Newton's Design Project

Task: Build a model that will be used to demonstrate one of Newton's 3 Laws of Motion.

Requirements:
- Must be designed and built by student following the 6 step design process (attached)
- Model must be safe and school appropriate (no dangerous chemicals, flammables, weapons, etc…)
- Student must present their model and demonstrate how it represents one of Newton's Laws.

6 Step Design Process:
- Attached is a "rough draft" copy of the design process. All sections of this process must be completed.
- There will be check-ins (due dates) as to when each step of the process needs to be completed. Those due dates will be listed on the agenda and on the class website.
- A final copy (typed or printed in blue or black ink with no scribbles) is due on presentation day.

Presentation:
- May be given "live" in the classroom or recorded at home (if model is too large to bring into school).
- Must include the demonstration of the model.
- Must include all the steps of the design process.
- Must include an additional visual aid besides the model (pictures or videos of building process, sketches of design, data from testing, etc…)
- Visual presentation tool MAY NOT be Powerpoint. Instead use Prezi, Glogster, Weebly, Discovery Board Builder, Google Sites, Slideshare, etc..
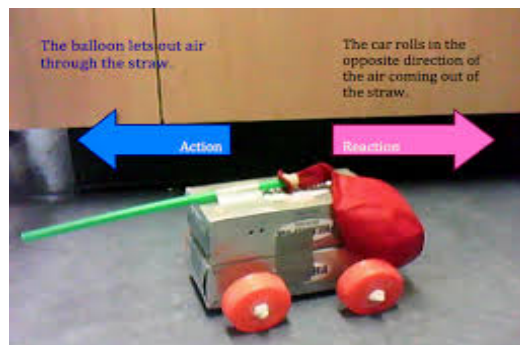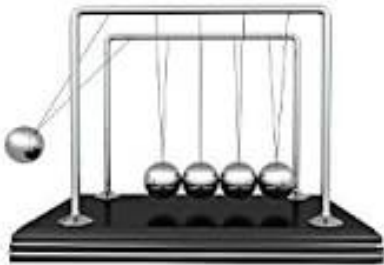
Assessment:

Learning Goal #8: I can demonstrate how forces affect the motion of objects through models.

Score 4.0	In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.
Score 3.0	The student: • will identify forces (gravity, friction, air resistance, etc…) acting on objects and explain how those forces affect the motion of the objects. • can demonstrate Newton's 3 Laws of Motion.
Score 2.0	Students exhibits some minor errors regarding the level 3 understandings.
Score 1.0	With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes OR major errors regarding the level 3 understandings.
Score 0.0	No understanding or skill was demonstrated.

Learning Goal #5 I can design models to generate data for testing and modify the design so that optimal design is achieved.

Score 4.0	In addition to Score 3.0, in-depth inferences and applications that go beyond what was taught.
Score 3.0	The student: • will define the problem of the task they are trying to solve. • generate concepts through research • develop an initial design of the model through sketches • construct a prototype of the model • evaluate the model through testing (with multiple trials) • modify the initial design and explain changes made • present model to an audience using appropriate presentation skills
Score 2.0	Students exhibits some minor errors regarding the level 3 understandings.
Score 1.0	With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes OR major errors regarding the level 3 understandings.
Score 0.0	No understanding or skill was demonstrated.