

2018-19 Challenge Orientation Webinar

Technical: On Target

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Webinar Ground Rules

- Team Managers and School Coordinators only
- Your voice is muted on this webinar.
- The best mechanism to use to ask questions is the question or chat mechanism. (We've had technical difficulties with "Raise Hand for unmute" in past webinars)
- The only official and binding requirements for any Tournament are from Rules of the Road, the Challenge, and Published/Team/Site Clarifications. Nothing said here changes that. Use the Clarification process.

If you are a Team Member, do not listen to this webinar. Solutions may be mentioned, and if you hear them, your team cannot use them, or they will need to go on your Declaration of Independence (as Interference).

Rules of the Road VI. INTERFERENCE

The Team Manager ...

- Can help teams understand The Challenge, Rules of the Road, and Published Clarifications.
- Can help teams acquire general skills.
- Cannot participate in any way in the Challenge Solution ...
 - ... except to stop un-safe things ...
 - ... but if team members cannot do something safely, they must find a different solution. “For Safety” is not a valid reason for any non-team member to work on the solution.

Technical Challenge Orientation Webinar

- General Team Manager Training is elsewhere at caldi.org
 - You showed your saavy when you found this webinar, we won't presume to enumerate other resources and contact information.
- This Webinar is specific to the Technical Challenge
- **This Webinar's focus is to help TMs help their Teams understand The Technical Challenge and its Published Clarifications.**
- "We cannot validate a solution without seeing it"
 - We try to avoid discussion of specific solutions on this webinar
 - Rules of the Road pp. 24-25 describes the Team Clarification process

"We cannot validate a solution without seeing it" is a stock phrase used by ICMs in team clarifications.



GETTING STARTED

Approaching the Challenge

This Challenge can be solved on many levels, ranging from the simple to the complex.

Focus on solving this Challenge based on the intent in which it was designed. All Challenge requirements must be met unless otherwise stated using the terms “should” or “may.” If you find the details of the Challenge unclear, we encourage you to ask for a Team Clarification. (See Rules of the Road.) Remember, if it doesn’t say you can’t, then you can.

*See also **Solving The Challenge** on p. 20 of the Roadmap*

Most of these slides will be directly from the challenge, indicated by the challenge logo in the upper right corner. Comments on those slides will be in *italics*.

Highlighting is for this presentation, and is not from the challenge.

“May” and “Should” indicate options for the team. Sometimes these choices can affect their score.

This unnumbered GETTING STARTED is largely boilerplate for all Challenges.

The Roadmap provides steps for teams to use to understand the Challenge



GETTING STARTED

Solving the Challenge

The information in the following materials is binding on all teams.

Your team must read and follow this Challenge in its entirety, the Rules of the Road resource for teams, and all Published Clarifications (online at DestinationImagination.org).

<https://www.destinationimagination.org/challenge-program/clarifications/on-target>
already one published clarification replacing I.B.2.

Team Budget

The total value of the materials used must not exceed **\$200US**.

The text in this presentation will include this clarification, keep checking for more clarifications throughout the year.

The only challenge-specific items are the \$200 budget...



GETTING STARTED

Time Limit

Complete the Presentation (including setup) in **8 minutes or less**.

