On Target MADI TM Hints

***these hints are just to help teams navigate the Challenge and point out possible pitfalls.**
They DO NOT replace or supersede the Challenge.
All Appraiser decisions will be based on the Published Clarifications, Challenge rules, and Rules of the Road!

THE AIRCRAFT

- Any device capable of flight using *technical methods* to complete Takeoff, Flight and Landing (I.A.1, I. A.2). A team member cannot be any part of the aircraft(I.A.7). No Helium can be used at MADI tournaments.
- Takeoff is when the Aircraft goes from being at rest to airborne (I.A.4)
- Flight is when the aircraft is moving through the air (I.A.5)
  - The Aircraft is NOT considered to be in Flight if it is touched by ANYTHING other than the Payload. This includes people, objects, and surfaces (I.A.5)
- Landing is when the aircraft is no longer in the air (I.A.6)
- For a Landing to be successful (IV.A.3) any part of the Aircraft must cross the 20 foot taped Landing Line before contacting a person, object, or surface (I.A.6). The Landing line is NOT infinite!

PAYLOAD DROPS

- Payload is a physical item that is loaded on or attached to the Aircraft and carried during Flight (I.B.2, PC 1)
  - The team can make up to 5 Payload Drops (I.B.1)
  - Each of the 5 payloads can be different (I.B.2)
  - Payloads must NOT be designed to break apart (PC 1)
- The team can used the Takeoff Zones (A-E) in any order. Once an Aircraft has successfully left a Takeoff Zone that Takeoff Zone CANNOT be used for another attempt (I.B.4)
- For each Payload Drop ALL parts of the Aircraft and Payload must fit and become airborne within the 3D boundaries (including the tape) of a single Takeoff Zone: A-E (I.B.5)
  - The Aircraft must be Airborne before crossing the outside edge of the tape. IF the Takeoff attempt fails and the Aircraft doesn't completely leave the Takeoff Zone, the team can repeat the attempt from the SAME Takeoff Zone (I.B.5, I.B.7)
  - Takeoff can be initiated from outside the Takeoff Zone but if the appraisers can't easily see the whole Aircraft and Payload in the Takeoff Zone the team risks scoring 0 for that Payload Drop (IV.B.3, I.B.5)
  - Parts used to assist the Aircraft with Takeoff, Landing or Payload drop can be separate and DO NOT have to fit into the Takeoff Zone (I.B.6). Assisting parts CAN NOT stay attached to the Aircraft during Flight
- After leaving the Takeoff Zone the Payload must completely separate from the Aircraft IN FLIGHT (I.B.8)
  - After separation, the Payload CANNOT touch or be directed by ANYTHING other than the tournament provided floor until it stops moving (I.B.8)
    - This includes, another payload, remote controls, wind….
  - Once the Payload stops moving the Payload Drop is complete. The Aircraft does not have to successfully Land for the team to score Payload Drop points (IV.B.3)
  - The team will score points based on where the Payload stops moving in the Drop Zone. The Drop Zone is not infinite. Payload must land in the 15x20' taped rectangle to score. If it is touching two areas the team will earn points for the higher scoring area (IV.B.3, I.B.10). The tape is part of the higher scoring Drop Zone.
  - Once the Payload Drop is complete the team can move or touch the Payload but if the Appraisers did not clearly see the original stopping area the team's score (IV.B.3) may be affected (I.B.11, I.B.12)

STORY

- The team's story must be about character(s) exploring a remote place
  - There are NO restrictions about where the team decides is a remote place (I.C.4)
- The story must have a SINGLE Featured Character who is in the remote place (I.C.2)
  - Only ONE Featured Character will be scored (I.C.2, IV.C.1)
  - NO restrictions on who or what the Featured Character is
  - The Featured Character can be portrayed using ANY theatrical style or ANY other method or manner.

- The team MUST integrate the Aircraft and Payload Drops into the Story (I.C.3, IV.C.2)
- If the team picks a unique remote place or Featured Character be sure to describe it carefully on the Tournament Data Form (Page 2, questions 4 & 5)

TECHNICAL SCORES
- Teams can buy commercially produced parts, off the shelf parts, or use Lego Mindstorms, computers, Arduinos….but *Technical Innovation* and *Technical Design* scores (IV.A.1 & 2, IV.B.1 & 2) will be based ONLY on the ideas, changes, or unique combinations the team makes to those parts.
- Teams should be prepared to explain their *Technical Methods* to the Appraisers after the Presentation.
- All *Technical Methods* attempted during the 8 minute Presentation time, whether the Takeoff, Flight, Landing or Payload Drop was successful or not, will be factored into the scores for *Technical Design* and *Technical Innovation*.

DEFINITIONS
- *Technical Methods*: For this Challenge, Technical Methods refer 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.
- *Technical Innovation*: For this Challenge, Technical Innovation includes how new or unique, original, or creative the methods are. It includes the originality and/or creativity of the Aircraft and Payload Drops.
- *Technical Design*: For this Challenge, Technical Design is the result of a plan for carrying out or accomplishing a task. A well-designed Aircraft or Payload Drop shows careful planning and is effective, efficient and reliable.

RULES OF THE ROAD
- **Please be sure to read Rules of The Road!!!** Especially pages 13-16 about Interference, pages 21-23 about safety and pages 18-20 about determining the cost of your solution.
    - **MADI will NOT ALLOW the use of helium or helium balloons!!!**
    - **Teams, or people associated with a MADI team CANNOT plug anything into a school outlet. No charging phones or cameras, no testing solutions, no power tools. NOTHING!**
    - Page 19 #4 gives the list of exempt cost items. ONLY the items specifically listed here are cost exempt!!! Exempt items must also be on your Expense Report but write "Exempt" in the cost column.

If you are uncertain about any part of your solution write for a Team Clarification!!!
(Rules of the Road pages 24-25). Team Clarifications are shared ONLY with your team.
https://www.destinationimagination.org/challenge-program/clarifications/on-target/
Please DO NOT wait until the last minute!!!
Absolutely no team clarifications will be answered after Midnight PST February 15, 2019