

Electric Motor King of the Hill I

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by Mr. Dove

(inspired by P.K. Yango's Battle of the Hill)

Leading universities like MIT, Cal Tech and Cal Poly compete in annual engineering competitions to see who the best engineers are. Will you be the next "King of the Hill"?

Objective:

Build a self-propelled vehicle according to the requirements that crosses the battle-ramp's peak and remains across while keeping the opponent from doing the same.



Due Date: _____ . The competition starts that day.

Team Members: 1 to 3 in a group. Names must be written or engraved on the vehicle.

Scoring: 50 points possible prior to competition + 15 points possible extra credit

- The vehicle is built according to all the objective & requirements =+30 points
- The vehicle has the name of every team member on it =+ 5 points
- The vehicle move itself forward a little, halfway up, or over the peak = + 15 pts. max.
- First, second, and third place teams in the tournament earn: + 15, + 10, +5 extra points

Requirements: Safety 1st! All objective & requirements must be met to compete.

- 1 electric motor must be used and properly wired to no more than 1 common 9V battery. No RC battery packs may be used, only common batteries up to a total of 9V.
- Chassis/frame must be built by the team (not a manufactured toy chassis/frame).
- Before every battle, the vehicle must be less than 30cm long, 25cm wide, & 50cm tall.
- Materials that cannot be used are:** materials prohibited at school (any gun or firearm, knife, razorblade, etc.) high pressure or combustible solid, liquid, or gas fuel (rocket engines, CO₂, etc.) any toxic or corrosive substance or anything that stains or alters the battle-ramp rat traps or any other item Mr. Barry decides is inappropriate or dangerous
- Recommended Materials:** These materials are subject to the above requirements. toy vehicle tires, rims, axles, motor, gearbox (but not manufactured chassis/frame) wood (plywood, balsa, dowels), metal fasteners (nails, screws, bolts, etc.) glue and contact cement for assembly (use only according to instructions) tape, string, rope, wire, cans, jars, lids, plastic bottles and containers, cardboard mouse traps (not rat traps), rubber bands, 1 electric motor, & up to a common 9V

The Competition: The competitors are paired voluntarily or assigned each match. The best 2 out of 3 rounds wins a match. A round ends in 20s or when motion has stopped. After each vehicle has had at least 1 chance to win a match, 8 winning vehicles will be selected for the tournament. 1st, 2nd, & 3rd place teams earn 15, 10, or 5 extra points. The 2-sided battle-ramp is 90 cm to the peak, 25 cm wide, has an 8 cm rise & 8cm guard rails.

Resources: <http://www.battlebots.com> , Radio Shack, hobby/craft & hardware stores, Mr.Dove