North Kingstown High School
Anchor Assignment Assessment Plan

Department **Science**

Name of Course **Honors Physics / College Prep Physics / AP Physics**

"Title" of Anchor Assignment **Self- Locomotive Toy Car Project/ First Quarter Project**

What are students asked to do/create/write/present to complete this assignment?

Start with a toy car without self locomotion. Provide it with a means of self locomotion that causes it to travel with an average speed of 0.33 m/s for a distance of at least 1.00 meter.

Present your project to the class. In that presentation to the class you will demonstrate your knowledge of self locomotion, using a PowerPoint presentation, explain how your project works and explain the development of your project

You may work in teams up to 3 or individually.

Preliminary project design is due 3 weeks prior to due date.
Revised project designs are accepted as changes are made.

Prototype should be built 2 weeks prior to due date.

Toy cars are previously made, not from a kit (i.e. no Lego sets, Erector sets, etc.)

GSE(s) Covered by this Assignment:

Science:

PS3 - The motion of an object is affected by forces.

PS3 (9-11) POC+ INQ 8 **Given information (e.g., graphs, data, diagrams), use the relationships between or among force, mass, velocity, momentum, and acceleration to predict and explain the motion of objects**
PS3 (9-11) POC –9 Apply the concepts of inertia, motion, and momentum to predict and explain situations involving forces and motion, including stationary objects and collisions.

Engineering & Technology (DRAFT):
ET2 - Effective design through engineering and technology is the outcome of a problem solving process involving the application of content knowledge, acquired skills, and creativity. (ITEA STL 8-13)
ET2.1 (9-12)Evaluate the design and refine the design process used to solve a real world problem.
ET2.3 (9-12) Refine the processes of research and development, invention and innovation, experimentation, and troubleshooting for the purpose of achieving an optimal design solution.
ET3 - The designed world community selects and uses the appropriate technology. (ITEA — STL 14-20)
ET3.2 (9-12) Evaluate the effectiveness of tools to measure, design, and implement specific technologies.

Oral Communication:
OC**2.1** Exhibiting logical organization and language use, appropriate to audience, context, and purpose
OC2.2 Maintaining a consistent focus
OC2.3 Including smooth transitions, supporting thesis with well-chosen details, and providing a coherent conclusion
OC2.4 Effectively responding to audience questions and feedback
OC2.5 Using a variety of strategies of address (e.g., eye contact, speaking rate, volume, articulation, enunciation, pronunciation, inflection, voice modulation, intonation, rhythm, and gesture) to communicate ideas effectively

OC2.6 Using tools of technology to enhance message

Math:

NO-7 Makes appropriate estimates in a given situation by determining the level of accuracy needed and analyzing the accuracy of results.

GM-7 Uses units of measure appropriately and consistently when solving problems across content strands; makes conversions within or across systems and makes decisions concerning an appropriate degree of accuracy in problem situations involving measurement in other GSEs.

FA-1 Identifies, extends, and generalizes a variety of patterns (linear and nonlinear) represented by models, tables, sequences, or graphs to solve problems

DSP In response to a teacher or student generated question or hypothesis decides the most effective method (e.g., survey, observation, research, experimentation) and sampling techniques (e.g., random sample, stratified random sample) to collect the data necessary to answer the question; collects, organizes, and appropriately displays the data; analyzes the data to draw conclusions about the questions or hypotheses being tested while considering the limitations of the data that could effect interpretations; and when appropriate makes predications, asks new questions, or makes connections to real-world situations.

NKHS Expectation(s) for Student Learning Covered by this Assignment:

6 Problem Solving

Problem Solving

Depth of Knowledge (Check one)

_____Level 1- Recall of Information - requires the student to write or recite simple facts. Does not include complex synthesis or analysis, but basic ideas. Level 1 requires students to demonstrate a rote response, perform a well-known algorithm, follow a set procedure (like a recipe), or perform a clearly defined series of steps.

_____Level 2- Basic Reasoning- requires some mental processing, connecting ideas using a simple organizational structure. At this level, students are engaged in first draft writing for a limited number of purposes and audiences; Keywords that generally distinguish a Level 2 item include "classify," "organize," "estimate," "make observations," "collect and display data," and "compare data." These actions imply more than one step.

_____Level 3- Complex Reasoning- requires some higher level mental processing. Students are developing multi-paragraph compositions that may include complex sentence structures or demonstrate some synthesis and analysis. The cognitive demands at Level 3 are complex and abstract. The complexity does not result from the fact that there are multiple answers, a possibility for both Levels 1 and 2, but because the task requires more demanding reasoning.

__X___Level 4- Extended Reasoning- Higher-level thinking is central to this level. Multi-paragraph compositions demonstrate synthesis and analysis of complex idea or themes and evidence of a deep awareness of purpose and audience. Level 4 activities include designing and conducting experiments; making connections between a finding and related concepts and phenomena; combining and synthesizing ideas into new concepts; and critiquing experimental designs.

Is proficient completion of this assignment required for the e-Portfolio? Yes _X__ No ____

How will this anchor assignment be graded and weighed in the overall grading?
(counts the same as a test in Honors and College Prep Physics, it is ungraded in AP Physics)

Up to 100 points can be earned on this project by the following.

Presentation (35 pts)

You will present your project.

1) Demonstrating your knowledge of self locomotion (5 pts)

2) Having a quality PowerPoint (10 pts.)
3) Having a quality Oral Presentation (10 pts.)
4) Explain how your project works. (5 pts)
5) Explain the development of your project (5 pts)

Motion (45 pts)

You will receive 5 points if your car moves at all plus,

If your car moves with an average speed in a range of (m/s)	you will receive (points)
0.31-0.35	20
0.29-0.30 or 0.36-.037	19
0.27-.028 or .38-.39	18
0.25-0.26 or .40-.41	17
…	…
0.01-.02 or greater than .65	5

You will receive 1 point for every 5 cm your car travels up to a maximum of 20 points.

Timeliness (15 pts)

You will receive 5 points if your preliminary design is submitted by the design due date.
You will receive 10 points if your project is in by the project due date.

Creativity (5 pts)

You will receive up to 5 points for creativity based on the class average of the judging of Neatness, Gee-Wiz Factor, and Aesthetics.

	Wow 10 pts	**Good Job 8 pts**	**Got It 6 Pts**	**Needs Improvement 4 pts**	**There's Something 2 pts**
PowerPoint Quality	No grammatical or mechanical errors. Engages the audience. The visuals are outstanding. Has graphics or pictures which support the presentation. Expresses your ideas clearly The visuals	Has graphics or pictures which support the presentation. Expresses your ideas clearly The visuals	Has graphics or pictures which support the presentation. Expresses your ideas clearly.	Has no graphics or pictures. Is unclear. Does not support your oral presentation.	You have something.
Oral Presentation Quality	You are knowledgeable about your project. You speak clearly and authoritatively. Your presentation is engaging	You are knowledgeable about your project. You speak clearly and authoritatively.	You are knowledgeable about your project. You speak clearly.	You read your PowerPoint to the audience.	You say something about your project

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Outline the opportunities for students to revise their work.

The project is introduced one month before the due date. Preliminary project designs are due 3 weeks before the due date. Revised project designs are accepted as changes are made. There is also a suggested due date (2 weeks prior to the due date) for when the project should be built by, this is so students can have time to test and revise their car before the presentation. The nature of this project involves constant revision. Students need to not wait until the last minute to ensure that they have time to revise their project.