

HKUST



/GEM

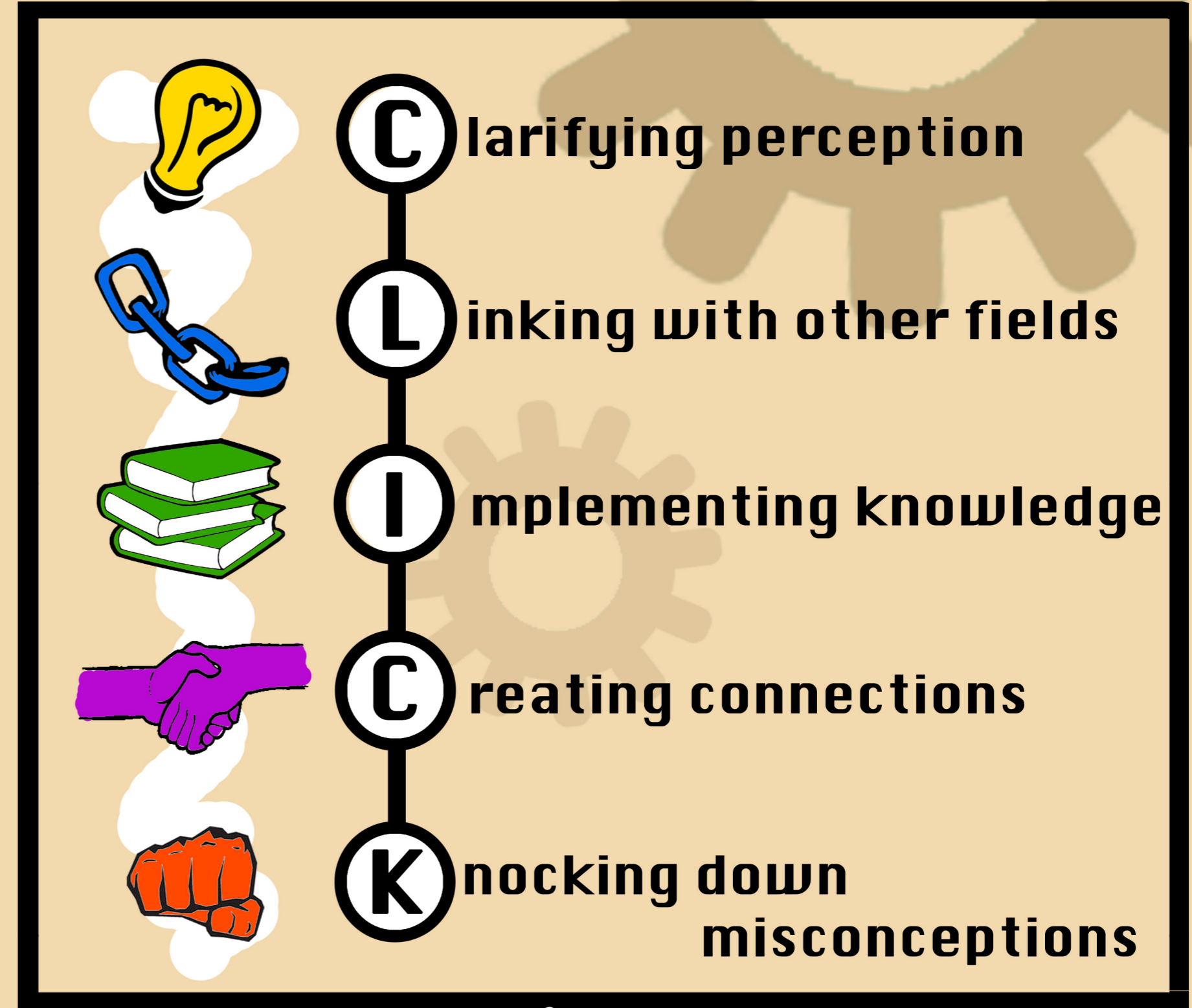
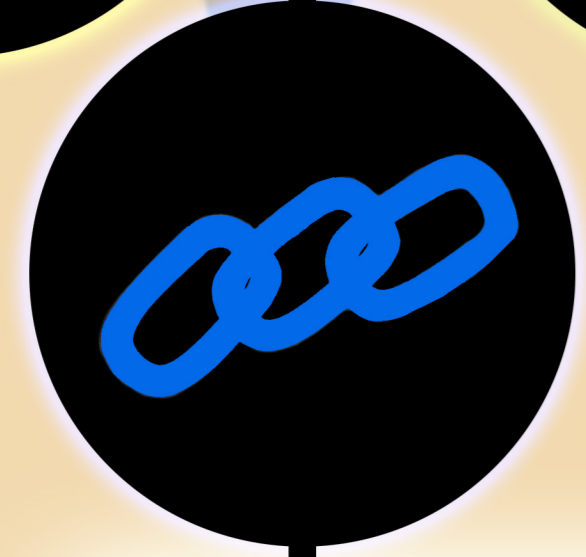


