

# IDE SERIES

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2019 SINGAPORE

# COMPETITION MANUAL

Updated: 6 March 2019

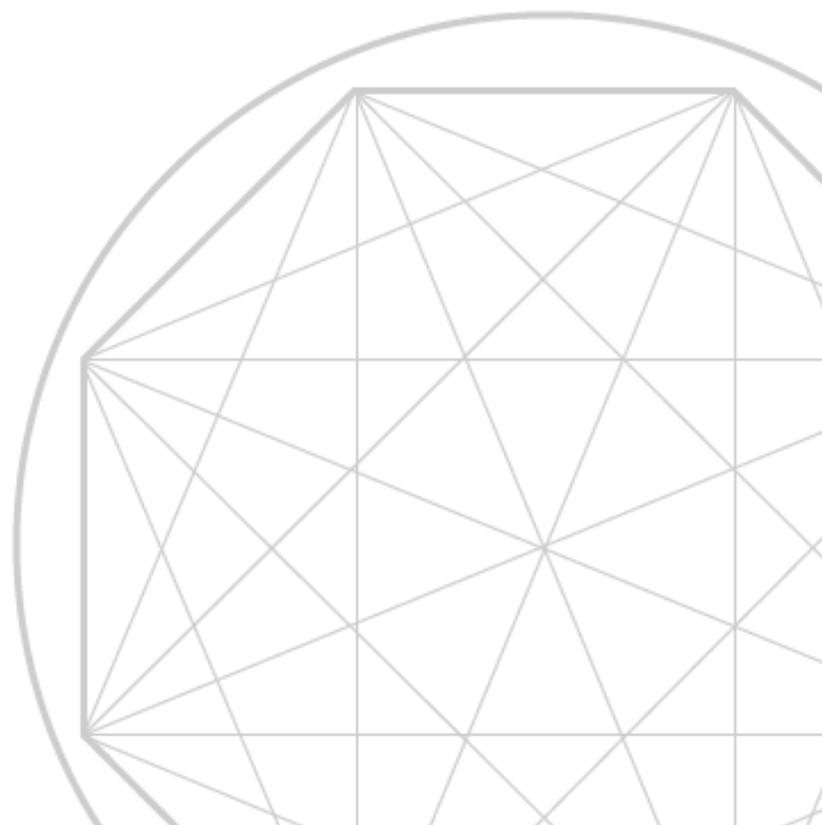
Event Organiser:



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## IDE CHALLENGE 2019

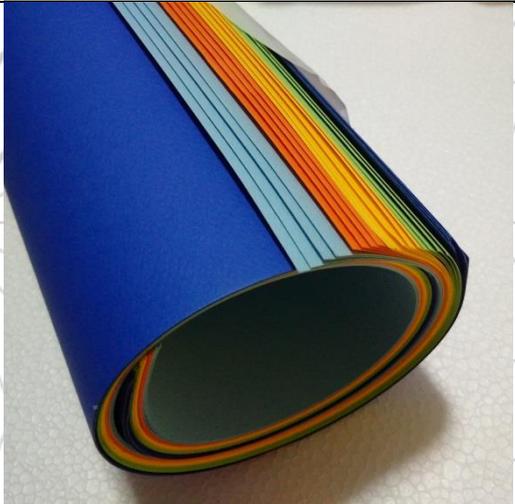
### Challenge for 2019: Faster, Higher, Stronger

This year's competition is made up of three challenges. Teams will have 4 hours of construction time to tackle 3 separate challenges in total.

Faster	Higher	Stronger
Teams have to build a glider to be released from a predetermined height.	Teams have to build a landing pad to prevent eggs from breaking when dropped from a certain height.	Teams have to build a bridge that is able to withstand the weight of drink cans loaded on it.

### List of Materials Provided on Competition Day

Teams can only use materials given out by the organisers on the competition day. Each team will be given one set of material to be used for all 3 competition challenges. Dimensions provided are an estimation; there may be minor differences between what is stated here and what is actually given out. This can be due to minor manufacturing defect or measurement rounding.

