Forces are acting on objects all around you. Every time an object changes speed or direction, you know that there are unbalanced forces acting. If an object is standing still or moving at a constant speed in a straight line, you know that it is subject to balanced forces.

Your task is to analyze five photographs for the forces they contain and the resulting acceleration of the selected object in the photograph. You are to research necessary variables, such as the mass of objects or a reasonable range of forces, in order to analyze the motion of the object in more detail. For example, if you chose to analyze a 2010 Camaro skidding to a stop, you might go to the Chevrolet website and discover that the 2SS model has a mass of 3,860 pounds, which might help your analysis of the frictional force necessary to stop it in a reasonable distance.

Include the following in your submission:

1. Situations of static equilibrium (standing still), dynamic equilibrium (moving at constant speed) and non-equilibrium.
2. Clearly labeled Free Body Diagrams for each photograph (computer-generated or hand-drawn and scanned-in)
3. Descriptions of each situation and why each force is relevant.
4. Analysis of each situation with clearly laid-out calculations of reasonable magnitudes for each force.
5. A listing crediting sources of both images and researched facts.

Checklist

As you complete your chart, please review the checklist below to ensure you have included all needed items.

|  |  |
| --- | --- |
| Content  *All criteria must be present to receive credit.* | |
| Included? | **Item** |
|  | Situations of static equilibrium (standing still), dynamic equilibrium (moving at constant speed) and non-equilibrium. |
|  | Clearly labeled Free Body Diagrams for each photograph (computer-generated or hand-drawn and scanned-in) |
|  | Descriptions of each situation and why each force is relevant. |
|  | Analysis of each situation with clearly laid-out calculations of reasonable magnitudes for each force. |
|  | A listing crediting sources of both images and researched facts. |
| Citations  *If outside resources are used to create your questions and responses, please include a bibliography. If you need assistance, visit the Developmental Module for information on citing any resources that you used.* | |
| Included? | **Item** |
|  | Along with assignment described in the direction, you may also need to submit a separate bibliography citing any resources that you used. |