**HUMAN
PRACTICE
HANDBOOK**



PURPOSE OF HUMAN PRACTICE:

C L I C K!



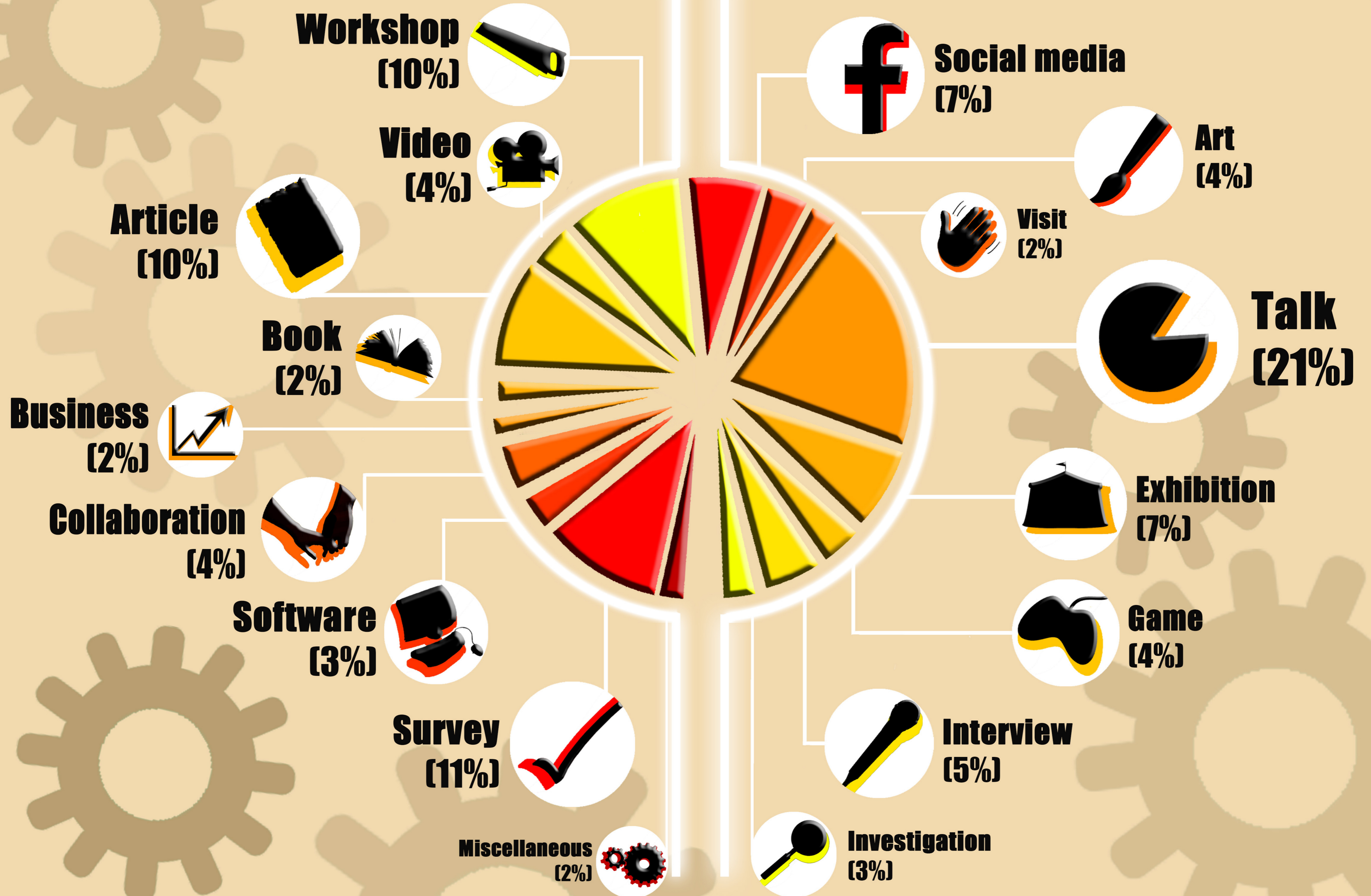
WHAT IS HUMAN PRACTICE?