Material	Quantity	Description	Sample Photo
Corrugated Board	1	53cm x 76cm 3mm thick  Random colour will be distributed to the teams	
Vanguard Sheet	1	50cm x 35cm  Random colour will be distributed to the teams	

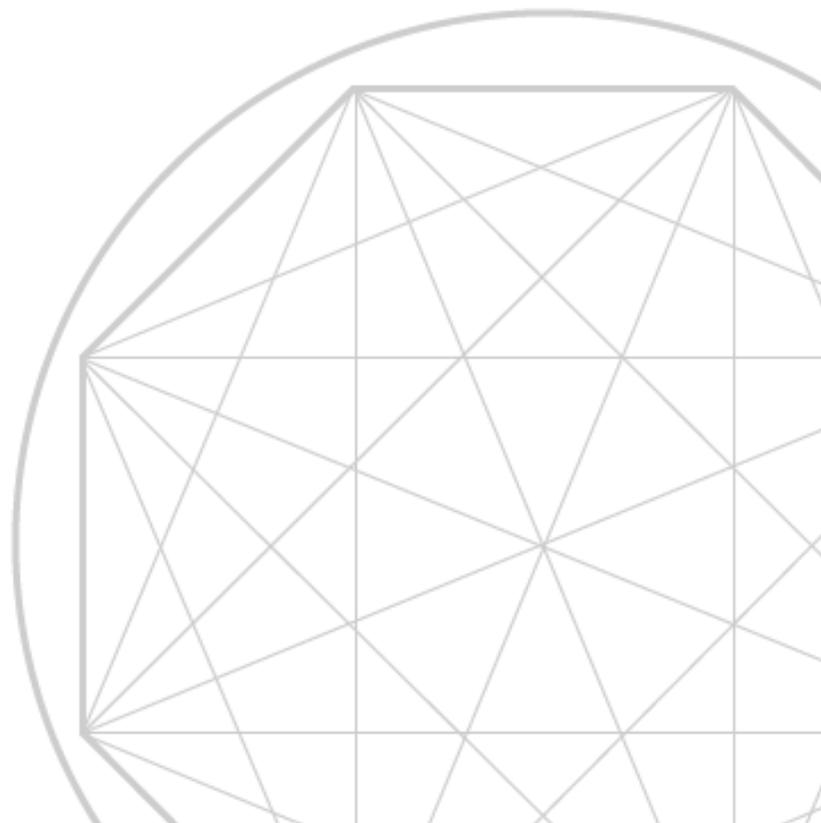
Material	Quantity	Description	Sample Photo
Cloth Tape	1	8m length 24mm thick	
Trash Bag	1	30 inch x 39 inch	
Straws	50	8 inch length	
Satay Sticks	6	20cm length	

## Tools and Equipment

Tools will be not be provided on the competition day. Each team is required to bring their own tools that they deem necessary to work on the competition. The definition of a tool is an object that modifies or measures a given object, not act as a material in the model that a team is building.

**Teams are not allowed to use their own glue, adhesives, or tapes for this competition.** Teams caught using materials not provided by the organisers will face disqualification.

Electrical tools (which include battery operated tools) such as hand drill, soldering iron, etc are not allowed. Dangerous tools such as blow torch and flammable items are not allowed. Competition officials will be making inspections during the competition preparation period to ensure that teams are not using any electrical or dangerous tools.

