#	Idea	Description
	Payload and Experiments	
ARP01	Payload Dynamics	Study of the effects of payloads on vehicle performance
ARP	kno3 igniter	igniter made from nichrome and kno3
ARP03	Experimental Propulsion	Water, air, hybrid
ARP04	parallel Staging	build a vehicle that has drop away boosters
ARP05	Mid Power Scratch Build	build a vehicle from mail tubes and high density foam
ARP06	Climate Effects of Launch Paramete	fly a payload with matching set-up under multiple climate conditions
ARP07	Dual Deployment	experiment with dual deployment
ARP08	Aurora Parallel Stage	Payload vehicle w/boosters
ARP09	Simple Gliders	boosted gliders (parasite)
ARP10	Fiberglass Phase I	Fiberglass reinforced airframe
ARP11	In Line Staging Phase I	study the dynamics and effects of In-Line staging (timing, separation, gap distance and recovery of booster)
ARP12	Unconventional Recovery Ph-I	Study of different recovery options
ARP13	Aerodynamic Effects PH-1	Effects on geometric shapes of same mass during free fall
ARP14	Chute Development dynamics	Develop POD that recovers separate from the vehicle and videos chute operations
ARP15	Streamer Dynamics	Study of streamers using payloads drop from vehicle at apogee
ARP16	Simulation to actual flight	compare Rock Sim and Open Rocket prediction to actual flight conditions
ARP17	multiple altimeter compare	Fly multiple altimeters from different manufacturers
ARP18	G-load Baseline	Mechanical payload that measures actual G-load impact
ARP19	Altitude Tracking	compared with alt drop time and azimuth track
ARP20	Internal fluid dynamics	Build a payload that holds test tubes with fluid
ARP21	Fin Surface Area shape change	Build vehicle that has inter-changeable fin cans with the same surface but different fin shape.
ARP22	RC Servo Performance In Flight	Fly a payload with servos that perform in flight tasks both remotely with a transmitter and automatically with microprocessor
ARP23	Compartment Depressurization	Develop an experiment that studies the depressurization of compartments using multiple payload bays with different size holes on the same flight
ARP24	Flight Effects on micro organisms	develop an experiment that studies the effect of flight on micro organism using a payload of test tubes
ARP25	Optimal Chute packaging	Use the Recovery POD to develop and study different chute packing technique
ARP26	Fail Safe Recovery	develop a "safety" recovery system that is manually deployed in the event of emergency using RC
ARP27	Deployable Payload Section	Develop a Payload Section that can be deployed out of the vehicle at apogee
ARP28	Transformable Deployed Bodies	Develop a payload section that transforms into a glider when deployed

ARP29	Effects of shifting payload mass	Develop a payload experiment to study the effects mass moving on different axis in vehicle during flight
ARP30	night flight phase 1	Build a payload section capable of blinking LEDs
ARP31	Aerodynamic Effects on vent holes	Using the payload section designed for ARP 23 study the effects of airframe obstruction in relation to vent holes
ARP32	max distance of Gap Staging	increase length of booster until sustainer ignition fails (ground test)
ARP33	Dynamic CG	study the effects of in flight CG movement
ARP34	Dynamic CP	study the effects of in flight CP movement
ARP35	Drag Brakes	develop drag brakes for use on booster sections
ARP36	Emergency Recovery System	develop a recovery system that automatically operates in case of emergency
ARP37	Flutter bar recovery	develop a Magnus rotor recovery system
ARP38	Clusters	study cluster vehicles
ARP39	Split Fin Study	same mass surface area and profile split fin
ARP40	Canted motor	develop and build a canted motor cluster vehicle
ARP41	Helicopter recovery	build and fly a kit that is Heli recovered
ARP42	upscale phase 1	Upscale a kit from low power to mid-power
ARP43	staging fin alignment	study the relationship of fin position between booster and sustainer
ARP44	fin area compared to fin #	same area different number of fins
ARP45	foam nose phase I	build a high power nose cone on the drill press
ARP46	Apogee Deployed Capsule	design build fly a capsule that recovered independent of vehicle using an egg as simulated life cargo
ARP47	Dual Deployment no electronics	design build fly a vehicle that uses a cluster to operate dual deployment
ARP48	high altitude tracking	visible streamer and/or powder streamer attached to top of chute
ARP49	PODSAT development	Design and Develop a POD that can perform extended flight time experiments
ARP50	Pressure effects on Airframe	Study the effects on external flight forces on the airframe
ARP51	XPS Hybrid h2o kno3	water rocket that uses BP charge to pressurize the chamber
ARP52	1/2 Mach test	design build fly LP vehicle capable of half MACH
ARP53	internal temperatures at deployme	develop a payload that can capture temp readings during deployment
ARP54	single chute vs multiple same surfac	develop an experiment to study the difference between multiple chutes and single chute with equal surface area
ARP55	static energy collection	develop a payload that captures static electricity during flight
ARP56	air sampling	develop a payload that is capable of mechanically capturing an air sample at apogee
ARP57	audio single capture	develop a payload that is capable of transmitting an audio single at apogee

ARP58	high altitude cato debris tracking	planned simulated failures for capturing baseline data that can be used for comparison to an actual event
ARP59	planned CATO invest	
ARP60	planned recovery failure	
ARP61	planned stability failure	
ARP62	planed sidewall failure	
ARP63	planned shred failure	
ARP64	early separation failure	
ARP65	planned RMS failure	
ARP66	PODSAT with mirrors	drop a NOS with mirrors to reflect sun and visible from ground
ARP67	G2500	standard material vehicle to 2500 feet on BP Motor
ARP68	3/4 Mach Test	design build fly LP vehicle capable of 3/4 MACH
ARP69	Mile High Club	fly a vehicle over 1 mile in altitude
ARP70	Separate Recovery	deploy two payloads of same mass w/same recovery device
ARP71	Max Trax	high alt deploy of message payload with large chute for reward
ARP72	Live Feed	capture live video from flight
ARP73	electronic tracking recovery	fly an electronic tracking payload and locate vehicle using tracker
ARP74	single profile staging	second stage stability profile carried inside booster stage profile
ARP75	paper rocket	vehicle made only from paper
ARP76	Lifting Body	develop a finless vehicle that recovers as a glider
ARP77	Gyro Stabilizer	internal gyro to stabilize vehicle prevent weathercock
ARP78	Seed Experiment	flight effects on a seed
ARP79	Micro Organism	flight effects on micro organisms
ARP80	Voltage Under thrust	study of voltage changes during thrust phase
ARP81	Goldfish	flight of a goldfish and study of effects
ARP82	Crystallization	study effects of flight on crystals
ARP83	Solar Energy Collection	study capability of collecting solar energy in flight
ARP84	Crew Capsule	simulate crew capsule using egg(s)
ARP85	Streamer Harness	Multiple Streamers
ARP86	Thermal Lifts	Study of Thermals using multiple POD w/streamer deployment
ARP87	Multi tired chute	Multiple inline chutes
ARP88	Stage ignition and separation	video ignition and separation of stages from inside the vehicle in flight
ARP89	Multi Stage Vehicle w/2nd stage fins enclosed in booster	design a 2 stage vehicle that has the profile of a single stage vehicle until the sustainer is ignited. When the sustainer ignites the fins mechanically deploy