

YO!

Students will build a yo-yo that meets the specifications stated below, The goal of the project is to build a yo-yo that takes the longest time to descend a set distance while having the yo-yo whistle and connect a circuit to turn on a light.

RULES:

1. Yo-yo's must be made from scratch. You cannot modify an existing yo-yo (DQ).
2. Total mass of the yo-yo must be more than 1.5 kilograms (-5pts/0.1kg).
3. The yo-yo has a 0.5m x 0.5m x 0.5m size limitation before the yo-yo starts its descent. It may change size when it is in motion. The yo-yo must remain intact at all times. (DQ).
4. The yo-yo must be made in the image of two masses fixed to an axis that rotates around the axis. Gears are not allowed (DQ). Balloons are not allowed (DQ).
5. Teams must display their school's name on the yo-yo (-10).
6. The string attached to the descending body must be of minimal length to traverse the length of the course (6m). Strings cannot be impeded by the use of glues or gels or excessive friction between the string and the yo-yo (DQ). String guides are acceptable as long as they induce minimal friction between the string and the guide.
7. Sliding friction between two solid surfaces cannot be used to slow the yo-yo down (DQ). Air friction is acceptable.
8. Yo-yo's must remain in motion at all times and must either be ascending or descending the string continually (Min. Score Awarded).
9. Teams also must make their yo-yo whistle in an audible pitch (20 Hz-20 kHz) that is loud enough to be heard by the judges and have a light that emits photons with enough intensity in the visible spectrum (400-700nm) to be seen by the judges. **These can only be artifacts of the rotation of the yo-yo.** If the judges do not see or hear your yo-yo perform these tasks, they will be considered not to have happened. Older judges may have reduced sensitivity to pitches on the ends of the audible spectrum and may not hear high and low frequencies very well...if at all. Whistles and lights cannot be "turned on" before the start of the yo-yo.
10. No battery driven motors or other motors accessing stored energy may be used (DQ).

Running of Event:

1. Teams must impound their yo-yo when they arrive to the meet location.
2. Teams will get only one chance to demonstrate their yo-yo.
3. False starts will be evaluated by the event runner.

Scoring:

1. First tier teams will be ranked in order of slowest times to fastest times and their ability to whistle and light. Second tier teams will be ranked by times as above but will perform one of the two tasks in #8. Third tier teams will be ranked by time with no tasks performed. Minimum scores of 15 points will be awarded to teams that do not descend the full distance.
2. Tie-breakers will be decided by the yo-yo of greater mass.