

Overall Directions

1. This is a fun activity and should not be allowed to get overly competitive. Students that are in violation of good sportsmanship will be warned first and then disqualified if the behavior does not improve.
2. The design challenge is for students only and only the teams that registered ahead of time. No outside coaching, influence, and ideas are permitted unless deemed necessary by the design challenge officials. (e.g. crying child, special needs, etc.)
3. All judges decisions are final.
4. Level up awards - students whose project meets the level up award level will each be given a level up ribbon for their exemplary performance.

Needed Equipment Master List

1. Score cards to record each team's performance
2. Meter stick (5)
3. Tape measure at least 10 meters (1)
4. Masking tape to mark the floor (sail cars)
5. Level up ribbons
6. Rosters of teams
7. Cones or jump rope for tower placements (3-5).

Level K-2

Goal: Make the tallest tower out of the Lego Blocks provided.

Winning: The tallest tower measured from the floor to the highest point on the Lego structure.

Tie breaks will be:

1. Widest tower at the base
2. Widest tower at the top
3. The widest tower at the highest point - If the towers are the same height and have the same base size, then start at the top and measure the widest point until they two towers are different.

Materials needed:

- Lego STEAM Park Kit
- Meter sticks

Build Time: 20 minutes

Level up: Towers that exceed 80cm.

Level 3-5

Goal: Make the tallest tower out of the Lego Blocks provided that can hold the Lego ball the highest. The tower's score will be calculated by the height of the top of the ball plus the bonus scores below:

Bonus scores:

- Tower can be pulled by the string(s) provided (must be pulled at least 2 meters and not fall apart): Bonus plus 50 cm
- Tower can withstand the fan lowest speed: Bonus plus 5 cm
- Tower can withstand the fan middle speed: Bonus plus 10 cm
- Tower can withstand the fan highest speed: Bonus plus 15 cm

Bonuses will accumulate. A tower that is 50 cm tall that can withstand the highest speed of the fan but cannot be pulled will earn 30 cm bonus (5cm lowest speed + 10cm middle speed + 15cm highest speed) for a total score of 80cm

Testing: Students can test at anytime during the build time.

Tie breaks will be:

1. Widest tower at the base
2. Widest tower at the top
3. The widest tower at the highest point.

Materials needed:

- Lego STEAM Park Kit
- Meter sticks

Build Time: 20 minutes

Level up: Towers that exceed 80cm or a total score over 100cm.

Level 6-8 & HS

Goal: Using the only the Lego pieces provided, construct a sail car that will use the fans provided to move the farthest from the starting line with only the power provided by the fan. Students will be allowed to:

- position the car anywhere behind the starting line
- Position the fan anywhere as long as it stays behind the starting line
 - exception: students will not be allowed to pick up the fan and hold them during operation.
- Operate the fan's speed controls
- Judges are able to stop the test at anytime if there are any safety concerns. This includes but not limited to:
 - Judges
 - Participants,
 - Spectators
 - Equipment

Testing: Students can test at anytime during the build time.

Tie breaks will be:

1. Cars will be run a second time and another measurement will be taken.
2. Tallest part of the car
3. Widest part of the car

Materials needed:

- Lego Sail Car Kit
- Tape measure

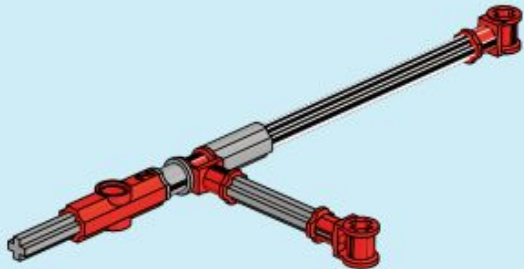
Build Time: 30 minutes

Level up: Cars that exceed 10 meters

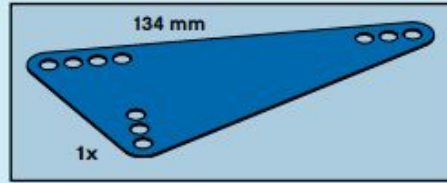
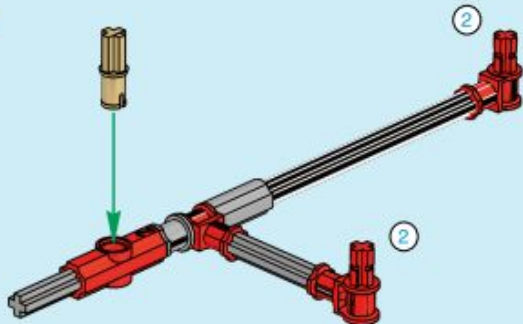
Sail Car Helpful Tips



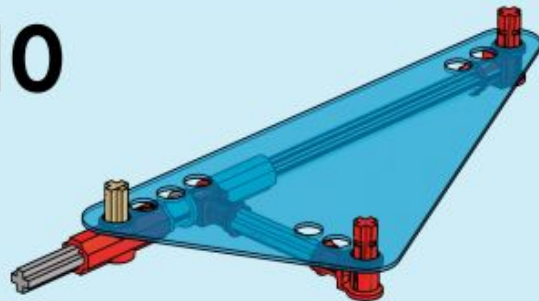
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