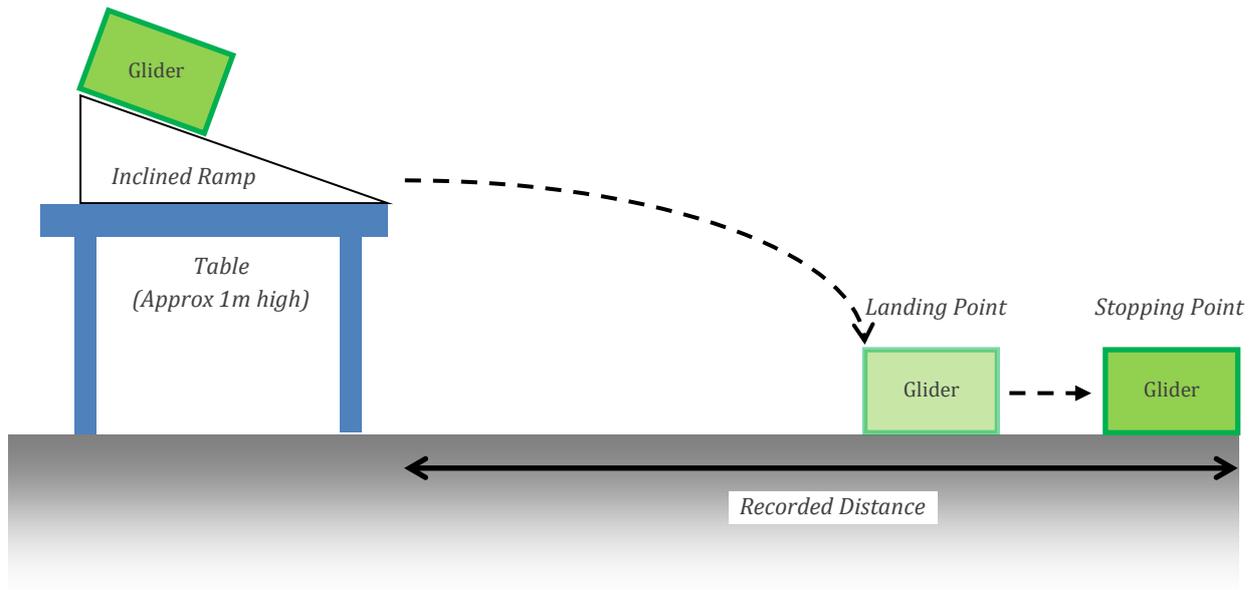


# CHALLENGE DETAILS

## Faster

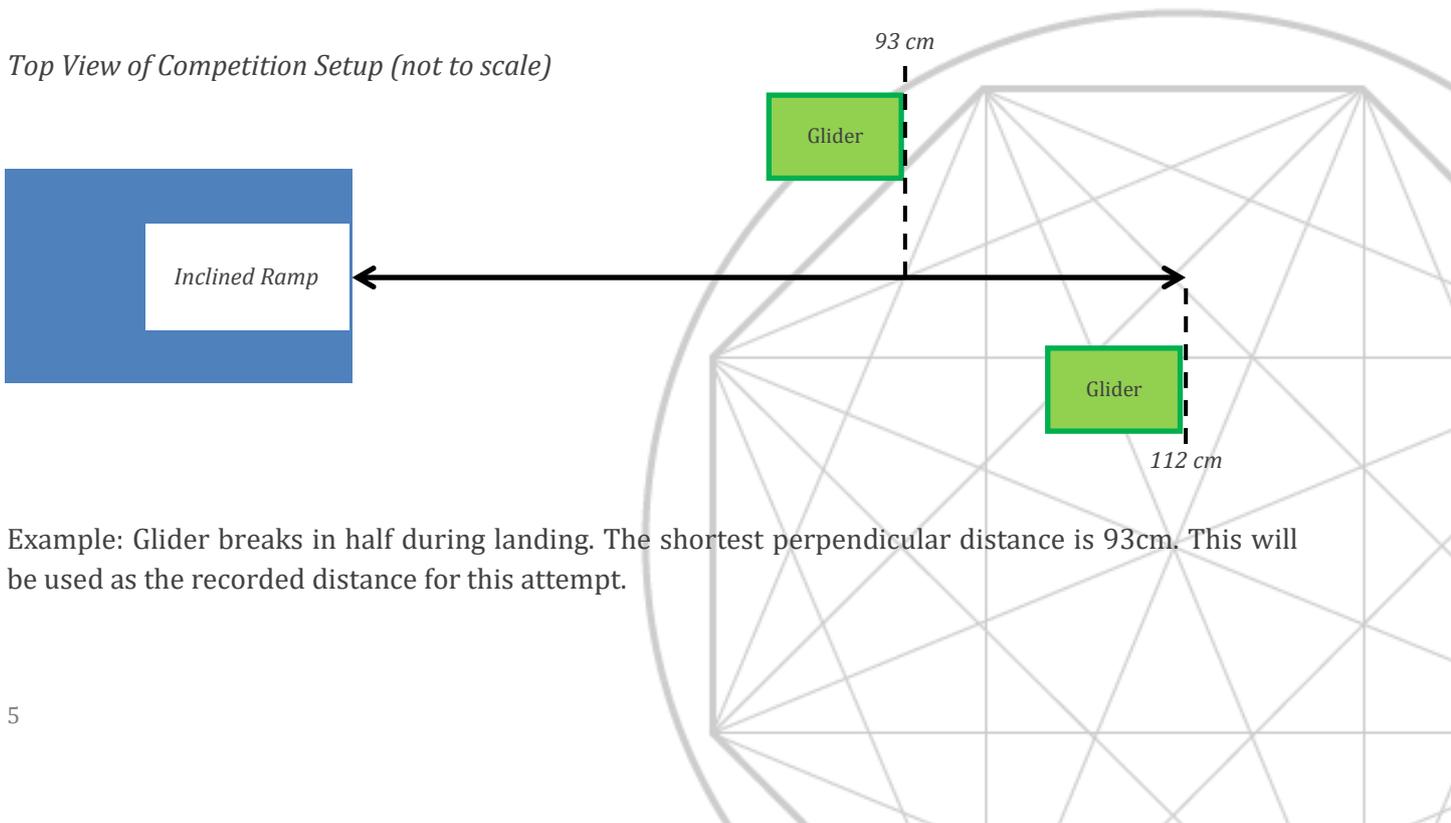
Teams have to build an unpowered glider to be released from the top of an inclined ramp. The glider has to be able to travel down the ramp (solely by gravity) and glide off the table. The glider that glides the furthest distance wins.

