Physics of Archery

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The purpose of our project was to determine, from the weight of the different arrows (360, 400, 420) which arrow, projected by the same bow will create the most kinetic energy, as you would want while archery hunting. Our hypothesis stated that the 420 grain arrow (heaviest) will create the most kinetic energy, although the arrow will most likely have the lowest velocity. To test our hypothesis we tested the three arrows five times each between four different test subjects. We also created a ballistics gelatin that is closely related to venison flesh. We then placed the gelatin 10 yards away, a common shooting distance while deer hunting. We had four subjects shoot each arrow from lightest to heaviest five times each. After doing so we concluded that our data did support that our hypothesis was correct. The 420 grain arrow, while being slowest in velocity, created the most kinetic energy pushing the arrow through our target further than the other arrows.