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

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| **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) [8 9 10 11 12]** |  |
| **G** | **Number of students on the team** |  |
| **H** | **Team name (if any)** |  |
| **I** | **How did you learn of the challenge?** |  |

**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 normally be that of the school/organization/group rather than that of the advisor or student participants. However, if the group is informal, e.g., a family or group of friends, then use the advisor’s city and state (etc.).

F The Expulsion challenge is open to team members in grades 8-12, where selection preference will go to teams over individuals. Multi-grade teams, as might be found in a club or family, are acceptable.

H The optional team name can, but doesn’t need to, match that of your school mascot, etc.

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| **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, incl. any coatings, etc.** |  |
| **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 the device(s), for example the differences between them. Generic research questions, such as “which device will be expelled the furthest from the water?” are inappropriately vague.
2. The experiment should include two or three devices to allow the comparison of results.
3. Based on current plans, to the best of your ability, list the materials from which the devices are to be made including any coatings, adhesives, fasteners, etc.
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 (below and/or on subsequent blank pages), where attaching them as separate file(s) is unacceptable. The drawings must show the planned dimension(s) of each device. They must also include down arrow(s) to indicate their preferred orientation in the water. **Please note that that some jostling will occur as the drop package is transported to the top of the drop tower, so you may want to account for that 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 9 MB and must be submitted by email. Some servers will not send emails larger than 9 MB.

**KEY RULES CHECKLIST (See the flyer and especially guide for more details and rules.)**

□ Participants must be grade 8-12 students in the United States (incl. territories) or [DoDEA](https://www.dodea.edu/) schools.

□ A student may only be on 1 team.

□ Teams can be of any size, but a maximum of four students per team will be invited to the ASGSR meeting.

□ A team may only submit 1 entry.

□ An organization (e.g., school) may submit no more than 2 entries.

□ Each team may include up to 3 test objects in their proposal.

□ An object’s longest dimension, when including diagonal(s), must be ≥5 mm and ≤60 mm.

□ Objects must float in water in normal gravity.

**SUBMISSION CHECKLIST**

**This entry form must …**

□ be in English, where use of other languages is unacceptable

□ include drawing(s) of each device in which:

□ each device is identified by name, number, etc.

□ the maximum dimension of each device is clearly labeled

□ down arrow(s) indicate the preferred orientation of the object in the water

□ be submitted in a .pdf format (where all other formats are unacceptable)

□ be named XPLSN24\_<StateAbbrev>\_<OrgAbbrev>\_<AdvisorLastName>\_<TeamAbbrev>\_entry, where an acceptable example is XPLSN24\_WV\_GWHS\_Smith\_Team1\_entry,

*The abbreviations for eligible states, territories, etc. are provided on the next page for reference. The team abbreviation can be the team’s name (if short) or initials or some other short designator. If an organization submits two entries (the maximum allowed), the team abbreviations must be different.*

□ be less than 9 MB in size (where, in contrast, there is no limit to the number of pages)

□ be e-mailed to Ed-DropTower@lists.nasa.gov no later than Nov. 1, 2023, 11:59 pm (your local time)

*The adult advisor should either be cc’d with the submission e-mail or personally submit it on behalf of the team. If two entries are submitted by the same advisor, they must be e-mailed separately.*

**QUESTIONS**

If you still have questions after checking the following:

1. entry form
2. guide
3. [website](https://www1.grc.nasa.gov/space/education-outreach/drop-tower-competition/current-drop-tower-challenges/2024-drop-tower-challenge/) (where the address is also shown below as a footnote)

then e-mail the Expulsion challenge staff at Ed-DropTower@lists.nasa.gov.

**STATE, ETC. ABBREVIATIONS**

