

Mousetrap Car

LEVEL:	Grades 6 - 8
TYPE OF CONTEST:	Individual/Team
COMPOSITION OF TEAM:	1-2 Students per team
NUMBER OF TEAMS:	Preliminary – Determined by your MESA Center Regional – 3 for 6 th Grade; 3 for 7 th /8 th Grade per Center
SPONSOR:	Vonna Hammerschmitt, Director, Chapman University MSP

OVERVIEW: Students will design and build their own vehicle which must be solely powered by a standard mousetrap and have the fastest elapsed time over a 5-meter track. Kits are not allowed. Project must be the original work of the student(s). Judges may ask questions to verify.

Participation logistics and limits and competition facilities may vary by host site. Advisors and students are responsible for verifying this information with their center director.

MATERIALS: One standard-sized, single spring “Victor” mousetrap is required; All other materials to build the vehicle are legal and optional.

GENERAL RULES:

- 1) Students must design and build their own vehicle which must be solely powered by the mousetrap and activated by tripping the original mousetrap trip mechanism
- 2) NO other energy source may be added. (e.g.CO₂ Cartridge, batteries, elastic strings, rubber bands, etc.)
- 3) The standard mousetrap must be mounted to the chassis AND must NOT be painted or decorated.
- 4) Hardware may be added to the mousetrap, but the original hardware and mounting block may ONLY be altered to attach it to the vehicle. The mousetrap may not be disassembled and then reassembled.
- 5) The springs on the mousetrap may NOT be cut, bent, over-wound, heat-treated or altered in any other manner.
- 6) No part of the vehicle may be attached to any part of the track. The track may not be altered in any way.
- 7) Vehicle must roll or coast along the track. All wheels must stay in contact with the surface of the track.
- 8) Car must be clearly labeled with the student(s)' name school, grade and MESA Center. Cars without proper labels will be assessed a 10% POINT DEDUCTION.

JUDGING:

- 1) Vehicles will be checked for specifications and impounded prior to the performance event. Vehicles will be released for trials but will remain impounded between runs.
- 2) Vehicles must be in testing condition prior to check-in for vehicle performance. If vehicles are disqualified during specification check, design changes will not be allowed.
- 3) Each vehicle will be allowed 2 non-consecutive runs.
- 4) Repairs are only allowed with replacement parts and materials. All repairs must be done in the official repair area and vehicles must be ready when called for the next round.
- 5) Each vehicle must be ready for competition when called or forfeit that trial
- 6) Each vehicle must be in a "ready, stationary, hands-off" position prior to the start.
Ready Position: Vehicle resting with front wheels within the "start zone".
- 7) One team member will be responsible for launch and will indicate to the judge that the vehicle is in the ready position.
- 8) The team member must wait until the judge gives the "START" order. If the vehicle moves prior to this, a "False Start" will be declared by the judges.
- 9) Only one "False Start" will be allowed per run. Two "False Starts" during run attempt disqualifies that run.
- 10) Students may not touch or interfere with the vehicle once the lever has been tripped.
- 11) The order of competition will be randomly selected.
- 12) Time will begin when judge calls "Start" and will end when the **front wheel(s)** of the vehicle cross the finish line.
- 13) Three (3) timers are recommended with the middle time being the "official time".
- 14) It is suggested that timers start at the "start line" of the track and move with the car to ensure watches are stopped when the car crosses the finish line. A simple laser timing device may also be used.
- 15) Keep in mind, the purpose of this contest is to use creativity to build the best mousetrap car within the framework of the rules. The purpose is not to break the rules and see if you can get away with it.

AWARDS:

- Awards will be given per grade level: 6th grade and 7th/8th grade.
- Medals will be awarded for 1st, 2nd, and 3rd place based on the fastest elapsed time over 5 meters.
- Ribbons will be awarded for Creativity and Engineering Design.
- Only teams placing in the speed category will advance to Regional MESA Day.

ATTACHMENTS/APPENDIX:

- Specification Checklist
- Track Specifications and Recommended Equipment

Specification Checklist

**Note: As the name above implies, this list is intended simply as a guide for meeting the required competition specs. It should not be treated as an official judging document.*

- Standard-sized “Victor” Mousetrap was used
- Mousetrap car kit was NOT used
- Mousetrap was the only energy source used
- Mousetrap has NOT been painted or decorated
- Mousetrap springs have not been modified in any way
- Car is activated by tripping the original mousetrap trip mechanism
- Mousetrap can be “set” and car can sit in a hands-off “ready mode”
- Car is properly labeled with student(s)’ name, school, grade and MESA Center

Track Specifications and Recommended Equipment

- Arranged on a smooth, level floor or non-carpeted area – gymnasium floor is recommended, but a building hallway is also acceptable.
- Track must be 2 meters wide and 5 meters long.
- Edges must be marked with tape along the length of the track.
- “Start Zone” is marked with tape 10 cm parallel to “Start Line”.
- 5-meter or longer measuring tape to map out track area
- Blue painters tape to outline the track
- 3 stopwatches to record the elapsed time

