

# Unit 1: Forces and Interactions

Content Area: **Science**  
Course(s):  
Time Period: **Trimester**  
Length: **Trimester 1**  
Status: **Published**

## General Overview, Course Description or Course Philosophy

Unit 1: Forces and Interaction in the LLD setting takes a look at the general education curriculum and scales in down for special education students. This allows the students in the LLD Science class to learn in the appropriate setting while exploring forces, gravity, static electricity, and magnetic interactions in this unit.

## OBJECTIVES, ESSENTIAL QUESTIONS, ENDURING UNDERSTANDINGS

### Objectives and Enduring Understandings:

- Students determine the effects of balanced and unbalanced forces on the motion of an object and the cause-and-effect relationships of electrical or magnetic interactions to define a simple design problem that can be solved with magnets.

### Essential Questions:

- How do forces act in the game of tug of war?
- Does a ball fall faster if it is heavier? Does an object in motion remain in motion?
- What forces act on objects to cause them to move (static electricity)?
- How can we cause motion using a magnet?

## CONTENT AREA STANDARDS

3-PS2-1	Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object.
3-PS2-4	Define a simple design problem that can be solved by applying scientific ideas about magnets.
3-PS2-3	Ask questions to determine cause and effect relationships of electric or magnetic interactions between two objects not in contact with each other.
3-PS2-2	Make observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion.

**RELATED STANDARDS (Technology, 21st Century Life & Careers, ELA Companion Standards are Required)**

MA.K-12.2	Reason abstractly and quantitatively.
MA.K-12.5	Use appropriate tools strategically.
LA.RI.3.1	Ask and answer questions, and make relevant connections to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.
LA.RI.3.3	Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect.
LA.RI.3.8	Describe the logical connection between particular sentences and paragraphs in a text (e.g., comparison, cause/effect, first/second/third in a sequence) to support specific points the author makes in a text.
MA.3.MD.B.4	Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units— whole numbers, halves, or quarters.
LA.W.3.7	Conduct short research projects that build knowledge about a topic.
LA.W.3.8	Recall information from experiences or gather information from print and digital sources; take brief notes on sources and sort evidence into provided categories.
LA.SL.3.3	Ask and answer questions about information from a speaker, offering appropriate elaboration and detail.
TECH.9.4.2.CI.1	Demonstrate openness to new ideas and perspectives (e.g., 1.1.2.CR1a, 2.1.2.EH.1, 6.1.2.CivicsCM.2).
TECH.9.4.2.CI.2	Demonstrate originality and inventiveness in work (e.g., 1.3A.2CR1a).
TECH.9.4.2.CT.1	Gather information about an issue, such as climate change, and collaboratively brainstorm ways to solve the problem (e.g., K-2-ETS1-1, 6.3.2.GeoGI.2).
TECH.9.4.2.CT.2	Identify possible approaches and resources to execute a plan (e.g., 1.2.2.CR1b, 8.2.2.ED.3).
TECH.9.4.2.CT.3	Use a variety of types of thinking to solve problems (e.g., inductive, deductive).  Critical thinkers must first identify a problem then develop a plan to address it to effectively solve the problem.

## **EVIDENCE OF LEARNING**

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### **Formative Assessments**

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- Student predictions, observations, and questions
- Teacher questions and discussion
- Observe students as they apply new concepts and skills
- Evidence of students changed thinking and behaviors
- Open ended questions
- Students answering questions using observations, evidence, and previous accepted explanations
- Students asking related questions that encourage future investigations
- Monitor students working in groups
- Listen to whole class conversations to check for understanding
- Completing tasks
- Recording observations in student journal

- Data charts

## **Summative Assessments**

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### Benchmark Assessments

- Multiple Choice Assessment administered at the end of each trimester (T1, T2, T3)

### Alternative Assessments

- Oral Presentations
- Questions for Comprehension
- Performance Tasks
- Scientific Journals/Notebooks
- Self-Assessment
- WebQuests

## **RESOURCES (Instructional, Supplemental, Intervention Materials)**

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- Student journal
- Websites inbedded within lesson plans
- Teacher's Guide to Stations

## **INTERDISCIPLINARY CONNECTIONS**

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- Integrate quantitative or technical information expressed in words in a text. Distinguish among facts, reasoned judgment based on research findings, and speculation in a text.
- Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
- Experimentation
- Social Emotional Learning
- Sustainability

## **ACCOMMODATIONS & MODIFICATIONS FOR SUBGROUPS**

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See link to Accommodations & Modifications document in course folder.

\*In addition to IEP Accommodations & Modifications:

- Restate and review directions
- Student restates directions or information
- Oral responses
- Small group/ one to one
- Additional time
- Concrete examples
- Extra visuals
- Support auditory information with visuals
- Space for movement or breaks
- Extra verbal cues and prompts