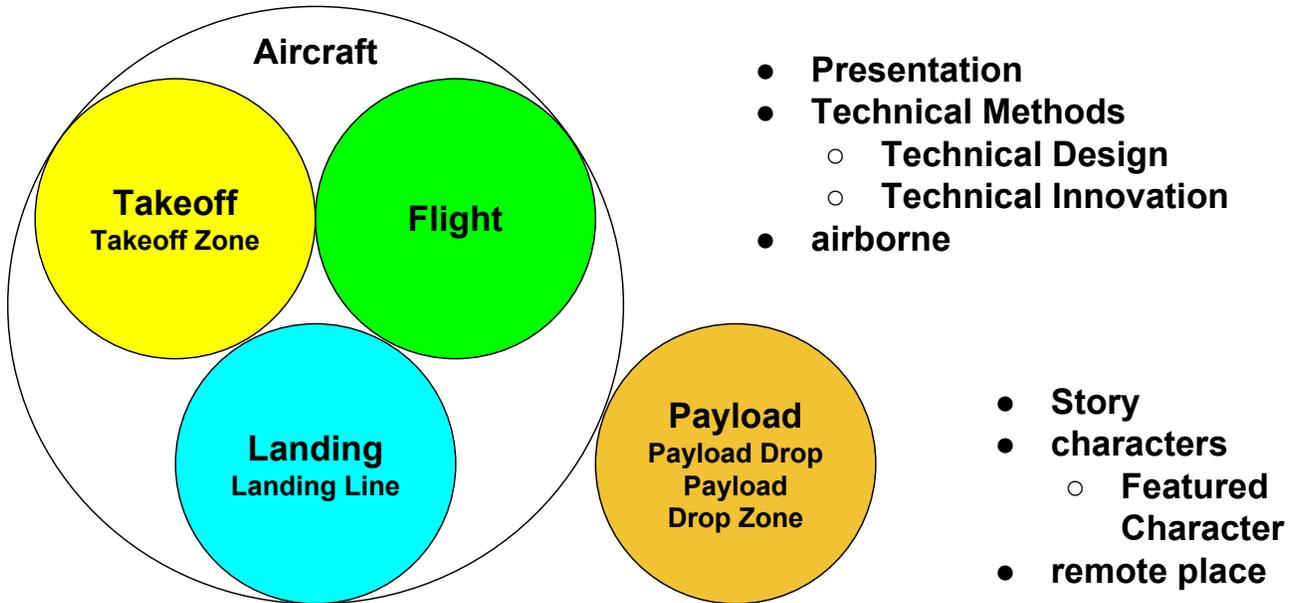
Tournament Data Form

Your team must explain elements of your Challenge solution on the Tournament

- ✓ Data Form found at the end of this Challenge. The check mark icon pinpoints the elements that will appear on the form.

... and the 8 minute presentation time.

Defined (and other important) Terms



Note this page is not from the Challenge. We'll return to it, later in this presentation. I've sketched out what I read as the relationship between some of the defined terms, and just enumerated some of the other terms.



I.A Aircraft

1. Design and build a single Aircraft that uses Technical Methods to complete Takeoff, Flight, and Landing.
2. **Aircraft:** Any device capable of flight.
3. For this Challenge, Technical Methods refers to the use of principles in fields such as chemistry, computer science, electricity, hydraulics, mathematics, mechanical engineering, physics, or structural engineering. Other technical fields are also acceptable.
4. **Takeoff:** When the Aircraft goes from being at rest to being airborne.

Generally, capitalized nouns are explicitly defined in the Challenge.

The word “airborne” is used 5 times in the challenge, but is not explicitly defined...



I.A Aircraft

5. **Flight:** The act, process, or ability of the Aircraft to move while supported by aerodynamic forces or propelled through the air by force. The Aircraft cannot be considered in Flight if touched by any person, object, or surface that is not a part of the Aircraft itself, with the exception of the Payload(s). (See Section B.)
6. **Landing:** When the Aircraft is no longer in Flight. For a Landing to be considered successful, the Aircraft must cross the Landing Line while airborne before contacting a person, object, or surface.
7. The Aircraft's Takeoff, Flight, and Landing **should** be visible from 25ft (7.62m) away.
8. A team member may not be any part of the Aircraft.

... Bob thinks airborne means "in Flight", but one of the ICMs thinks the "move" part of the Flight definition makes them slightly different. If your team is pushing the envelope of the obvious meaning of airborne, get a Team Clarification.