Effort to connect synthetic biology to the society

Human practice is a link between society and synthetic biology which covers the social, ethical, and legal considerations of the project itself.



Types of HUMAN PRACTICE projects



Types of HUMAN PRACTICE projects



WORKSHOP

- Offer hand-on experience
- Limited quota



VIDEO

- Attractive
- Possible incomplete delivery of information



ARTICLE

- Very informative
- No direct interaction with people



BOOK

- In-depth information in various format
- Limited to number of copies



BUSINESS

- Practice application of projects
- Yet hard to actually carry out



COLLABORATION

- More ideas and opportunities
- Yet hard to reach consensus



SOFTWARE

- Provide a unique and useful tool
- Only useful for interested people



SURVEY

- Obtain direct feedback
- Yet no imminent impact on society



SOCIAL MEDIA

- Maybe distributed to vast audience
- Uncertain participation rate



ART

- Creative, Visual attraction
- Hard to interpret and less in-depth information



VISIT

- Obtain physical experience
- Bound to area of project execution



TALK

- Direct delivery of information
- Little interaction with audience



EXHIBITION

- More interaction with people
- May have limited quota
- Bound to area of exhibition



GAME

- Entertaining and easier to understand
- Tend to have less educational value



INTERVIEW

- Direct way to acquire information
- Individual opinion can be biased
- Less statistical value



INVESTIGATION

- Acquire results from real life problem
- Time consuming

iGEM Best Human Practice Projects

2008: Heidelberg



Types of project:

- Survey
- Essay
- Interview
- Online brochure
- Song
- Talk
- TV broadcast
- Newspaper

Advertised synthetic biology and their projects through media such as newspaper and TV.

2010: Imperial College London



Wrote articles regarding biosafety, ethical, and social aspect of their project.

PARASIGHT

Types of project:

- Panel
- Workshop
- Meetings
- Report
- Documentary

2009: Imperial College London



Types of project:

