|  |  |  |
| --- | --- | --- |
| **PARTICIPANT INFORMATION** | | |
| **A** | **Adult advisor name** |  |
| **B** | **Adult advisor e-mail address** |  |
| **C1** | **School/organization** |  |
| **C2** | **Bureau of Indian Education School?** |  |
| **D** | **City (or township, etc.)** |  |
| **E** | **State or territory (etc.)** |  |
| **F** | **Student grade level(s)** |  |
| **G** | **Number of students (1+)** |  |
| **H** | **Team name (if any)** |  |
| **I** | **How did you learn of the CELERE challenge?** |  |

**Notes**

A Even individual participants are required to have an adult advisor, but it can be a parent or guardian.

C1 Individual participants should either identify their school or indicate that they are home schooled. Only teams with more than one student should identify an organization other than their school.

C2 Indicate (yes/no) if your school is a Bureau of Indian Education school listed at <http://bie.edu/Schools/>.

D-E The city and state (etc.) should be that of the school/organization rather than that of the advisor or student participant(s). DODEA schools ([www.dodea.edu/](http://www.dodea.edu/)) should also identify the nation in which they are located. It is important to emphasize that the CELERE 2020 challenge is only open to students in the United States - including the territories specified in the challenge handbook - or attending DODEA schools for the children of U.S. military personnel (i.e., regardless of the location).

F-G CELERE 2020 is open to individuals and teams in grades 8-12. Multi-grade teams of grades 5-12 - as might be found in informal youth groups – may also participate, where at least one member must be in grades 8-12.

|  |  |  |
| --- | --- | --- |
| **EXPERIMENT INFORMATION** | | |
| **1** | **Experiment name** |  |
| **2** | **Research question** |  |
| **3** | **Hypothesis (optional)** |  |
| **4** | **Number of channels (2+ required)** |  |
| **5** | **How do the channels differ?** |  |
| **6** | **How are the channels the same?** |  |
| **7** | **Analysis plan (optional)** |  |
| **8** | **Drawing file name** |  |

**Notes**

1. It is suggested that the experiment name be a draft title of your written report which is due by May 4th, 2020.
2. The research question must be specific to the channels. Generic research questions, such as “in which channel will the oil rise more quickly?” are inappropriate.
3. The experiment (and thus test cell) must include two or more channels.
4. Although it is optional and will not be used in determining selection, a brief description of your analysis plan is requested.
5. The name of the CAD drawing file must have the following format (where the < and > symbols are not included):

CELERE\_2020\_<StateAbbrev>\_<OrgAbbrev>\_<AdvisorLastName>\_<ParticipantAbbrev>.dwg

Sufficient abbreviation is required that the file name fits within the drawing’s test cell outline in a single line.

**Mark each requirement below with an X to show that it has been met.**

|  |  |
| --- | --- |
| **EXPERIMENT REQUIREMENTS** | |
|  | The experiment must have a research question that is specific to the test cell’s channels. |
|  | The research question must address the effect of the channel shape and/or size on the capillary flow. |
|  | The experiment must include only one test cell (and thus only one drawing). |
|  | The test cell must have at least 2 channels. |
|  | The channels should ideally differ in a single way. |
|  | The variation between the channels must address the research question. |
|  | The experiment must differ from the past CELERE experiments depicted in this handbook’s appendix. |
|  | The proposal, report, and other communication with NASA must be in English. |
|  | The drawing and entry files must be named as:  CELERE\_2020\_<StateAbbrev>\_<OrgAbbrev>\_<AdvisorLastName>\_<ParticipantAbbrev>  where the drawing is a dwg file and the entry file is in a pdf or doc format. Furthermore, sufficient abbreviation is required that the file name fits within the drawing’s test cell outline in a single line. |

|  |  |
| --- | --- |
| **DRAWING REQUIREMENTS** | |
|  | Cut lines must be in the CUT layer (which normally appears in red in *DraftSight*). |
|  | Cut lines must be continuous (i.e., without gaps). |
|  | Cut lines must begin at the test cell base, pass into the green-outlined vent zone, and return to the test cell base. |
|  | Cut lines must not cross themselves or each other. |
|  | Cut lines must not touch the border zone (marked with the diagonal pattern) including its inner edge. |
|  | Channels must be at least 3 mm apart. |
|  | Channels may not merge - so ‘islands’ (i.e., loose cut pieces used in the test cell) are not allowed. |
|  | Nothing (including text) can be outside of the boundaries of the test cell. |

**HINT**

**CELERE participants are strongly encouraged to read and re-read the ‘Design Requirements’ and ‘Common Mistakes’ sections of the CELERE 2020 Handbook.** Roughly one third of the 2019 entries (for example) failed to meet the drawing requirements above, where close attention to these two sections of the handbook may avoid that shortcoming. In the past, such entries were still selected for participation provided that the drawings were quickly revised. **Please know that 2020 submissions which violate the experiment and drawing requirements above may be rejected** to reduce the NASA and PSU workload associated with the challenge.

**SUBMISSION INSTRUCTIONS**

**After its completion, this entry form must be e-mailed with the CAD drawing to** [**celere@lists.nasa.gov**](mailto:celere@lists.nasa.gov) **by March 10, specifically before midnight in your own local time zone.** Students should coordinate with their adult advisor on the submission because organizations (e.g., schools) may only submit a maximum of 7 entries to NASA. And whether as an individual or team member, each student may be associated with no more than one CELERE 2020 proposal. Like the eligibility rules, the submission deadline and maximum number of entries are additional CELERE requirements upon which selection and rejection will be based!

**QUESTIONS**

As a start, please review the CELERE information available on the web at:

* <https://www1.grc.nasa.gov/space/education-outreach/drop-tower-competition/current-drop-tower-challenges/2020-celere-iss-research-design-challenge/>
* <http://tinyurl.com/SEECmicrogravity> (*alternate source of CELERE files*)
* [www.facebook.com/NASA.celere](http://www.facebook.com/NASA.celere)

For more information, please e-mail [celere@lists.nasa.gov](mailto:celere@lists.nasa.gov).