iGEM 2013 Basic Safety Form

Team name: Gaston Day School

Deadline: 30th of August 2013

Submission method: email form to the correct email list for your region:

safety_forms_asia@igem.org
safety_forms_europe@igem.org
safety_forms_north_america@igem.org
safety_forms_latin_america@igem.org

Students can complete this safety form, but it must be read and signed (electronic or hard copy) by your team's faculty advisor. Your advisor must verify the information contained in this form and sign it.

The iGEM Safety Committee must be able to easily reach the advisor with questions or other follow-up communication. If you have made changes to your project (new coding regions or organisms) you must re-submit your safety form before wiki freeze (date TBD).

Key points to remember as you complete the safety assessment process:

- For help in completing questions 1 and 2, you may find it useful to consult the Risk Groups section of the Safety Resources List [2013.igem.org/Safety].
- The iGEM Safety Committee will be reviewing your project. To avoid temporary suspensions, answer these questions completely and accurately.
- The Safety Committee needs to be able to communicate with your faculty advisor about any safety concerns. If we cannot reach your advisor in a reasonable amount of time, you may be subject to restrictions at the Jamboree.
- Your safety page, wiki project page and poster should be consistent with each other. If you change your project, submit an updated Basic Safety Page to the iGEM Safety Committee before the wiki freeze. (Your faculty advisor must also read and sign the updated page.)
- We understand that projects may still be changing at a late date. However, large discrepancies between what you submit on the Basic Safety Page and what you present at the Jamborees may result in restrictions at the Jamboree.

Basic Safety Questions for iGEM 2013

a. Please describe the chassis organism(s) you will be using for this project. If you will be using more than one chassis organism, provide information on each of them:

	Species	Strain no/name	Risk Group	Risk group source link	Disease risk to humans? If so, which disease?
Ex	*E. coli* (K 12)	NEB 10 Beta	1	www.absa.org/riskgroups/bacteriasearch.php?genus=&species=coli	Yes. May cause irritation to skin, eyes, and respiratory tract, may affect kidneys.
1	E. coli (K12)	DH5alpha	1	http://www.absa.org/riskgroups/Bacteria.html	Yes. May cause irritation to skin, eyes, and respiratory tract, may affect kidneys.
2					
3					
4					
5					
6					
7					
8					

*For additional organisms, please include a spreadsheet in your submission.

2. Highest Risk Group Listed:

1 ◉ Greater than 1 ○

If you answered 1+, please also complete the iGEM Biosafety form part 2 for any organisms in this category.

3. List and describe *all* new or modified coding regions you will be using in your project. (If you use parts from the 2013 iGEM Distribution without modifying them, you do not need to list those parts.)

	Part number.	Where did you get the physical DNA for this part (which lab, synthesis company, etc)	What species does this part originally come from?	What is the Risk Group of the species?	What is the function of this part, in its parent species?
Ex	BBa_C0040	Synthesized, Blue Heron	Acinetobacter baumannii	2	Confers tetracycline resistance

1	BBa_K174015	iGEM 2009 distribution, subject to mutagenesis	Bacillus subtilis, Escherichia coli	1	Allows E. coli to sense cadmium
2	BBa_K824008	Submitted 2012, subject to mutagenesis	Escherichia coli	1	Allows E. coli to sense cadmium and report GFP
3					
4					
5					
6					
7					
8					

*For additional coding regions, please include a spreadsheet in your submission.

4. Do the biological materials used in your lab work pose any of the following risks? Please describe.

a. Risks to the safety and health of team members or others working in the lab?

E. coli K12 is an attenuated strain that is approved for use in high school classrooms. All bacterial samples and cadmium for testing are maintained in a separate locked lab. All necessary safety equipment is required in the lab and handwashing is required on entrance and exit.

b. Risks to the safety and health of the general public, if released by design or by accident?

E. coli K12 has no known survival mechanisms in the environment and has a very low risk of causing harm to organisms. The major risk is the spread of antibiotic resistance through lateral transfer. With K12, this risk is quite low.

c. Risks to the environment, if released by design or by accident?

The major risk is the spread of antibiotic resistance through lateral transfer. Since K12 cannot survive well in the environment, this risk is quite low.

d. Risks to security through malicious misuse by individuals, groups, or countries?

d. Malicious misuse of our project is possible; however, there would not be a clear reason to do so. All all of our materials are approved for use in a high school classroom and are, therefore, of low toxicity.

5. If your project moved from a small-scale lab study to become widely used as a commercial/industrial product, what new risks might arise? (Consider the different categories of risks that are listed in parts a-d of the previous question.) Also, what risks might arise if the knowledge you generate or the methods you develop became widely available? (Note: This is meant to be a somewhat open-ended discussion question.)

Commercial use of the cadmium detector will increase the chance of environmental release. Because of the strain of bacteria used, the environmental risk is low. We do plan to add a kill switch before any commercialization of the detector to further minimize the risk.

6. Does your project include any design features to address safety risks? (For example: kill switches, auxotrophic chassis, etc.) Note that including such features is not mandatory to participate in iGEM, but many groups choose to include them.

Currently, the project does not contain a kill switch, though this is planned before any commercialization.

7. What safety training have you received (or plan to receive in the future)? Provide a brief description, and a link to your institution's safety training requirements, if available.

All students are individually trained in both safety and lab procedures by the instructor and all lab work is supervised by the instructor.

8. Under what biosafety provisions will / do you work?

a. Please provide a link to your institution biosafety guidelines.

As a high school, there is no published institutional biosafety guidelines. All work must be at a BioSafety Level 1.

b. Does your institution have an Institutional Biosafety Committee, or an equivalent group? If yes, have you discussed your project with them? Describe any concerns they raised with your project, and any changes you made to your project plan based on their review.

As a high school, there is no institutional biosafety committee. All work is approved by the Head of Middle and Upper Schools, the Headmaster, and the board of trustees. No concerns were expressed beyond the requirement that all work remain at BioSafety Level 1.

c. Does your country have national biosafety regulations or guidelines? If so, please provide a link to these regulations or guidelines if possible.

http://www.cdc.gov/biosafety/publications/bmbl5/BMBL.pdf

d. According to the WHO Biosafety Manual, what is the BioSafety Level rating of your lab? (Check the summary table on page 3, and the fuller description that starts on page 9.) If your lab does not fit neatly into category 1, 2, 3, or 4, please describe its safety features [see 2013.igem.org/Safety for help].

Level 1

e. What is the Risk Group of your chassis organism(s), as you stated in question 1? If it does not match the BSL rating of your laboratory, please explain what additional safety measures you are taking.

Level 1

Faculty Advisor Name:

Anne M. Byford, MS, MEd

Faculty Advisor Signature: