CONCRETE FRISBEE TOSS

The purpose of this design competition is to construct a sustainable concrete Frisbee incorporating recycled materials. The team's performance will be judged based on aesthetics, sustainability, weight, durability, and performance of the frisbee. Please refer to the Mid-Pac Student Symposium schedule for the competition date.

Rules

1. Each school may enter only one Frisbee in the competition.
2. Competing teams must consist of two members who will take turns throwing the Frisbee. Each team member will have two throws.
3. Frisbee dimensions:
    - Diameter: between 8" and 10"
    - Thickness: 1.5" maximum
4. The Frisbee must be made of concrete. No resins may be used. Recycled materials may be used as "reinforcement" or "aggregate."
5. No steel reinforcement may be used (recycled or otherwise).
6. The Frisbee must be thrown using only one hand. Frisbees may not be rolled, slid, or transported using any other motion than a toss.
7. Frisbees that lose more than 25 % of their materials (by weight or volume) as a result of a toss are considered ineligible for further tosses.

Aesthetics

1. Frisbees may be decorated with paint or stain, but may not be sealed. Teams shall not use decorative materials that affect the durability of the Frisbee.
2. Each team shall prepare one 11" x 17" poster that includes:
    - School name
    - Frisbee name or theme
    - Names of team members
    - Mix design and construction techniques

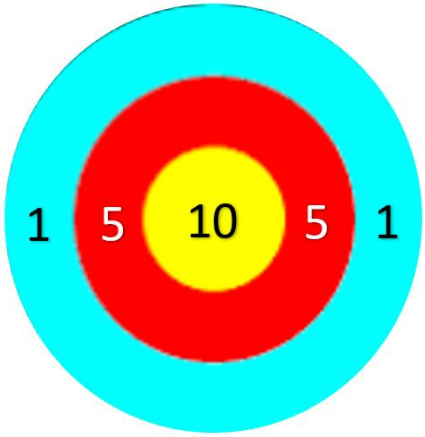
The Frisbee and poster shall be displayed near the competition area prior to the competition. Posters may be displayed on an easel or stand supplied by your team, or on the ground or table surface used as the display area. We recommend affixing the poster to a poster board, as the competition site may be windy.

Judging Criteria

Frisbees will be judged based on performance, weight, durability, aesthetics, and sustainability.

Performance: (25 pts maximum)

The Frisbee will be tossed toward a target painted on a tarp, as shown below. Performance is determined by the location at which the Frisbee stops moving. Any area outside the target area is assigned a score of zero ('0') points.



Each team will have 4 opportunities to toss their Frisbee (2 players at 2 tosses per player). The total points earned as a result of the four tosses will be added to determine the performance score.
Point distribution for performance is as follows:

1st Place (highest total points after 4 tosses) = 25 points
2nd Place = 20 points
3rd Place = 15 points
4th Place = 10 points
5th Place = 5 points
6th Place and below = 1 points

Weight: (25 pts maximum)
The lightest Frisbee, as measured before the competition, will be awarded 25 points, all others will be awarded points based on the following ratio:

$$Weight = \frac{Weight\ of\ lightest\ Frisbee}{Weight\ of\ Frisbee} \times 25$$

Durability: (30 pts maximum)

Durability shall be determined using the Frisbee weight before and after the competition. If the Frisbee is damaged during the competition, the largest piece shall be used to determine the weight ratio after the competition. The weight ratio is calculated, as follows:

$$Weight\ ratio\ = \frac{Weight\ of\ Frisbee\ After\ Competition}{Weight\ of\ Frisbee\ Before\ Competition}$$

The durability score is calculated as follows:

$$Durability\ = \frac{Weight\ of\ Ratio\ of\ Frisbee}{Weight\ Ratio\ of\ Most\ Durable\ Frisbee} \times 30$$

The "Most Durable Frisbee" is defined as the Frisbee with a weight ratio closest to 1.0.

Aesthetics and Sustainability (20 pts maximum)

Aesthetics shall be judged based on smoothness and uniformity of the Frisbee itself as well as artistic and decorative aspects. Sustainability shall be determined by use of recycled and non-toxic materials, as documented on the poster. Points will be awarded as follows:

- Visual appearance: uniformity, smoothness 1 - 10 points
- Creativity and implementation of artistic and decorative aspects 1 - 5 points
- Sustainability: use of recycled, non-toxic materials 1 - 5 points