



NOVA AWARD

VENTURING HIGH SCHOOLERS

Use this tracking tool for the Launch! Nova Award for Venturing

VENTURER NAME: _____

Activity

Campground Area

Completed?

Read articles or watch videos of space exploration, space, planets for a total of 3 hours

Launch Pad
Dining Hall
All subject days

Complete 1 STEM exploration from the list on the next page

See next page

Design and build a catapult that will launch a marshmallow a distance of 4 feet and keep track of your experimental data for every attempt.

The Lab
Engineering

Complete 1 of the following (find details on Mission Control and on the next page):

Find and use a projectile simulation applet on the Internet. Then design and complete a hands-on experiment to demonstrate projectile motion.

The Lab
Engineering

Learn about the difference between escape velocity, orbital velocity, and terminal velocity.

The Lab
Career Exploration

Complete 1 of the following (find details on Mission Control and on the next page):

Visit an observatory or a flight, aviation, or space museum

Launch Pad
Space Exploration

Discover the latitude and longitude coordinates of your current position. Then find out what time a satellite will pass over your area and watch the satellite using binoculars.

The Lab
Astronomy

Meet with a Nova Counselor to discuss what you've learned.

Zoom Meeting
or on own



NOVA AWARD

VENTURING HIGH SCHOOLERS

**Use this tracking tool for the Launch! Nova Award for Venturing.
Below are details for each requirement.**

- Read articles or watch videos of space exploration, space, planets for a total of 3 hours** (*Launch Pad & Dining Hall*)
- Complete ONE STEM exploration from the following list** (*throughout the campground*)
 - Astronomy
 - Space Exploration
 - Robotics
 - Any of them following not included in Cyber Summer Camp, but have not been used for another Nova Award:

Archery	Game Design	Sustainability
Aviation	Rifle Shooting	Weather
Athletics	Shotgun Shooting	
- Design and build a catapult that will launch a marshmallow a distance of 4 feet.** (*The Lab*)
 - Keep track of your experimental data for every attempt. Include the angle of launch and the distance projected.
 - Make sure you apply the same force each time, perhaps by using a weight to launch the marshmallow.
- Complete 1 of the following** (*The Lab or Launch Pad*):
 - Simulations.** Find and use a projectile simulation applet on the Internet. Then design and complete a hands-on experiment to demonstrate projectile motion.
 - Keep a record of the angle, time, and distance.
 - Graph the results of your experiment. (*Note: Using a high-speed camera or video camera may make the graphing easier, as will doing many repetitions using variable heights from which the projectile can be launched.*)
 - Discover.** Explain the difference between escape velocity (not the game), orbital velocity, and terminal velocity. Then answer TWO of the following questions.
 - Why are satellites usually launched toward the east, and what is a launch window?
 - What is the average terminal velocity of a skydiver? (What is the fastest you would go if you were to jump out of an airplane?)
 - How fast does a bullet, baseball, airplane, or rocket have to travel in order to escape Earth's gravitational field? (What is Earth's escape velocity?)
- Complete 1 of the following** (*Launch Pad, The Lab, and Dark Side of the Moon*):
 - Visit an observatory or a flight, aviation, or space museum.
 - During your visit, talk to a docent or person in charge about a science topic related to the site.
 - Discover the latitude and longitude coordinates of your current position.
 - Find out what time a satellite will pass over your area. (A good resource to find the times for satellite passes is the Heavens Above website at www.heavens-above.com.)
 - Watch the satellite using binoculars. Record the time of your viewing, the weather conditions, how long the satellite was visible, and the path of the satellite.
- Meet with a Nova Counselor to discuss what you've learned.**