

Rutherford County Schools – Individual Learning Modules

Grade	Course
8 th Grade	Science
Unit Focus	
Develop and use models to describe the movement of celestial bodies in our solar system.	
Week of 4/27 – 5/1	
Standard(s)	
8.ESS1.2 Explain the role of gravity in the formation of our sun and planets. Extend this explanation to address gravity’s effect on the motion of celestial objects in our solar system and Earth’s ocean tides.	
Online & Paper Resource(s)	
<p>Click Here to open the student handout that will be used during all 5 days of instruction as outlined below. Click Here to open a Microsoft Form, if it is easier for you to submit your answers digitally.</p> <p>Day 1: Complete the Engage section of the handout. Phenomenon: <i>Isaac Newton was very curious about what affects the motion of celestial bodies in our solar system. He presented a thought experiment called “Newton’s Cannonball,” in which he imagines a cannon on top of a very high mountain. Newton said that logically, the cannonball should follow a straight line away from Earth, in the direction it was fired, instead of falling.</i></p> <ul style="list-style-type: none"> • Newton’s Cannonball simulation • Make observations, ask questions, and answer questions 1-3 on your student handout. <p>Day 2/3: Complete the Explore section of the handout (Models 1-3). Explore different models to form your own idea of how different parts of the solar system interact and why.</p> <ul style="list-style-type: none"> • <u>Model 1:</u> Run the simulation by clicking here and answer the 2 questions on your handout. • <u>Model 2:</u> Follow the instructions on your student handout and answer the 3 questions. • <u>Model 3:</u> Click Here to open the PHET simulation – Follow the instructions on your handout and answer the 3 questions. <p>Day 4: Complete the Explain section of the handout. Use the 3 models explored on Days 2-3 to explain what is seen in this video, describing the role of gravity in the motions within the solar system.</p> <p>Day 5: Complete the Evaluate & Reflect section of the handout. Optional Challenge: Draw a potential route that a telescope may take when it is launched based on what you have learned about mass, gravity, and motion. (See handout for additional information and instructions.)</p>	
Observational Task(s)	
Gravity, inertia, and mass work together in a system to generate motion of celestial bodies and these celestial bodies make up an even bigger system—the solar system. Think about something in nature, specifically outside, that is part of a system. Make a scientific illustration of that thing in nature, thinking about the even bigger system it is a part of. Think about all of the parts in the system and how they work together. What would happen if the thing you chose in nature were changed? Would it affect the bigger system it is a part of?	
Expected Outcomes	
Click Here to open a parent guide with additional help and explanations for parents.	