03: Multidimensional Motion

Content Area: **Science**
Course(s): **Honors Physics**
Time Period: **November**
Length: **1**
Status: **Published**

Enduring Understandings:

- Cars on a turn are the combination of friction and circular motion
- Circular Motion Happens when Forces are Perpendicular to Motion
- Horizontal Motion does not affect vertical motion
- Orbits are the combination of circular motion and gravity
- Projectiles are result of simultaneous horizontal and vertical motion
- Vertical circles have multiple forces at once

Essential Questions:

- How can we make predictions about objects moving in a circle?
- How can we make predictions about the motion of a projectile?

Lesson Titles:

- All Projectiles
- Basic Circular Motion
- Cars on a Turn
- Ground to Ground Projectiles
- Intro to 2d Motion
- Orbital Motion
- Projectiles fired Horizontally
- Vertical Circular Motion

Career Readiness, Life Literacies & Key Skills

WRK.K-12.P.1	Act as a responsible and contributing community members and employee.
WRK.K-12.P.4	Demonstrate creativity and innovation.
WRK.K-12.P.5	Utilize critical thinking to make sense of problems and persevere in solving them.
WRK.K-12.P.8	Use technology to enhance productivity increase collaboration and communicate effectively.
WRK.K-12.P.9	Work productively in teams while using cultural/global competence.

Inter-Disciplinary Connections:

LA.RH.11-12.7	Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, qualitatively, as well as in words) in order to address a question or solve a problem.
LA.RST.11-12.9	Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.
LA.RST.11-12.10	By the end of grade 12, read and comprehend science/technical texts in the grades 11-CCR text complexity band independently and proficiently.
LA.WHST.11-12.1.A	Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that logically sequences the claim(s), counterclaims, reasons, and evidence.
LA.WHST.11-12.1.B	Develop claim(s) and counterclaims using sound reasoning and thoroughly, supplying the most relevant data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline appropriate form that anticipates the audience's knowledge level, concerns, values, and possible biases.
LA.WHST.11-12.1.C	Use transitions (e.g., words, phrases, clauses) to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.
LA.WHST.11-12.2	Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.
LA.WHST.11-12.2.E	Provide a concluding paragraph or section that supports the argument presented.
LA.WHST.11-12.10	Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

Instructional Strategies, Learning Activities, and Levels of Blooms/DOK:

- Chromebook Activity
- Independent Studies
- Lectures on 2d Motion, Projectiles fired Horizontally, Ground to Ground Projectiles, All Projectiles, Basic Circular Motion, Orbital Motion, Cars on a Turn, Vertical Circular Motion
- Problem Solving
- Science Labs on 2d Motion, Projectiles fired Horizontally, Ground to Ground Projectiles, All Projectiles, Basic Circular Motion, Orbital Motion, Cars on a Turn, Vertical Circular Motion

Modifications

Formative Assessment:

- Anticipatory Set
- Closure

- Quizzes on 2d Motion, Projectiles fired Horizontally, Ground to Ground Projectiles, All Projectiles, Basic Circular Motion, Orbital Motion, Cars on a Turn, Vertical Circular Motion
- Warm-Up

Summative Assessment:

- Alternate Assessment
- Benchmark
- Marking Period Assessment
- Unit Test on Multidimensional Motion

Alternative Assessments:

Performance tasks
Project-based assignments
Problem-based assignments
Presentations
Reflective pieces
Concept maps
Case-based scenarios
Portfolios

Benchmark Assessments:

Skills-based assessment
Reading response
Writing prompt
Lab practical

Resources & Materials:

- https://sites.google.com/site/delseaphysics1/Home