

2009-2010 NASA Student Launch Projects Payload Summaries

Universities	High School/Middle School/Informal
Payload	Payload
Effectiveness of home built mechanical accelerometer.	Studying the amount of pressure created on a fluid due to the acceleration of the rocket.
One active and one passive damping system designed to find the most effective means of vibration damping.	Recording infrared video of the ground to detect possible arboreal pest infestations in forestry.
Studying the separation of pure gases via magnetic fields in low gravity.	Investigation of whether inertial gyroscopes increase the stability of the rocket during flight.
Measurement of radiation variation with changes in altitude.	Determine the curvature of Earth using cameras and post flight mathematical analysis of the video.
Studying the reduction of the effects of thrust oscillations via an elastic liquid filled membrane.	Studying the effect of rapid acceleration on the crystallization of pure sodium acetate.
Study of bluff bodies in tandem as a replacement for standard nose cone configurations in rocketry.	Studying the effect of atmospheric conditions and ground features on the intensity of direct and reflected sunlight.
Studying the affect of ionized air on the choked flow in a converging-diverging nozzle.	Temperature measurement of motor/airframe during launch, changes in radiation absorption as altitude changes.
Determination of the skin friction coefficient using the reference temperature concept.	Observation of high acceleration on the life cycle of ladybugs.
Measurement of temperature variations with changes in altitude.	Studying the variations in carbon dioxide and carbon monoxide with changes in altitude.
Testing the ejection pressures experienced by the payload during ejection and deployment of the payload.	Measurement of the variation in UV radiation with changes in altitude.
Monitoring the true environmental conditions faced by payloads within launch vehicles.	Studying the reduction of surface drag through the disruption of laminar flow by dimpling the surface of the nose cone.
Studying the velocity and acceleration during flight with accelerometers and Pitot tubes to compare to simulation data.	Studying the variations in ionizing radiation with altitude using Geiger Mueller tubes.
Recording the compressive strain experienced by four different materials that each make up a section of the rocket.	Using the aerodynamic forces during the parachute descent to turn rotary blades which power a DC motor to make power.
Use on-board cameras to expand the viewing horizon to re-establish the line-of-site with a lost balloon.	Study of the change in capacitance of two capacitors as the air pressure between them varies with altitude.
Studying temperature, pressure, humidity data for the first mile AGL of atmosphere.	
Using thermoelectric generators to regenerate electrical energy from the heat of the motor's exhaust plume.	
Comparing several different brands of altimeters using statistical analysis.	
Testing a 3-axis accelerometer.	