*Side View of Competition Setup (not to scale)*



The recorded distance for the glider will be the perpendicular distance from the table to the final stopping point on the floor. If any part of the glider falls off or breaks apart during the gliding attempt, the recorded distance will be the shortest perpendicular distance from the table to the final stopping point of any glider component. Each team will be given two attempts for this challenge. The better attempt will be used for the competition score.

*Top View of Competition Setup (not to scale)*

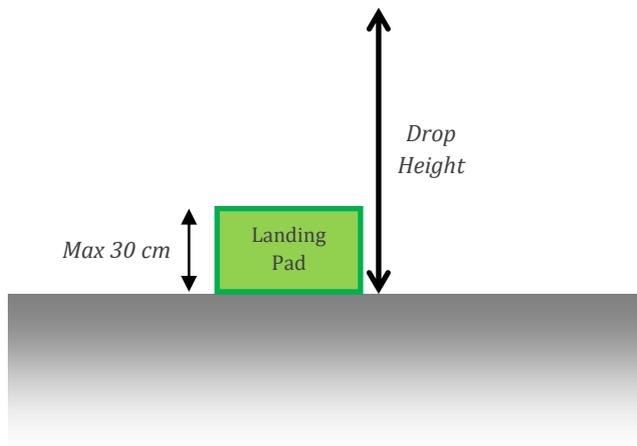


Example: Glider breaks in half during landing. The shortest perpendicular distance is 93cm. This will be used as the recorded distance for this attempt.

## Higher

Teams have to build a landing pad to prevent eggs from breaking when dropped from a certain height. The score is calculated by the sum of the successful drop heights. A drop is considered successful if the egg lands within the landing pad without any visible cracks. Teams will have to appoint one participant to drop the egg from a height of their choice.

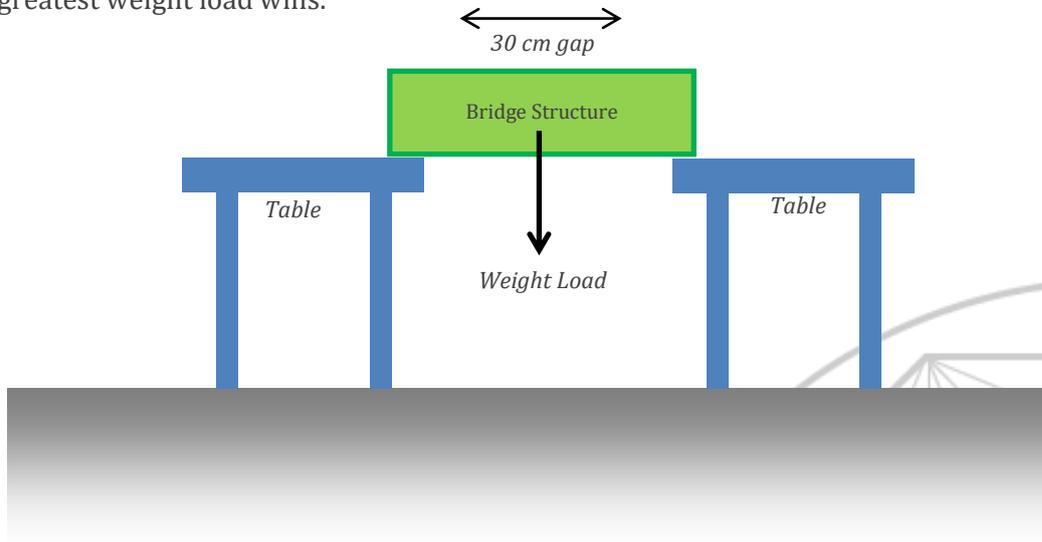
The landing pad must not have a height exceeding 30cm. There is no limit on the length/breadth of the landing pad. Each team will be given 4 eggs to use for this challenge. An example scoring is as shown:



	Drop Height
Egg 1	90 cm
Egg 2	112 cm
Egg 3	0 cm (Egg Broke)
Egg 4	105 cm
<b>Total Score</b>	<b>307 cm</b>

## Stronger

Teams have to build a bridge structure to traverse a gap of 30cm. The bridge that is able to suspend the greatest weight load wins.



The bridge structure must not be affixed onto the table in anyway. The bridge must have a minimum width of 10cm. There are no limits on the length or height of the bridge. A loop of string will be tied around the middle section of the bridge, and weights (drink cans) will be suspended from the string. A competition judge will systematically add weights onto the string. Each weight is approximately 330g. The maximum number of weights the bridge is able to suspend will go toward the competition score.

