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## Forces in Baseball

## GRADES 6-8

|  | Throw 1 = 10 meters |  |  | Throw 2 = 10 meters |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Mass of ball: 0.145 kg | Time(s) | Velocity (m/s) | Kinetic Energy (Joules) | Time(s) | Velocity (m/s) | Kinetic Energy (Joules) |
| Student 1 | answer here | answer here | answer here | answer here | answer here | answer here |
| Student 2 | answer here | answer here | answer here | answer here | answer here | answer here |
| Student 3 | answer here | answer here | answer here | answer here | answer here | answer here |
| Student 4 | answer here | answer here | answer here | answer here | answer here | answer here |
|  | Throw 3 = 10 meters |  |  | Throw 4 = 10 meters |  |  |
| $\begin{gathered} \text { Mass of ball: } \\ 0.145 \mathrm{~kg} \end{gathered}$ | Time(s) | Velocity (m/s) | Kinetic Energy (Joules) | Time(s) | Velocity (m/s) | Kinetic Energy (Joules) |
| Student 1 | answer here | answer here | answer here | answer here | answer here | answer here |
| Student 2 | answer here | answer here | answer here | answer here | answer here | answer here |
| Student 3 | answer here | answer here | answer here | answer here | answer here | answer here |
| Student 4 | answer here | answer here | answer here | answer here | answer here | answer here |

1. What percent of the Aroldis Chapman throw (105.1 MPH) was your fastest pitch? Example: If you threw at $45 \mathrm{MPH} / 150 \mathrm{MPH}=.3$ or $30 \%$, your fastest throw was only 30\% as fast as Aroldis Chapman's throw.
answer here
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## Forces in Baseball

## GRADES 6-8

Graph the kinetic energy vs. your velocity for each throw from slowest to fastest.

2. Based on your data/graph, explain the relationship between velocity and kinetic energy by making a claim about the relationship. Support your claim with evidence and reasoning.

Claim: What is the relationship between velocity and kinetic energy? answer here

Evidence: Record and reference in words any data that supports your claim. answer here

Reasoning: Explain why your claim is supported by evidence and scientific ideas. Use the kinetic energy equation to support you. answer here