I.B. Figures

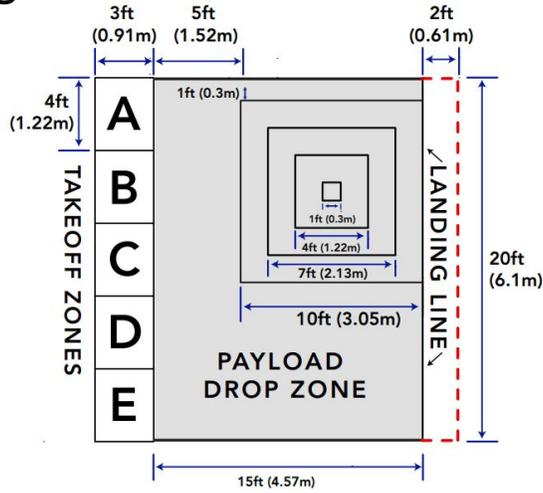


Figure A
Layout and Measurements

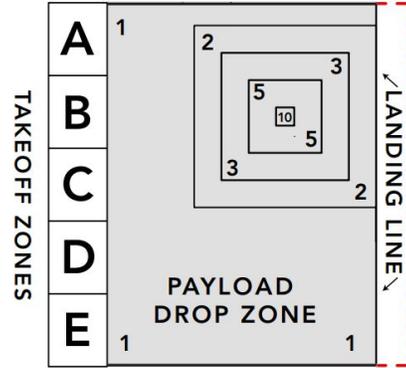


Figure B
Point Values for Payload Drop Zone Areas

Note: Figures A and B represent the minimum 20ft (6.1m) x 20ft (6.1m) Presentation Area. The solid lines will be taped. The dashed lines will not be taped.

These Figures are later in the printed copy of the challenge, but are referred to sooner.

Each Takeoff Zone is 3' x 4'



I.B Payload Drops

1. Design the Aircraft to use Technical Methods to take off from a Takeoff Zone and drop a Payload into the Payload Drop Zone. This will occur up to 5 times during the Presentation, with each Payload Drop starting from within a different Takeoff Zone. (See Figures A and B.)
2. *Clarification #1 2018-09-28*
For this Challenge, a Payload is any *single* physical item that is loaded on and/or attached to the Aircraft and then carried in Flight. *The Payload must not be designed to break apart.* Your team **may** use a different item for each of the 5 Payload Drops.

Note there are no more than five successful takeoffs.
Note the changes from Clarification #1: no confetti payloads.



I.B Payload Drops

3. During each attempted Payload Drop, the Aircraft must carry the Payload in the air from Takeoff to Payload Drop. If something other than the Aircraft assists in carrying the Payload, your team risks receiving 0 points for that Payload Drop.
4. Your team **may** use the Takeoff Zones (A-E) in any order. Once your team has successfully left one of the Takeoff Zones, that Takeoff Zone cannot be used for another attempt.
5. For each Payload Drop, all parts of the Aircraft and Payload must fit into and become airborne from entirely within the chosen Takeoff Zone (A-E). Takeoff **may** be initiated outside the Takeoff Zone. If Appraisers cannot see that all parts of the Aircraft and Payload fit into the Takeoff Zone, your team risks receiving 0 points for that Payload Drop.

Again, a successful takeoff followed by a failed payload drop cannot be retried.



I.B Payload Drops

6. Any part(s) used to assist the Aircraft for Takeoff, Flight, Landing, and/or Payload Drop(s) may be separate from the Aircraft and do not have to travel with the Aircraft during Flight. These unattached parts do not have to fit into the Takeoff Zone.
7. The Aircraft must become airborne before completely crossing the outside edge of the tape marking the Takeoff Zone. If the Aircraft does not become airborne, and/or the Aircraft does not completely leave the Takeoff Zone, your team may repeat the attempt from this Takeoff Zone.



I.B Payload Drops

8. After leaving the Takeoff Zone, the Payload must completely separate from the Aircraft during Flight. After separation from the Aircraft, the Payload may not come into contact with or be directed by anything other than the tournament-provided floor until the Payload stops moving. If the Payload does not separate and/or is directed by something other than the tournament-provided floor before it stops moving, your team will receive 0 points for that Payload Drop.
9. Once the Payload stops moving, the Payload Drop is complete.



I.B Payload Drops

10. The Payload Drop Zone is divided into scoring areas. (See Figures A and B.) Your team will earn points based on the location of the Payload once it stops moving. If the Payload is touching more than one Payload Drop Zone area once it has stopped moving, your team will earn points for the area with the higher point value.
11. Once the Payload Drop is complete, your team **may** touch or move the Payload. However, if the Payload is moved too soon and/or the Appraisers cannot see where it lands, your team's score for that Payload Drop **may** be affected.
12. Each Payload **should** be visible from 25ft (7.62m) away.



