

Mission Possible -C- Score Sheet-2019

School: _____

Names: _____

Setup time started at: _____ . Ready within 30 minutes (initial) _____ or Over _____
(When you are finished setting up, notify an event leader to have your time recorded.)

SAFETY INSPECTION		(✓/✗)
2.a.	Team properly wore high impact safety spectacles at all times (1 Warning, then DQ) .	
2.j.	Device is free of candles, flames, matches, cell phones, lead objects, combustible fuses, dry ice, liquid nitrogen, flammable gas, & hazardous liquids, gases & materials.	
3.h.	Only commercially labeled batteries, not exceeding 9 volts, are used for circuits <u>≤</u> 9 volts.	
2.bc	If any violations are marked (x), device only receives participation points. (Explain on back.)	

CONSTRUCTION PARAMETERS: If a line is marked, a penalty is made and/or an action does not count.		(✓/✗)
	Device, tools, and TSL list were impounded on time (except eye protection) (Failure=Tier)	
3.b.	All actions used for scoring are visible and/or verifiable. (Top & 2 sides allow full viewing.) (penalty?)	
3.c.	Device is free of parallel and dead-end actions.	
3.d.	Each movable/adjustable physical object in the device is used for no more than one assigned action.	
3.g.	Use of electricity limited to Scorable Actions ii., v., xi. and raising the Final Action platform. (penalty?)	
3.i.	The device is free of any Arduinos, Raspberry Pis, or Programmable components. (Remove or tier.)	
3.k.	Students are able to answer questions regarding the design, construction, and operation of device.	
	Device designed/constructed as sequence of actions including the mechanical timing step. intended to operate autonomously after Start. (Outside help/control = DQ)	

<p>Length= _____ Width= _____ Height= _____ Subtract each dimension from 60 and add below.</p> <p style="text-align: center;">_____ + _____ + _____ = _____ cm. (Enter total on line 5.h.)</p> <p style="text-align: center;">L pts. W pts. Ht pts. (in cm. to tenths)</p>
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- Scorable Actions** – Check each one completed as described in the rules. (Multiply total X 50 on 5.c.ii)
- _____ 1. Use vinegar & baking soda to inflate a balloon so unguided balloon strikes an object at least 20 cm away from the balloon causing the object to initiate the next action.
 - _____ 2. Use the temperature drop from an endothermic reaction to start the next action.
 - _____ 3. Drop two effervescent heartburn relief tablets in water so reaction triggers next action.
 - _____ 4. Add water to container to raise a golf ball located in same container \geq 5 cm so ball rolls out of the top of the container and initiates the next action.
 - _____ 5. Use infrared where transmitter and receiver are \geq 20 cm. apart to begin next action.
 - _____ 6. Push or pull an object with mass > 500 g at least 10 vertical cm up an inclined plane with an IMA > 2 before the object initiates the next action.
 - _____ 7. Use a pulley system with IMA) \geq 3 to lift an object with a mass > 500 g at least 10 vertical cm before the object initiates the next action.
 - _____ 8. Use the mechanical advantage of all 3 classes of levers in sequence to initiate the next action.

- ___ 9. Use gravity to rotate a screw at least two full rotations so it operates as a screw converting rotational force into linear force & moves an object ≥ 2 cm before object initiates the next action.
- ___ 10. Launched unmodified US quarter out of top of device, so it falls back into device & initiates next action. In the ready to run position, quarter must be heads up & tails up after it initiates the next action.
- ___ 11. Use electricity to directly or indirectly break a string or fishing line so that the breaking of the line initiates the next action.
- ___ 12. Remove a magnet from a surface so that a magnetic object falls due to the removal of the magnetic force. That object must initiate the next action.

SCORING		Max	Earned
5.b.i	Action Sequence List (ASL) was submitted on time.	25	
5.b.ii	Action Sequence List (ASL) uses specified format	25	
5.b.iii	Action Sequence List (ASL) is 100% accurate in intention	25	
5.b.iv	All Actions are numbered correctly on the ASL and within the device.	25	
5.c.i	The team used ≤ 30 min. for set up	50	
5.c.ii	The first time each action in 4.b. is successfully completed as described. (50 ea., Limit=12)	600	
5.d	Participants drop an unaltered Ping-Pong ball into the device, from above the device, causing a standard, unmodified golf ball to move, starting the next action.	100	
5.e.	Device must raise square platform (5.0 -10.0 cm on each side) a vertical distance of at least 20.0 cm becoming highest point of device. Platform must be a single surface, hard, non-tacky, & smooth with no lip on any of edges. A freestanding, upright standard 9V battery (not attached platform or any other part of device) must be on platform. Action is complete when top surface of platform & battery are above entire device & movement stops. Battery can only be supported by platform. Action will not count as the timer. If the battery tips on a side, but still remains on platform, only award 150 pts., if all other requirements are met.	250 150 Or 0	
5.f.	2 points for every full second of operation up to 60 sec. (ACTUAL TIME: _____)	120	
5.g.	1 pt. per full second that a non-electrical or non-spring timer runs before the Target Operation Time if timer runs at least 30 sec. total and initiates the next action		
5.h.	.1 pt. per .1 cm under 60 cm each dimension; (Enter total from previous page.)		
5.i.	If the device that has no touches, then award 75 points.	75	
TOTAL Points Earned (Show on front page.)		=	

PENALTIES: (Subtract from Points Earned)		Penalty	Total
6.a.	1 pt. per full second the device ran beyond target time (OVER BY: _____ sec)	120 max	
6.b.i	Number of dimensions exceeding 60 cm. imaginary cube = _____ X 25 =	Max=75	
6.b.ii	If the top and 2 vertical walls are not open or transparent, deduct 25 pts.	25	
6.b.iii	Deduct 25 pts. /touch, up to 3. If the device stops after the third touch, it will not be allowed to be touched/adjusted and the time will be scored as 180.0 seconds.	25,50,75	
6.c.	50 pts, one time, for any part or substance leaving the boundary of the device except 4.b.x and final task action	50	
6.d.i	150 pts for each electrical timing task in the device, except the final task	150 ea.	
6.d.ii	150 pts for each action other than actions 2, 5, 11 & final task where electricity is used	150 ea.	

Total Points Earned= _____ Minus Penalty Points _____ = Final Score _____
(Tiebreakers: 1-fewest penalty pts, 2-Smallest size)