

## Balloon Car Analysis Rubric

	<b>Level 4</b>	<b>Level 3</b>	<b>Level 2</b>	<b>Level 1</b>
<b>Knowledge and Understanding</b>	Key terms related to kinematics and forces are always used correctly. An accurate free-body diagram is created showing all forces and indicating their relative sizes.	Key terms related to kinematics and forces are used correctly most of the time. A mostly accurate free-body diagram is created showing all forces and indicating their relative sizes.	Some key terms related to kinematics and forces are used correctly. A free-body diagram is created showing some of the relevant forces.	A few key terms related to kinematics and forces are used. A relevant free-body diagram is created.
<b>Application</b>	Equations for uniform acceleration and forces, as well as graphs, are used correctly to calculate the acceleration of the car and the frictional force acting upon it.	Equations for uniform acceleration and forces, as well as graphs, are used to calculate the acceleration of the car and the frictional force acting upon it.	Some equations for uniform acceleration and forces, as well as graphs, are used to calculate the acceleration of the car and the frictional force acting upon it.	Some equations for uniform acceleration and forces, as well as graphs, are used to attempt to calculate the acceleration of the car and the frictional force acting upon it.
<b>Communication</b>	No spelling, punctuation or grammar errors or very few mistakes presented.	Minor errors in spelling, grammar and punctuation.	Somewhat considerable errors in spelling, grammar and punctuation.	Significant errors in spelling, grammar and punctuation.

	<b>Level 4</b>	<b>Level 3</b>	<b>Level 2</b>	<b>Level 1</b>
<b>Thinking and Investigation</b>	Students demonstrate useful improvements to their cars based on experimentation. They can identify at least two realistic sources of experimental error. Students can completely and concisely explain how Newton's Law applies to the motion of the car.	Students demonstrate some useful improvements to their cars based on experimentation. They can identify at least two sources of experimental error. Students can completely explain how Newton's Law applies to the motion of the car.	Students demonstrate some changes to their cars based on experimentation. They can identify at least one source of experimental error. Students can generally explain how Newton's Law applies to the motion of the car.	Students can identify at least one source of experimental error. Students can generally identify Newton's Law.