I.C. Technical Design and Innovation

1. Your team will earn points for Technical Design and Technical Innovation based on all Technical Methods used or attempted during the Presentation to initiate, operate, and/or produce the Aircraft's Takeoff, Flight, Landing, and Payload Drop(s).
2. If the Aircraft's Takeoff, Flight, Landing, and/or Payload Drop(s) are not completed, your team **may** still earn points for the Technical Design and the Technical Innovation of the methods used in the attempt. Your team's score for Technical Design **may** be affected.



I.C. Technical Design and Innovation

3. Design and build all parts of the Aircraft and Payload Drop method(s) using your own ideas and skills. This includes any parts that assist the Aircraft with Takeoff, Flight, Landing, and/or Payload Drop(s). Your team **may** incorporate commercially produced items, but for scoring, Appraisers will only consider your team's changes and/or additions to those items.
4. Technical Methods using less direct team member involvement **may** earn more points for Technical Design and Technical Innovation than methods that have more direct team member involvement.



IV.A. [Technical Design and Innovation]

1. ... Technical Design is the result of a plan for carrying out or accomplishing a task. A high-quality design shows careful planning and is effective, efficient, and reliable.
2. ... Technical Innovation includes how new, unique, original, or creative the methods are for carrying out or accomplishing a task.



I.D. Story

1. Create and present a story about one or more characters exploring a remote place.
2. Include a Featured Character who is in the remote place. The Featured Character **may** be anything your team chooses, and **may** be portrayed using any theatrical style, method, or manner. The story **may** include more than one character in the remote place, but only one Featured Character will earn points for dramatic portrayal.
3. Integrate the Aircraft and Payload Drops into the story.
4. The story **may** be set in any location(s), real or imaginary, and in any time period(s): past, present, or future.



II. TEAM CHOICE ELEMENTS

Rules of the Road, Team Choice Elements in Sections II.B.2 and IV.B expand fourfold on this half-page description in the Challenge.

- A. Present TWO creations that show off your team's interests, skills, areas of strength, and talents. Your team **may** create anything it wishes, including props, music, technical gadgets, costumes, physical actions, etc.
- B. Each Team Choice Element **should** have a meaningful connection to your team's Central Challenge solution and must be presented as part of the 8-minute Presentation.

Note that $\frac{1}{3}$ of the points are for **Integration into the Presentation**



II. TEAM CHOICE ELEMENTS

- C. A Team Choice Element may not be a specific item that is required in the Central Challenge that is already being evaluated. A Team Choice Element **MAY** be a single unique PART of a required item, as long as it can be evaluated as a stand-alone item. Or, a Team Choice Element **MAY** be a larger item that includes a required element, as long as the required element can be evaluated as a single unique part of the Team Choice Element. Examples of these can be found in Rules of the Road.
- D. Both Team Choice Elements **may** be presented at the same time **ONLY IF** both can be easily identified and scored separately.
- E. Each Team Choice Element will be evaluated in three ways: for creativity and originality, for quality, workmanship, or effort that is evident, and for integration into the Presentation.



III. AT THE TOURNAMENT

Rules of the Road, VII. TEAM CHALLENGE DETAILS expands on this half-page description in the Challenge. Only the room size & floor type is unique here...

- A. **Presentation Area:** The minimum required size is 20ft x 20ft (6.10m x 6.10m). (See Figures A and B.) Your team may use any additional space that tournament officials designate as available, but your team should be prepared to present your solution in the minimum space. A minimum ceiling height of 10ft (3.05m) is recommended for this Challenge. The Presentation Area will be a large space with a hard floor, such as wood, linoleum, concrete, or very short-napped carpet. Your team should be prepared to deal with a variety of floor surfaces. A single 3-prong electrical outlet will be provided at the edge of each Presentation Area for your team's use.

The use of the term "should" here is somewhat ironic. Though it's true that it's a team choice to be prepared or not, teams unprepared for the actual site will be at a disadvantage.