# COMPETITION RULES

## Rules and Regulations

### General:

1. During the competition, all teams must look after their own personal property, team construction and materials. Any member(s) of the competition who is/are caught in the act of sabotage, theft or mischief, whether to cause harm to other participating teams or not, will be dealt with by the competition organisers and may subject the team to disqualification.
2. No external help is to be rendered in this competition. This includes receiving direction, contribution, construction of any kind from any party or person not belonging to the team. Failure to comply with this rule will be dealt seriously and may subject the team to disqualification.
3. All students and Teacher Mentors (TMs) will be quarantined from each other during the competition preparation time. No communication between TMs and students is allowed during this period.
4. All decisions by the competition officials and organising parties are final.

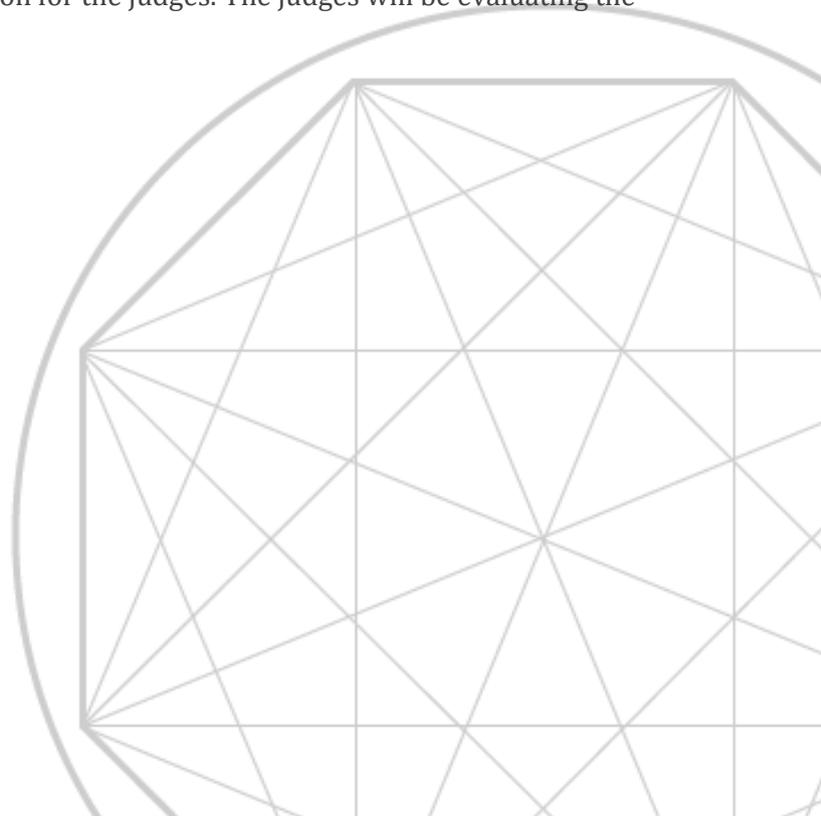
### IDE Challenge

1. Teams are only allowed to use materials provided by the organisers on the day of the competition.
2. Teams are not allowed to bring their prototypes created during the preparation week to the competition.
3. Electrical and dangerous tools are not allowed to be used.
4. The final product must be an original construct by the team.

### Judging

A panel of judges will be invited for this competition. They will judge each team based on a variety of factors, which include the team's strategy as well as the innovation, design and engineering aspects of their construction.

Teams do not have to prepare a formal presentation for the judges. The judges will be evaluating the team's performance during the competition run.



### Scoring Example

There is a total of 20 registered teams. Each team’s score is determined by its relative score rank against all other teams. Each competition challenge awards points in the range of 6 to 25, for a maximum attainable total of 75 points. The top rank for each competition challenge will be awarded 25 points, the second rank will be awarded 24 points. The last rank (rank 20) will be awarded 6 points. In case of a draw in rank, teams will be accorded the same points of that rank.

*Example using Stronger Challenge:*

Teams	Stronger Challenge (No. Weights)	Rank	Score
Team A	10	1	25
Team B	10	1	25
Team C	9	3	23
Team D	8	4	22
Team E	8	4	22
Team F	8	4	22
Team G	7	7	19
Team H	7	7	19
Team I	6	9	17
Team J	6	9	17
Team K	6	9	17
Team L	4	12	14
Team M	4	12	14
Team N	3	14	12
Team O	3	14	12
Team P	3	14	12
Team Q	3	14	12
Team R	2	18	8
Team S	2	18	8
Team T	1	20	6

