**This entry form must be completed in English; the use of other languages is unacceptable.**

|  |  |  |
| --- | --- | --- |
| **PARTICIPANT INFORMATION** | | |
| **A** | **Adult advisor name** |  |
| **B** | **Adult advisor e-mail address** |  |
| **C** | **School/organization/group** |  |
| **D** | **City (or township, etc.)** |  |
| **E** | **State or territory (etc.)** |  |
| **F** | **Student grade level(s) [9 10 11 12]** |  |
| **G** | **Number of students on the team** |  |
| **H** | **Team name (if any)** |  |

**Notes**

A All teams are required to have an adult advisor, such as a teacher, group leader, parent, or guardian.

D-E The city and state (etc.) should be that of the school/organization/group rather than that of the advisor or student participants.

F The Droplet Ejection challenge is open to team members in grades 9-12, where selection preference will go to teams over individuals. Multi-grade teams, e.g., as might be found in a science club or family, are acceptable.

|  |  |  |
| --- | --- | --- |
| **EXPERIMENT INFORMATION** | | |
| **1** | **Experiment name** |  |
| **2** | **Research question** |  |
| **3** | **Hypothesis (optional)** |  |
| **4** | **Number of devices (max 3)** |  |
| **5** | **Materials from which the device(s) will be fabricated, including any coatings** |  |
| **6** | **Device dimensions** |  |
| **7** | **How do the devices differ?** |  |
| **8** | **How are the devices the same?** |  |
| **9** | **Analysis plan (optional)** |  |

**Notes**

1. The research question should be specific to difference among the device(s). Generic research questions, such as “which device will eject droplets the furthest?” are inappropriately vague.
2. The experiment should include two or three devices to allow comparison of results.
3. To the best of your ability, list the materials from which the devices are planned to be made including any coatings.
4. A brief description of an analysis plan is optional and will not be used in the selection process.

**DRAWINGS**

Drawing(s) of the devices are required. They must be pasted into this entry form (e.g., below), where attaching them as separate files is unacceptable. The drawings must show the planned dimensions of the each device and should also show the orientation in which they should sit at the bottom of their water vessel prior to free fall. **Please note that that some jostling will occur as the drop package is transported to the top of the drop tower, so this should be considered in your device design.**

The drawings can be (1) drawn by hand and scanned or photographed, or (2) they can be created on the computer, e.g., using a drawing program such as MS PowerPoint. Computer-Aided Design (CAD) drawings are acceptable but are not required. But again, it must be emphasized that the drawing(s) must be embedded in this entry form file.

Note that there is no limit to the number of drawings and pages that may be included in the entry, but the resulting entry form file must be less than 10 MB.

**SUBMISSION**

**This entry form must …**

1. be completed in English,
2. include drawing(s) of the device(s) with dimensions labeled as described above,
3. be submitted in either a .doc or .pdf format,
4. be named Droplet\_<StateAbbrev>\_<OrgAbbrev>\_<AdvisorLastName>\_<EntryAbbreviation>, where an example is Droplet\_OH\_JGHS\_Smith\_Team1,

*The abbreviations for eligible states, territories, etc. is provided below for reference. The entry abbreviation can be the team name (if short) or initials or some other short designator which will distinguish between multiple entries from the same advisor.*

1. be less than 10 MB in size (where, in contrast, there is no limit to the number of pages), and
2. be e-mailed to [Ed-DropTower@lists.nasa.gov](mailto:Ed-DropTower@lists.nasa.gov) by no later than November 10, 2020.

The adult advisor should either be cc’d with the submission e-mail or personally submit it on behalf of the team. As a reminder, an organization (e.g., school) may submit no more than 5 entries. Each entry should be e-mailed individually.

**QUESTIONS**

If you still have questions after checking the …

1. entry form,
2. Droplet Ejection guide, and
3. website, i.e., <https://www1.grc.nasa.gov/space/education-outreach/drop-tower-competition/current-drop-tower-challenges/2021-drop-tower-challenge/>,

then e-mail the Expulsion challenge staff at [Ed-DropTower@lists.nasa.gov](mailto:Ed-DropTower@lists.nasa.gov).

**STATE ABBREVIATIONS**