III. AT THE TOURNAMENT

- B. **Forms:** Your team will need to bring copies of your completed Expense Report, Declaration of Independence, and Tournament Data Form to the tournament. (See Rules of the Road for the Expense Report and Declaration of Independence. The Tournament Data Form can be found at the end of this Challenge.)
- C. **Identification Sign:** Your team will provide a freestanding sign displaying your team name, Team Number, school/organization, and level. The purpose of the sign is to identify your team to the Appraisers. (See Rules of the Road, Team Identification Sign.)

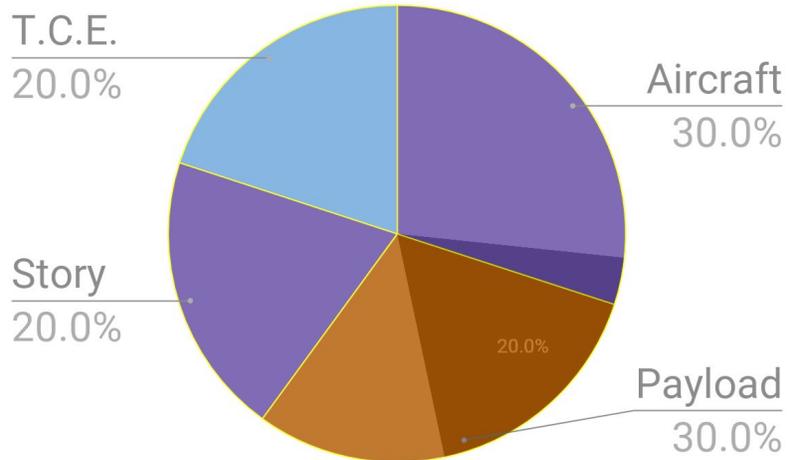


III. AT THE TOURNAMENT

- D. **Instant Challenge:** At a tournament, your team will solve one Instant Challenge in addition to showcasing your Team Challenge solution. Instant Challenges are kept secret until the day of the tournament. (See Rules of the Road.) Because Instant Challenge is worth 25% of a team's overall score at a tournament, teams often practice different types of Instant Challenges throughout the season. (See Roadmap.)

IV. SCORING

*Distribution of points for Aircraft, Payload, Story, and Team Choice Elements.
80% of the points are Subjective, 20% of the points are Objective.*



RotR p.34

Rules of the Road p. 34 X.C.3. Scaled Scores indicates all sections of the Technical Central Challenge are scored separately.



IV. SCORING

A. Aircraft (See Section I.A.)

Up to 90

1. **Technical Design of the Aircraft**

Up to 40

This includes the Aircraft and all parts that assist with the Takeoff, Flight, and/or Landing. Technical Design is the result of a plan for carrying out or accomplishing a task. A high-quality design shows careful planning and is effective, efficient, and reliable.

2. **Technical Innovation of the Aircraft**

Up to 40

This includes the Aircraft and all parts that assist with the Takeoff, Flight, and/or Landing. Technical Innovation includes how new, unique, original, or creative the methods are for carrying out or accomplishing a task.

3. **Successful Aircraft Landing(s)**

Up to 10

Your team will earn 2 points for each successful Landing.



IV. SCORING

- | | |
|---|-----------------|
| B. Payload Drops (See Section I.B.) | Up to 90 |
| 1. Technical Design of Payload Drop method(s)
This includes all parts that assist with Payload Drop(s). | Up to 20 |
| 2. Technical Innovation of Payload Drop method(s)
This includes all parts that assist with Payload Drop(s). | Up to 20 |
| 3. Successful Payload Drop(s)
Your team will earn up to 10 points for each Payload dropped successfully into the Payload Drop Zone. | Up to 50 |



IV. SCORING

C. Story (See Section I.D.)

Up to 60

1. **Dramatic portrayal of the Featured Character** **Up to 20**
2. **Integration of the Aircraft and Payload Drops into the story** **Up to 20**

This means that the Aircraft and Payload Drops are important to the story.

3. **Creativity of the story about one or more characters exploring a remote place** **Up to 10**

A story is more creative when there is novel development of the storyline and characters.