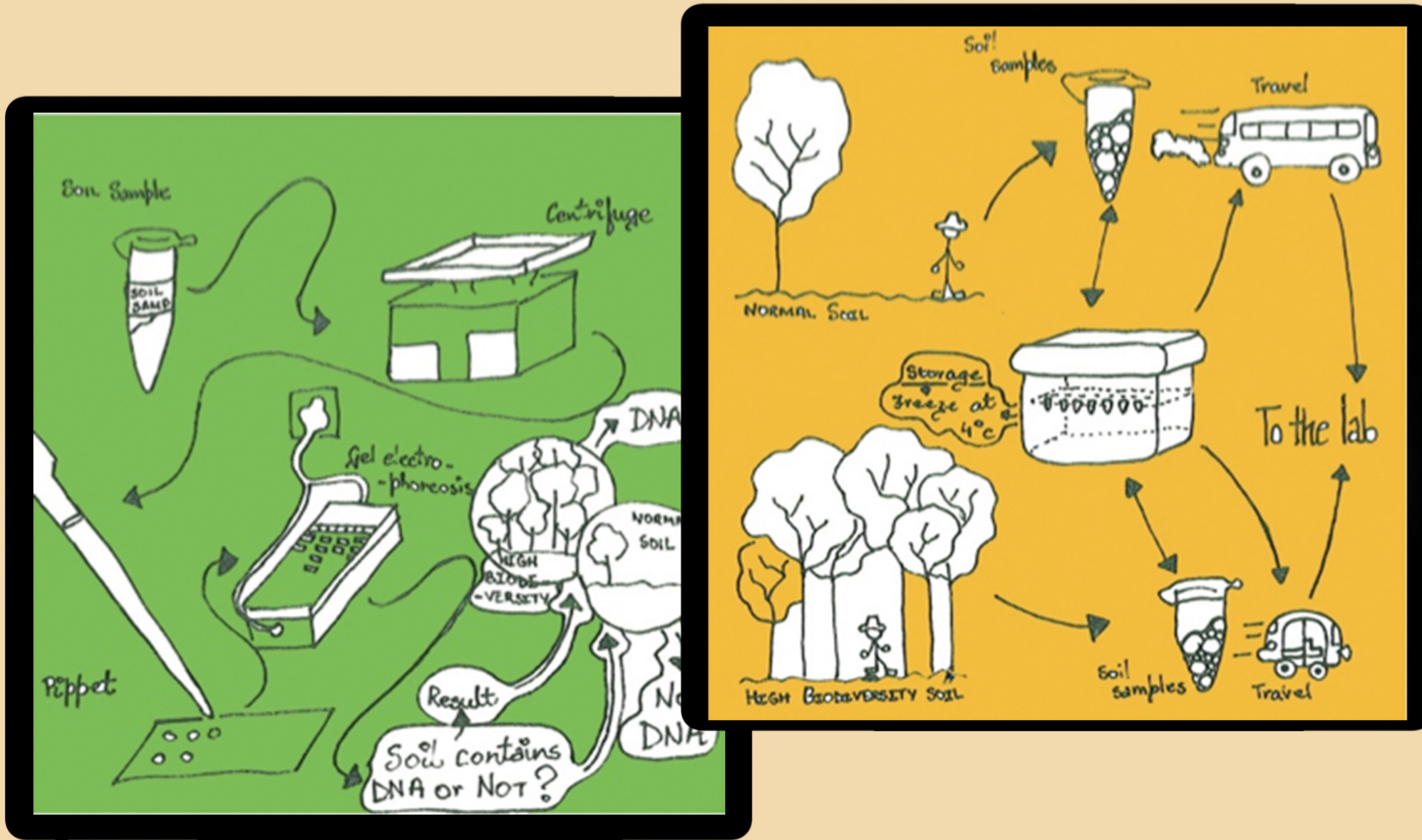
- Video
- Interview

Invited academics from various fields to evaluate on their iGEM project.



iGEM Best Human Practice Projects

2011: Art Science Bangalore



- Investigated the flora and fauna in a rainforest
- Built a community lab
- Balloon mapping and soil mapping
- Handbook for children about process of sampling

Types of project:

- Visit
- Handbook
- Article
- Community



2012: Arizona State

- Made a hygienic instruction along with an lesson plan for children
- Made a report on the ethicality of giving new information and practices into new communities

Types of project:

- Hygiene instruction
- Case Study
- Ethical consideration
- Mathematical model
- Outreach



2013: IIT Madras

Types of project:

- Book
- Software

Created and distributed a guidebook to local butcher shop explaining how to handle meet in a good manner.



Christine Chiu

She is an industrial hygienist and works under the occupational hazard department. Her job involves mostly chemical and biological safety. She was one of the judges for human practice in 2013 regional jamboree in CUHK.

Samuel Yu

He is a professional in the environment, safety and health issues. He is currently the Associate Director in the Health, Safety and Environment Office of HKUST. He has been one of the judges for human practice since 2011.

INTERVIEW with the EXPERTS

What do you think is the definition of human practice in iGEM?

Promotion of iGEM and synthetic biology using different tools such as bioethics issues, safety precaution, patents issues and also vision of the application of synthetic biology in the future. It covers everything beyond the technical aspects, like wet lab and also policies.

What are some common misunderstandings on human practice among iGEM members?

Some teams did not know what to do for human practice and what it was for. It's not that they did wrong project, but it should be better to narrow it down to specific region in specific continent or specific target audience.

What is your opinion regarding the impact of human practice projects to different target audience such as kids and governors?

Kids and Governors are one of the most important audiences of all. This is because kids are the next generation who will carry out the tasks within synthetic biology, while government is the one who approves and controls the policies. By targeting the government officials, we can highlight the policies regarding synthetic biology and avoid misconducts.

In your opinion, how well has human practice developed in iGEM up till now?

Most teams have focused on educational type of project like high school, debate etc.

Yet, the judges are looking for a more creative project.

