

Name:

Date:

Class:

## Orthotic Insole Design and Kinetic Energy Assignment Rubric

Criterion	4 - Exceeds Expectations	3 - Meets Expectations	2 - Approaching Expectations	1 - Needs Improvement
<b>Understanding of Kinetic Energy</b>	Accurately and thoroughly describes how kinetic energy relates to both the mass and speed of moving objects and clearly explains energy transfer through materials.	Correctly describes the relationship between kinetic energy, mass, speed, and energy transfer with minor omissions or inaccuracies.	Shows a basic understanding of kinetic energy concepts, but with limited detail or some misconceptions.	Demonstrates little to no understanding of kinetic energy or how it transfers through materials.
<b>Orthotic Design &amp; Material Use</b>	Designs an innovative orthotic prototype with clear, labeled sketches showing thoughtful selection and placement of different foam densities to reduce foot pressure precisely.	Designs a functional orthotic prototype with labeled sketches showing appropriate use of varied foam densities.	Provides a basic orthotic design sketch with limited labeling or unclear selection of foam densities.	Provides an incomplete or unclear design with little or no consideration of foam densities for pressure reduction.

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<b>Data Collection &amp; Accuracy</b>	Collects detailed, accurate indent depth data for all drop heights with and without orthotics; data is clearly recorded and organized.	Collects accurate data for most drop heights with minor errors or omissions; data is organized.	Collects some data but with inconsistencies, errors, or incomplete recording across drop heights.	Data collection is incomplete, inaccurate, or disorganized, preventing meaningful analysis.
<b>Graphing &amp; Data Interpretation</b>	Creates clear, well-labeled graphs for indent depth vs. drop height with and without orthotics; interprets data insightfully to evaluate effectiveness.	Creates graphs with appropriate labels and scales; interprets data correctly to explain orthotic effectiveness.	Creates graphs but may lack labels or clarity; provides a basic or partially correct interpretation of data.	Graphs are missing or poorly labeled; interpretation of data is incorrect or absent.
<b>Analysis &amp; Communication</b>	Provides comprehensive, clear responses to analysis questions, explains how orthotics reduce pressure, and creates a creative, relevant slogan. Communicates findings effectively in a poster.	Answers analysis questions correctly; explains pressure reduction and creates an appropriate slogan. Communicates findings clearly.	Provides partial or simplistic answers to analysis questions; slogan and communication lack depth or clarity.	Provides incomplete or inaccurate analysis; slogan and communication are unclear or missing.
<b>Engineering Design Process</b>	Fully follows the engineering design process (Ask, Imagine, Plan, Create, Test, Improve, Communicate) with detailed, reflective steps and improvements.	Demonstrates understanding and application of the design process, with all steps addressed appropriately.	Addresses most steps in the design process but with limited detail or reflection on improvements.	Few or no steps of the engineering design process are addressed; lacks reflection or iteration.

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