4. **Clear and effective storytelling** **Up to 10**

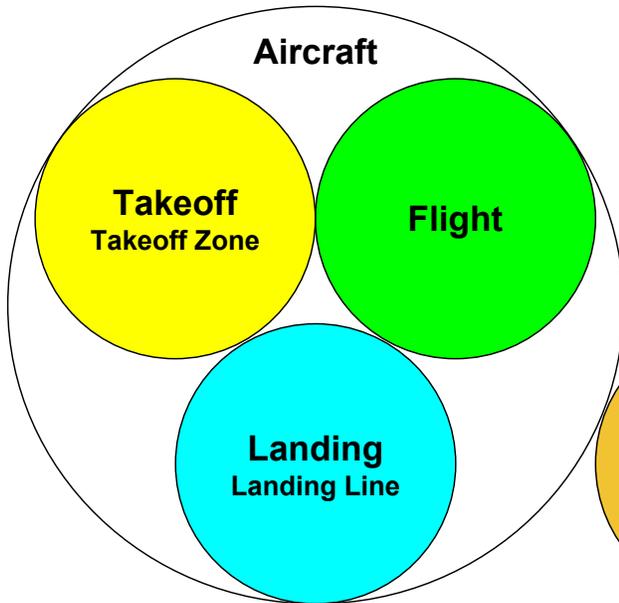
This means the story has a beginning, a middle, and an end and is presented in a way that is easy to follow and understand.



IV. SCORING

D. Team Choice Element 1 (See Section II.)	Up to 30
1. Creativity and originality	Up to 10
2. Quality, workmanship, or effort that is evident	Up to 10
3. Integration into the Presentation	Up to 10
E. Team Choice Element 2 (See Section II.)	Up to 30
1. Creativity and originality	Up to 10
2. Quality, workmanship, or effort that is evident	Up to 10
3. Integration into the Presentation	Up to 10

Defined (and other important) Terms



- **Presentation**
- **Technical Methods**
 - **Technical Design**
 - **Technical Innovation**
- **airborne**

- **Story**
- **characters**
 - **Featured Character**
- **remote place**

Aircraft: Takeoff, Flight, Landing

- “Single” (I.A.1), so only one Aircraft
- Capable of Flight
 - Moves through the air, touching nothing but air and the payload (I.A.5)
- Can perform Takeoff (I.A.4) via each 3' x 4' Takeoff Zone (Figure A)
 - At most one Takeoff from each zone (I.B.1)
 - Takeoff can start outside a zone, but the Aircraft & Payload must at some time during Takeoff be wholly inside the imaginary vertical box above the outside tape edge of the zone. (I.B.5)
- Carries single (I.B.2) Payload through the air ... (I.B.3)
- ... at least far enough to take the Payload outside the Takeoff Zone (I.B.8)
- Then crosses the 20' Landing Line before it stops Flight

Payload

- One scored attempt per Takeoff Zone A/B/C/D/E, for up to five flights (I.B.1)
 - If the Aircraft does not become airborne, and/or the Aircraft does not completely leave the Takeoff Zone, your team may repeat the attempt from the Takeoff Zone. (I.B.7)
 - Otherwise there are no “do overs”.
- “Single” payload per flight, either different or reused from prior flight (I.B.2)
- Challenge intent is the payload land intact in the Payload Drop Zone (I.B.2)
- Only the Aircraft carries the Payload aloft (I.B.3)
- After leaving the Takeoff Zone, Payload separates from Aircraft. (I.B.5)
- After separation and until after Payload stops, it can not be guided by anything external except the tournament-provided floor (I.B.8). It is up to the team to ensure it does not hit a team member or prop until it stops.
- Payload scored by where it stops (I.B.9&10)



Story

- About one or more characters exploring a remote place (I.D.1) [10 pts], and the Aircraft and Payload Drops [20 pts] (I.D.3)
- One Featured Character who is in the remote place is scored for dramatic portrayal [20 pts] (I.D.2)
- The story may be set in any location(s), real or imaginary, and in any time period(s): past, present, or future. (I.D.4)
- Clear and effective storytelling [10 pts]

Dramatic Portrayal 20 pts.

Q&A

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Thank You!