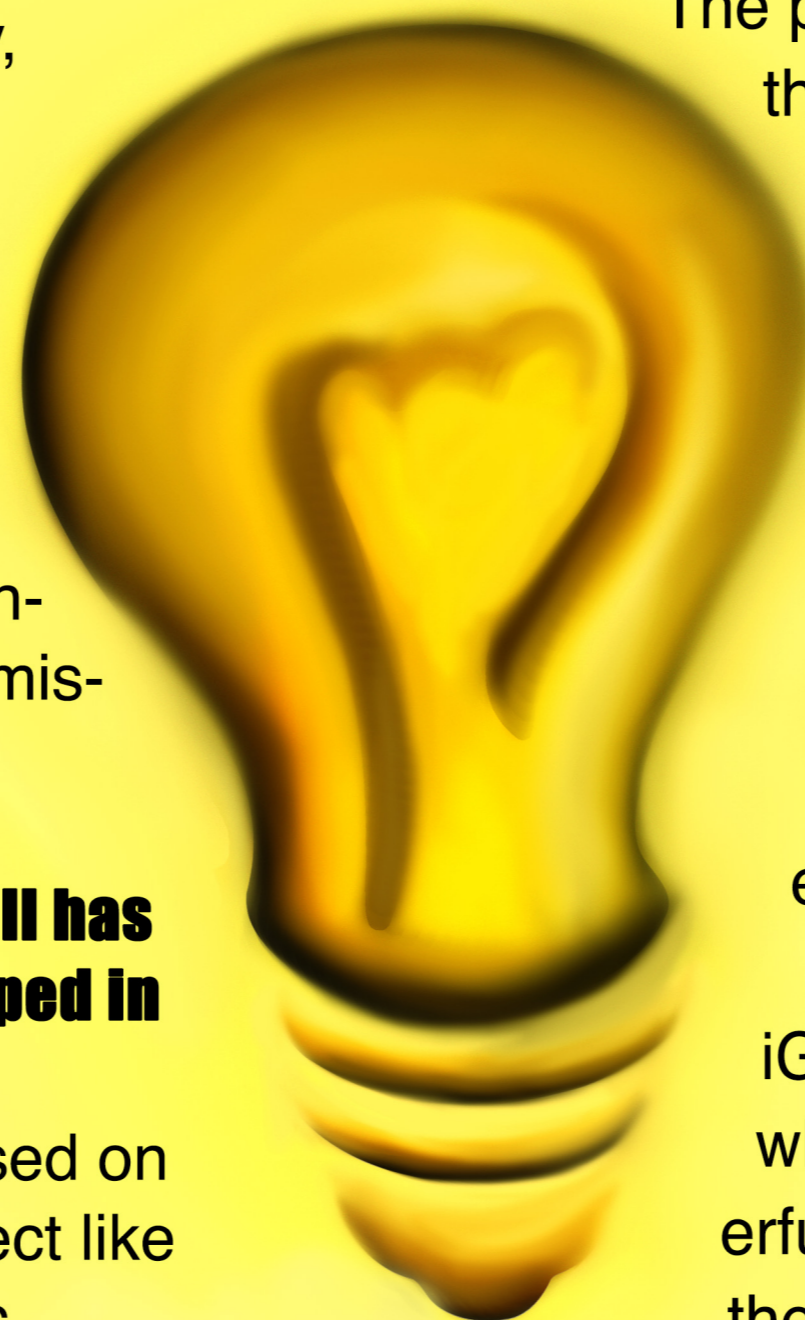
What do you see as worthwhile areas to be explored in human practice?

It depends on whom you talk to.

The potential impact of synthetic biology is so large that if you talk to FBI agents, they will most likely want to know about bio-security. Any areas that tackle questions regarding synthetic biology are in fact worthwhile to explore. However, there are some new tracks in iGEM like ethical and art which can serve as powerful tools to explain synthetic biology.

Which past human practice projects caught your attention and why?

A team from India in 2013, IIT Madras, made a project called "Code Red". They made this project while thinking how it can help the lower level community, how to get in touch with those people and how to increase their awareness. The judges wanted a new approach linking what they do in process and how they reach people. Products are not the problem, but process is the most important thing in human practice.



COMMENTS

TEC MONTERREY



For human practice, it is important to be sensible of the problems on our community and to try solving or diminishing them using science.

We think it is effective to show statistics of the impacts of human practice and present data about those such as video that can show interactions among the students and the community.

First of all, try to search for problems in your community that can be solved by something related to your project or things that can be done in the lab.

It is better to focus on one or two projects and accomplish them well instead of doing more and not putting enough attention and effort on them.

We had to make sure that our lengthy report was actually read by people, so concise summaries on our wiki was very crucial.

MANCHESTER

Human practice was more than what we originally thought. It included not only consideration of biosafety, but also issues like deforestation, ownership and the economy.

You have to make sure your experiments and human practice directly interact.

