of Restitution$$ϵ$$ |
| Spring |  |  |  |  |  |
| Rubber Bumper |  |  |  |  |  |
| Clay |  |  |  |  |  |

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| Show an example of how you calculate the momentum change (and uncertainty) |
| Show an example of how you compare the momentum change to the impulse using the difference method. |
| Write a short paragraph that summarizes whether your data supports the principle that the change in momentum of the glider is equal to the impulse it experiences in the collision. |

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| Name | Partner | Date |
| Write a statement comparing the coefficients of restitution for the different collision types.  |
| Attachments:* Graphs showing position, momentum, and force versus time for the simulated collision in VPython.
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