TED İSTANBUL KOLEJİ VAKFI
ÖZEL LİSESİ

2025–2026 ACADEMIC YEAR
GRADE 9 PHYSICS PROJECT

NAME OF THE PROJECT: BUILDING BALLOON CARS

Grade	Content	Acquisition	Duration	Assessment
9	Applying Scientific method to a daily life observation; "**Balloon Car"**	Develop skills for making scientific inquiries.	Academic year	Research & Experiment Rubric

Dear Student;

In this project, you are expected to apply scientific method to a daily life observation; "**Balloon Car**." You are free to choose any toy car including Legos. You need balloons with different sizes, pump(optional) and any fixing method such as hard wire, pipes, tapes etc. You are free to choose the way you fix the balloon at the end of your car. We don't want the balloon to leave the car whilst it pushes the air out from the back.
Measure experimentally the maximum distance of balloon car. Determine in which way its distance taken is maximum.

Rules and Warnings

- Do not copy sentences directly from books, the internet, or AI tools (such as ChatGPT).
- Write in your own words.
- Always give the reference when you use another person's idea, picture, or sentence.
- When you complete the experiment, you must also submit a video recording. In the video, it must be clear that you are doing the experiment yourself.

You should follow the following steps.

A. Research
B. Experimentation
C. Experiment report

A. Research:
Determine the subtitles; like pressure, volume, friction, mass etc.
Determine the relevant parameters: What could be the relevant parameters; size of the car, quantity of air, etc.

B. Experimentation:

After determining the relevant parameters, form a testable hypothesis for one of the parameters such as "distance of the car is proportional to the size of the balloon. (Do not use this hypothesis, this is only an example.)

Determine the independent, dependent and the controlled variables. You should choose it according to your own hypothesis.
Design a method to test your hypothesis, determine the apparatus to be used, draw the details of the mechanism.
Collect data, form a data table accordingly.
Evaluate the validity of the hypothesis based on your data.
Suggest improvements to further inquiry.

C. Experiment Report:

Title: * a brief, concise, yet descriptive title.

Statement of the Problem:

* What question(s) are you trying to answer?

* Include any preliminary observations or background information about the subject.

Hypothesis:

* Write a possible solution for the problem.

* Make sure this possible solution is a complete sentence.

* Make sure the statement is testable, an if-then statement is recommended to illustrate what criteria will support your hypothesis (and what data would not support the hypothesis).

Materials:

* Make a list of all items used in the lab. Alternatively, materials can be included as part of the procedure.

Procedure:

* Write a paragraph (complete sentences) which explains what you did in the lab as a short summary.

* Add details (step-by-step) of your procedure in such a way that anyone else could repeat the experiment.

Results (Data):

* This section should include any data tables, observations, or additional notes you make during the lab.

* You may attach a separate sheet(s) if necessary.

* All tables, graphs and charts should be labeled appropriately.

Conclusions:

* Accept or reject your hypothesis.

* EXPLAIN why you accepted or rejected your hypothesis using data from the lab.

* Include a summary of the data - averages, highest, lowest, etc. to help the reader understand your results. Try not to copy your data here, you should summarize and reference KEY information.

* List one thing you learned and describe how it applies to a real-life situation.

* Discuss possible errors that could have occurred in the collection of the data (experimental errors)

You should present your teacher the following at the end of your entire work;

1) Research paper containing a cover paper, research of the subtitles, introduction, body, conclusion, quotation, footnote, references.
2) Experiment report.

6

FIRST CHECK: (Planning)

Do your research and determine relevant parameters.

SECOND CHECK: (Draft)

Do your experiment, write down a draft report.

SUGGESTIONS:

Be careful about keeping all other variables constant when testing the dependent variable.

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ACADEMIC YEAR 2025- 2026

SCIENCE DEPARTMENT

RESEARCH & EXPERIMENT RUBRIC

	CRITERIA	EXCELLENT (5 POINTS)	GOOD (3-4 POINTS)	FAIR (2-3 POINTS)	POOR (1-2 POINTS)	NOT EXIST AT ALL 0	POINTS EARNED
Content of the research paper	Determination of the subtitles.						
	Research of the subtitles.						
	Accuracy of the content.						
	Relevancy of the content to grade level.						
	Originality. (Turnitin)						
Neatness of	Cover paper.						

	Content, design of the title and foreword.						
	Page design. (Fonts, style)						
	Plan, introduction, body, conclusion.						
	Quotation, footnote, references.						
	Grammar, Labeling, Spelling.					.	
Quality of the experimentation (45 points)	Relevancy of the experiment to grade level.						
	Formulate a testable hypothesis and explain it using scientific reasoning.						
	Design and carry out scientific investigations that include dependent and independent and controlled variables.						
	Design and carry out a method to be followed.						
	Draw the details of the mechanisms.						
	Outcome of the investigations-data collection, graphs, and tables.						

	Reliability of the data.						
	Evaluate the validity of the hypothesis based on the data.						
	Suggest improvements to the method or further inquiry.						
TIMING		**FIRST CHECK (IF NOT; - 5 POINTS) FIRST DRAFT:**		**SECOND CHECK (IF NOT; - 5 POINTS) SECOND DRAFT:**		**SUBMISSION (IF LATE FOR 2 DAYS; - 10 POINTS) SUBMISSION:**	
		DATE:		**DATE:**		**DATE:**	