

IGNITING CURIOSITY IN
YOUNG MINDS WITH THE

FLAME CHALLENGE



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A curious 11-year old boy walks up to his teacher to ask, “What is a flame? What’s going on in there?” After a brief pause, the teacher replies, “Oxidation”. Factually speaking, the teacher was right on point, but the student felt deflated, wondering if there’s more to explaining the science behind something other than giving it a different name! The kid in this story grew up to be the famed Hollywood actor and director, Alan Alda. He never forgot this instance of having asked his teacher a question about a flame; or her abrupt answer, devoid of any elaboration. In fact, this experience from his childhood became the inspiration for a contest he started for scientists, aptly called ‘the Flame Challenge’¹.

“Clarity in communicating science is at the very heart of science itself. And I wondered if written and oral communication skills could be taught systematically throughout the entire length of a student’s science education” — Alan Alda.

Since it was started in 2012, the Flame Challenge has become an extraordinary learning experience for children, who are integral to the whole process — from submitting their questions to selecting winning entries to the challenge question. The question for each year’s challenge is picked from questions sent in by children themselves. There aren’t any restrictions on what can, and cannot be asked; the point after all is to stoke their curiosity. The organisers scan through all the questions submitted to identify a common theme. For instance, the question for the Flame Challenge in 2014, “What is colour?”, was selected based on student questions that year as — “Does everyone see colour the same?”; the classic “Why is the sky blue?”, and a variant of that, “Is my blue also their blue?”. Through the process of coming up with questions, kids have a chance to wonder, and express, what it is they want to know about the world around them.

Once the selected question is announced, any scientist can take a shot at answering it— keeping a typical 11 year old in mind. Submissions from scientists take the form of written entries or video recordings/animations.

Entries are judged by 10-12 year old students from schools in 19 countries (and counting). Each class typically gets at least five entries to judge. Students discuss the merits of each entry before rating it on the basis of how much they learned from it, whether the answers were interesting and clear (or boring and confusing), and whether they sparked an interest in learning more about the subject. All the student-judges then vote for winners in written and video categories. Winning entries are chosen for being both informative and engaging.

The teacher is an important part of this process. Other than registering their students as judges², teachers also facilitate the voting process for their respective classes. The entries are sent directly to the registered teacher, who then distributes it among her students in whatever manner she sees fit. Again, it is the teacher who submits the results from student voting to the organisers.



Figure 1. Alan Alda. Alan Alda Centre for Communicating Science, Stony Brook, NY. URL: http://www.alanalda.com/alan_alda_flame_challenge.htm.



Figure 2. Flame Challenge 2016 – What is Sound? Alan Alda Centre for Communicating Science, Stony Brook, NY.



Figure 3. Students judging submitted entries. Alan Alda Centre for Communicating Science, Stony Brook, NY. URL: <http://www.centerforcommunicatingscience.org/student-judging-photos/>.

Flame Challenge:
<http://www.centerforcommunicatingscience.org/flame-challenge-2015/>

Class registration for judging entries to the 'Flame Challenge 2016' question:
<http://www.centerforcommunicatingscience.org/the-flame-challenge-2/school-form/>

FAQs for teachers:
<http://www.centerforcommunicatingscience.org/faqs-for-teachers/>

Instructions for teachers:
<http://www.centerforcommunicatingscience.org/teacher-instructions/>

Going on now is the registration of classes for judging this year's challenge question: What is sound?

As a teacher, you may find yourself wondering why you should tell **your** students about this. What's in it for them? Here's what Mr. Alda says in response to that: "Judging requires critical thinking, working together and synthesising knowledge," he said. Michelle Miller, a teacher at Selden Middle School, New York, shared her experience after her class's participation: "This experience provides such good analytic skills. They were not only reading for information but reading the entries in order to evaluate them. This propelled them to a higher level thinking skill immediately. They noticed when several scientists talked about the same piece of information. ... My students were invested in the results and were so excited that many of them picked the video winner. The repetition of the reading and video pieces was also an excellent learning tool and offered us an authentic reason to do close reading."

Have you found yourself in a situation where you've had all the facts but still found it difficult to explain something

to your students? Even a cursory glance through the winning entries quickly shows us the importance of choosing the right amount of detail and of using analogies in communicating science. For instance, the winning entry to explain sleep (Flame Challenge 2015) compared it to "a superpower, a TV with static, a brain-cleaning system". How wonderfully vivid! Similarly, the winning entry to explain colour (Flame Challenge 2014) explains it so: "Did you know that dogs don't see all the colours that we do? Colour itself isn't a thing, like a pencil or a notebook. It is how our eyes interpret light reflected off of objects. That is why we cannot see colour in the dark — there is no light to reflect...."

Too much of science instruction involves providing students with the knowledge of established facts and having them apply this information to pre-defined problems (often replete with answers at the end of the textbook). Such a system breeds conformity, not curiosity! This is ironical because it goes contrary to what science is — it is not information; it is a way of making sense of the world around us.

Tens of thousands of kids from all over the world have excitedly delved into the mysteries of nature as they've judged the scientists' entries. For adults who try answering these very same questions, the idea is to test not how much they know but how effectively they can communicate this understanding to engage kids.

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