

Bouncing Balls

Year 5 Sciences / AC Year 10



Unit Title: Energy

Date Released: [Click here to enter a date.](#)

Checkpoint Dates: [Click here to enter a date.](#)

Due Date: [Click here to enter a date.](#)

Statement of Inquiry:

The conservation of energy in a balance system provide models for scientific and technological development to maximize energy transfers and transformations.

Task Overview Energy transfers are never 100% efficient because sometimes they give off wasted energy like heat or light. Such as when a rubber ball hits the ground, there is friction, which transforms some energy into thermal energy and sound energy. The rest of the kinetic energy will then transform into elastic potential energy as it makes contact with the ground. If a ball were 100% efficient, it would bounce the same height as it was dropped from and will never stop bouncing

Your Task

You need to design a practical that determines the relationship between the drop height of a ball and the bounce back height of the ball.

You will need determine the percentage of the drop height to which a rubber ball returns on bouncing and whether that percentage varies for large or small drop heights. This will also indicate how efficient the rubber ball is.

You should also compare different types of balls (ping pong, tennis, squash) to develop your overall conclusion.

Requirements and Format:

Word Count /Length 750 Words maximum

Format/Text Type Electronic Investigative Report

Components See Scaffolding Document

Assessment Criteria

A Knowing and Understanding

Maximum Level
Not Assessed

B Inquiring and Designing

8

C Processing and Evaluating

8

D Reflecting on the impacts of Science

Not Assessed

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Criterion C: Processing and Evaluating

Achievement Level	Level Descriptor	Task-specific clarification
7-8	<p>The student is able to:</p> <ul style="list-style-type: none"> i. correctly collect, organize, transform and present data in numerical and/ or visual forms ii. accurately interpret data and explain results using correct scientific reasoning iii. evaluate the validity of a hypothesis based on the outcome of a scientific investigation iv. evaluate the validity of the method based on the outcome of a scientific investigation v. explain improvements or extensions to the method that would benefit the scientific investigation. 	<p>To meet the level descriptors make sure you:</p> <ul style="list-style-type: none"> i. You have correctly collected, organized, transformed and presented data in numerical and/ or visual forms with <u>little or no errors</u> ii. You have accurately interpreted data and explained results using correct scientific reasoning forms with <u>little or no errors</u> iii. You have <u>evaluated</u> the validity of a hypothesis based on the outcome of a scientific investigation iv. You have <u>evaluated</u> the validity of the method based on the outcome of a scientific investigation v. You have <u>explained</u> improvements or extensions to the method that would benefit the scientific investigation.
5-6	<p>The student is able to:</p> <ul style="list-style-type: none"> i. correctly collect, organize and present data in numerical and/or visual forms ii. accurately interpret data and explain results using scientific reasoning iii. discuss the validity of a hypothesis based on the outcome of a scientific investigation iv. discuss the validity of the method based on the outcome of a scientific investigation v. describe improvements or extensions to the method that would benefit the scientific investigation. 	<ul style="list-style-type: none"> i. You have correctly collected, organized and presented data in numerical and/ or visual forms with <u>some errors</u> ii. You have accurately interpreted data and explained results using correct scientific reasoning with <u>some errors</u> iii. You have <u>discussed</u> the validity of a hypothesis based on the outcome of a scientific investigation iv. You have <u>discussed</u> the validity of the method based on the outcome of a scientific investigation v. You have <u>described</u> improvements or extensions to the method that would benefit the scientific investigation.
3-4	<p>The student is able to:</p> <ul style="list-style-type: none"> i. correctly collect and present data in numerical and/or visual forms ii. accurately interpret data and explain results iii. outline the validity of a hypothesis based on the outcome of a scientific investigation iv. outline the validity of the method based on the outcome of a scientific investigation v. outline improvements or extensions to the method that would benefit the scientific investigation. 	<ul style="list-style-type: none"> i. You have correctly collected and presented data in numerical and/ or visual forms with <u>some errors</u> ii. You have interpreted data and explained results with <u>some errors</u> iii. You have <u>outlined</u> the validity of a hypothesis based on the outcome of a scientific investigation iv. You have <u>outlined</u> the validity of the method based on the outcome of a scientific investigation v. You have <u>outlined</u> improvements or extensions to the method that would benefit the scientific investigation.
1-2	<p>The student is able to:</p> <ul style="list-style-type: none"> i. collect and present data in numerical and/or visual forms ii. interpret data iii. state the validity of a hypothesis based on the outcome of a scientific investigation iv. state the validity of the method based on the outcome of a scientific investigation v. state improvements or extensions to the method. 	<ul style="list-style-type: none"> i. You have collected and presented data in numerical and/ or visual forms with <u>many errors</u> ii. You have <u>attempted</u> to interpret data iii. You have <u>stated</u> the validity of a hypothesis iv. You have <u>stated</u> the validity of the method based on the outcome of a scientific investigation v. You have <u>stated</u> improvements or extensions to the method
0	<p>The student does not reach a standard described by any of the descriptors below.</p>	Incomplete