

MECHATHLON

DESCRIPTION: Prior to the competition, the contestants will design and build a Mechathlete (mechanical athlete) capable of performing 5 physical tasks.

TEAM OF UP: 2

APPROXIMATE TIME: 35 minutes

1) THE MECHATHLETE:

IMPOUND: NO

- a) May be constructed from any materials that are not hazardous to the contestants, judges or spectators. The choice of motor, construction and energy source is left to the contestants.
- b) Must be self-contained, no external/remote control is allowed.
- c) The weight of the Mechathlete must not exceed 1.5 kg.
- d) At the start of each task the Mechathlete must fit into a box with inside dimensions of 300mm by 300mm by 300 mm.
- e) Parts/functions may be disconnected/disabled for tasks in which they are not used. Modifications or adjustments may only be made between tasks. No parts may be removed or left behind. All parts of the Mechathlete must complete all tasks.
- f) The contestants must initiate each task by actuating some sort of switch/release mechanism on the mechathlete in a manner that does not contribute energy to assist in performing the task.

2) THE COMPETITION

- a) The Tasks required to be performed by the Mechathlete are:
 - i) **Weight Lift:** The mechathlete must lift a 500gm weight a vertical distance of 500mm in the shortest possible time. A string attached to the weight and routed through a pulley mounted above the weight will be connected to the mechathlete. The weight may be lifted by the motion of the mechathlete or by a winch on the mechathlete.
 - ii) **Sprint:** The time required for the mechathlete to travel a distance of ten meters from a standing start will be measured. The shortest timed run will be the winner.
 - iii) **Hill Climb:** The Hill Climb requires the mechathlete to climb a hill which is steadily increasing in steepness. The winner will be the one to climb the highest up the hill before stopping.
 - iv) **Shot Putt:** The mechathlete must use an elastic solid to propel a standard racquet ball (supplied by the judges) as far as possible. The longest shot will win.
 - v) **Long Jump:** The mechathlete will run up a short launch ramp to make the jump. The winner will be the one that lands farthest from the launch ramp.
- b) The tasks may be attempted in any order.
- c) Teams may leave the competition area between events, but their mechathlete must remain in the area once they have started to compete.
- d) State and regional tournaments may offer fewer than 5 tasks or multiple attempts at each task. Teams must be notified before the tournament of the options chosen.

SCORING:

- a) Task Scoring: Teams will be awarded points for each task equal to their place in that task. Teams that are tied for a task will receive points equal to the place they for which they are tied and the next places will be skipped. If a mechathlete attempts, but is unable to complete a task, the team will be awarded points equal to the number of teams that attempted the task plus 1. Teams that do not attempt a task will receive points equal to the number of teams that participated in the event plus 1.
- b) Event Scoring: The teams overall score for the event will be the sum of the scores for the individual tasks. The lowest score wins. Ties will be broken by comparing the individual task scores. The team with more 1sts, then 2nds etc. will win the tie. If any ties still exist the task scores will be compared in the order in which they are listed above.