**Experiment: „Jumping bullet“**

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**Equipment**: jumping bullet, ruler, scales, timer

**Method**:

1. Drop a ball from h0 = 2m. Measure the maximum return distance 10 times.
2. Calculate the deviation and possible percentage error.
3. Calculate ∆Emech,, energy converted into other types during the collision.
4. Calculate the ∆***v*** during the collision (collision: t = 50ms)
5. Calculate ∆***p*** (∆***p*** = m\*∆***v***) during the collision

**Step 1):**

**Data**:

m = 19.2g = 0.0192kg

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| h (cm) | 140 | 135 | 136 | 139 | 138 | 144 | 137 | 138 | 143 | 144 |
| Deviation | 0.6 | 4.4 | 3.4 | 0.4 | 1.4 | 4.6 | 2.4 | 1.4 | 3.6 | 4.6 |

**Step 2):**

Average height: h = 139cm

Average deviation: ∆h = 2.68m

Possible percantage error: 1.9%

**Step 3):**

∆Emech = m\*g\*h0 – m\*g\*h = m\*g\*(h0 - h) = 0.0192 \* 9.81 \* 0.6 = 0.11J

**Step 4):**

∆***v*** = vprev + (-vnext) = sqrt(2 \* g \* h0) + sqrt(2 \* h) = 6.26 + 1.66 = 7.92 m\*s-1

**Step 5):**

∆***p*** = m\*∆***v*** = 0.0192 \* 7.92 = 0.15 kg\*m\*s-1

**Conclusion:**