UNebraska-Lincoln: "Safety Cases and Their Use in iGem Competitions Feedback"

Here is feedback CCA_San_Diego has for UNebraska-Lincoln and their Safety Cases. These suggestions are of course just some things to consider, so feel free to use this to your own discretion.

Content and Layout Feedback:

1. Great extension of project's relevance to wide variety of consumers.

Whether it be executives of large drug companies and industrial leaders looking for a cheaper solution in biosynthesis or simply a consumer debating the pros and cons of buying a product with a "GMO" label, people want to be certain that this new and exciting opportunity will be safe for both them and their community.

2. Make the figure labeling a bit more clear (perhaps find a way to format the captions so they are separated more clearly from the text).
3. Very clean design, and good use of navigational side bars.
4. Good analogy connecting safety with aeronautics to Safety Gases with GMOs.

Just as people trust the engineering of an airplane despite the many risks, Safety Cases can help people who use genetically modified organisms feel confident that what they are using is safe. (Introduction)

5. If you have the time and resources, consider creating a video with a voice over to completely elucidate the Safety Cases.
6. I don't know if it's just me but I see a field of wheat on the page and that was pretty cool.
7. Consider making a visual key (in a new figure) as a legend for all the symbols needed for Safety Cases.
8. Good job stating the clear goal of Safety Cases and their incorporation into iGem and the field of synthetic biology in general.
9. Very good Safety Case; it really summarizes what you have mentioned visually and provides a good example of your idea's application.
10. The end of the website gets a little messy with the recommendation on how to address safety issues for other teams' projects. Try to format it to be a little more clear.

Syntax/Grammatical Feedback:

Recommended additions/changes in word choice are made with brackets (eg. They ~~go~~ [went] to the park = They went to the park).

Introduction:

1. Add the Oxford comma (this is purely personal opinion), remove the comma between "everyday" and "can", and add "to" after elude.

Synthetic biologists are no strangers to safety themselves while working with biohazardous materials and inside high-tech biology labs, but sometimes the safety of the end-goal, products[,] and processes utilized by people everyday~~,~~ can elude [to] the most well thought-out projects.

2. Avoid informal language such as "just to name a few".

Unlike aeronautics, synthetic biologists do not have to worry about engine and wing design or console displays, but they do have to worry about accidental release of bacteria and plasmid conjugation just to name a few.

Safety Case Units and Structure:

1. When referring to the aspects that safety cases begin with, make sure to mention their shorthand to clarify.

As seen in Figure 1, each safety case begins with a single root Goal (G1, usually stating that some project is safe)

2. Remove "it"

If a Strategy is "Argument over kill-switch parts" and ~~it~~ is used with the Goal "Organism is safe in case of accidental release" and a sub-Goal "Organism is killed in the presence of 0.5 mM of HCl", a Justification could further enhance the sub-Goal by stating "0.5 mM of HCl is not found in the intended environment".

3. Avoid vague language with "this" when the sentence is preceded by multiple subjects you could be referring to.

A good use of ~~this~~ [the Assumptions] might be to state that one is assuming that some toxic chemical is not going to be added to the intended environment.

4. Replace "a" with "as".

A Safety Case is considered solved if its root Goal is solved. If a possible solution can be identified but no evidence exists to support it, a Future Solution can be used ~~a~~ [as] a placeholder until it can be confirmed with sufficient evidence.

5. Ambiguity: "child" and "parent"; consider the use of "goal" after child just to clear things up.

Finally, every child[-Goal] should be more specific than its parent and work towards a solution for its parent.

Modularity of Safety Cases for iGem:

1. Replacement of “their” with “its” and “their” with [the].

In order for a team to use a BioBrick in ~~their~~ [its] project, the Environment and Organism included in the part’s SafetyBrick must be fully included in ~~their~~ [the] project’s Safety Case Environment and Organism to ensure predictability.

Safety Case Templates and Patterns:

1. No need to mention the inapplicability of your Safety Case to other teams.

UNebraska-Lincoln’s 2017 Safety Case’s base structure (Figure 4) could be seen as the first of these templates, although it is relatively specific ~~and many teams would not find it valuable for their project~~.