Mirror Magic

Description: Part 1: Three team members, each equipped with their own mirror, cooperate to bounce a light beam from a maglite flashlight onto a predetermined target. Team members may bring their own mirrors, no larger than 6” in diameter or 5”x7” rectangle or they may use mirrors provided by the event captain. Students will be shown the target location and the light will be turned on.

Part 2: Three team members will be supplied, by the event captain, with one mirror each, on stands (mirrors perpendicular to the floor). With the light source turned off, students place their mirrors in order to bounce a light beam onto a predetermined target. The height of the mirror from the ground to the middle of the mirror is 3 feet 9 1⁄2 inches. The mirror is 5 inches by 7 inches side is perpendicular to the floor. See picture of sample on the next page.

Competition: Part 1:

1. The light must strike each of the three mirrors with the third mirror directing the path of the light to the target. There may be obstacles that the beam of light will have to be directed around. Target may be on the floor or on the ceiling.

2. Each team will be called into the competition room, one team at a time. The light source and the target locations will be quickly pointed out and the source switched on. From that point, each team will have 30 seconds in the starting area to plan for action. At the 30-second mark, they will be given a 'go' to move into positions with their mirrors and attempt to illuminate the target as quickly as possible. Their time in seconds from 'go' to illuminated target will be their point score. Any team
that does not illuminate the target using all three mirrors within 1 minute will be stopped and given a score of 60 for part one.

Part 2:

1. Students may use any homemade tools (string, paper rulers, homemade protractors--not computer generated, etc.) brought by the students, to aid them in their mirror placement (no light sources, commercial rulers, protractors, or other non-homemade equipment will be allowed).

2. The three team members place the mirrors while the beam is turned off. They must use all three mirrors to change the light's path and hit the predetermined target. Target will be on the same plane as the light source.

3. They will be given up to four minutes to place the mirrors before the light source is turned on and the score is determined.

**Scoring: Part I:**

1. Each team will be timed. The objective will be to attain the lowest elapsed time in seconds. Every second counts as 1 point against the team.

2. No team will be allowed to use more than one minute to accomplish the task. The poorest score will then be 60 points.

**Part II:**

1. Each team will start with a score of 150 points. The objective will be to reduce this score as low as possible.
2. Once the light source is turned on, the team's score will be reduced by 50 points per mirror that is hit by the light. A perfect score of 0 will be awarded to any team that uses all three mirrors to bounce the beam of light and hit the target. If the beam hits all three mirrors but misses the target the team’s score will be 25 points.

3. Scores from part I and part II will be totaled to determine each team's final score. The lowest total score wins the event.

4. In case of a tie, the team with the shortest preparation time on part II will be declared the winner.