

New Mexico Science Olympiad Mission Possible February 20, 2010

High School, **Div C** School Name: _____ Table# _____ Pic # _____

Impound time: _____ Setup start time: _____ Setup end time: _____ $t_{ideal} =$ _____

Judge Name/s: _____ The device was run at: _____ MST

ACHIEVEMENTS (additions to score)		Qty	Mult	Points
2.b	Safety: <input type="checkbox"/> Wearing eyewear properly <input type="checkbox"/> No remote controls/timers	0 or 1	DQ	
3.b.	<input type="checkbox"/> Battery $V \leq 10v$, fact sealed & labeled, no lead-acid			
3.d-i	<input type="checkbox"/> Electrical: Only batt, wire, motor, switch, R, C, phototcell, mech relay <input type="checkbox"/> No liquids (except H_2O), uncont. projectiles, hazmat/flammables			
7.c.	Rule Check: <input type="checkbox"/> Size $\leq (80 \times 50 \times 50 \text{ cm})$ <input type="checkbox"/> No or dead end paths	Fail =	Tier 2	
7.a.i.	Time Optimization: Enter seconds up to t_{ideal} _____ ($60 \leq t_{ideal} \leq 90$)		2	
7.a.ii.	Final Task Completion: All 3 conditions must be met $t_{completion}$ (m:ss) ____ : ____ = _____ seconds <input type="checkbox"/> $t_{completion}$ occurs @ $\leq 180 \text{ sec}$ <input type="checkbox"/> Flag size $\geq 5 \times 10 \text{ cm}$ rect. <input type="checkbox"/> Clearance between device top & flag bottom $\geq 30 \text{ cm}$	0 or 1	100	
7.a.iii.	Task Sequence List: <input type="checkbox"/> Submitted on time <input type="checkbox"/> Correct format (both req)	0 or 1	75	
7.a.iv.	Task Sequence List: <input type="checkbox"/> 100% accurate in doc. of device operations	0 or 1	25	
7.a.v.	30 Minute set-up: <input type="checkbox"/> Device prep time $\leq 30 \text{ min.}$	0 or 1	50	
7.a.vi.	FIRST time successful task completion: Enter qty of checked boxes		25	
3.c.i.	* 4.a. must be first task, 4.j. must be last task, others any order is ok			
3.j.	* Task must be successful, listed, and contribute to final task to score			
4.a.	<input type="checkbox"/> Drop golf ball from above device → trigger mousetrap → next			
4.b.	<input type="checkbox"/> Activate photocell → power to operate motor → next			
4.c.	<input type="checkbox"/> Motor → shaft → moves mass continuously for $\geq 10 \text{ sec}$ → next			
4.d.	<input type="checkbox"/> Deactivate homemade electromagnet → release mass → next			
4.e.	<input type="checkbox"/> R_{wire} → heat → melt monofilament line → release mass → next			
4.f.	<input type="checkbox"/> Activate enclosed pneumatic/hydraulic system →			
4.g.	<input type="checkbox"/> Raise golf ball $\geq 30 \text{ cm}$ vertically → next			
4.h.	<input type="checkbox"/> Pop pre-inflated balloon → deflation → next			
4.i.	<input type="checkbox"/> Motor & propeller → generates wind → next			
4.j.	<input type="checkbox"/> Raise flagpole (rectangular school flag fixed or mobile, $\geq 30 \text{ cm}$)			
7.a.vii	BONUS: Moving mass delay for $10 \leq (\text{motion time}) \leq 40 \text{ sec}$ Total seconds _____ minus 10 = _____ Enter result (30 max)		1	
Additions Sub-Total				

PENALTIES (subtractions from score)		Qty	Mult	Points
7.b.i.	Over t_{ideal} : Enter qty $[(t_{completion}) - (t_{ideal})]$ If < 0 enter 0.		-1	
7.b.ii.	Restarts/Touches/Adjustments (enter qty) <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		-15	
7.b.iii.	Object (solid or liquid) leaving the device boundary (except flag/pole)	0 or 1	-50	
7.b.iv.	Motors running @ t_{start} (enter qty) <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		-100	
7.b.v.	Starting task (4.a.) is not first the first thing that happens in device	0 or 1	-100	
Subtractions Sub-Total				

TOTAL SCORE				
(Additions) – (Subtractions)				

7.d. Tie Breakers: ① Fewest penalty pts ② Closest to t_{ideal} (1 under beats 1 over) ③ Greatest final task clearance

Tier 1 Score
 Tier 2 Score
 Place
 Points