Success at the Giant Jamboree:
A Manual for iGEM Teams

iGEM Calgary 2017

Introduction

This manual was compiled to provide a single resource that outlines the different aspects of building an iGEM team and preparing to compete at the Giant Jamboree. Please be advised that it is not meant to provide scientific or technical information about synthetic biology; however, we have listed some resources at the end of this manual which provides this information.

We've highlighted what has worked for us as a team as a part of this manual. We've also consulted other teams for their tips and success stories. We hope this information is useful and can help your team succeed.

Best of luck in your iGEM endeavours!

Sincerely,

iGEM Calgary 2017

Encouraging Student Interest

Encouraging student interest in iGEM is important to have a successful team. Even if everyone who is initially interested does not end up on your team, increasing public awareness of iGEM (and synthetic biology as a whole) in your school or community can be beneficial to your team as your project continues. Therefore, we have compiled some strategies which have been successful at engaging students in past years.

Tip #1: Explain what synthetic biology is using hands-on activities.

- A pipetting demo is a safe and easy way to demonstrate lab skills while engaging students
- A strawberry DNA extraction
    - This can be done in less than an hour and is a great way for students to see physical evidence of (the usually abstract) concept of genes and DNA

Tip #2: Use simple language.

- Explain things in a manner that will make sense to students
- Avoid using jargon or technical language
- Define/explain necessary terms and acronyms
    - Confusion/technical presentation might discourage students because it'll seem too complicated for them to understand

Tip #3: Promote or showcase work done by past iGEM teams (which are geographically close or somehow relevant to you) as a means of showing students what can be done in an iGEM project.

- Look for other teams' social media content or wikis
- Reach out and have team members from those teams present at your info night to talk about their work

Tip #4: Explain the benefits of participating in iGEM to students via classroom visits, including:

- Applications of science/math knowledge
- Hands-on lab research experience
- Interdisciplinary collaborations
- Problem solving, teamwork, project management, communication skills
- Travelling to Boston
- For high school students: iGEM provides a huge advantage over other students (as not many students have research experience in high school)

Tip #5: Attract more students by providing free food at info night (undergrads love free food!)

- Will entice people who would otherwise feel like they did not have any reason to attend
- If nothing else, advertisement raises awareness for the team within your school or community

Things You'll Need (High School)

iGEM's getting started advice: http://igem.org/Start_A_Team

Tips:
Always be on the lookout for iGEM Alumni or synthetic biologists in your community that you can contact for help in setting up, advice on your project, or other resources!

Team

- Teams may consist of any number of members, but starting off with a smaller team is easier to manage and will cost less in Jamboree Registration fees
- Try to have a team that is as varied as possible with students with many different interests and skills (eg: wet lab skills, public engagement, coding, mathematical modelling)
- Team name:
    - Must be less than 20 characters
    - Can contain A-Z, underscore, hyphen
    - Cannot contain spaces, "iGEM", "team", "synthetic biology", or sponsors

PIs/Instructor/Advisors

- Supervisors are responsible for some administrative work, supervising students in the lab and some administrative details (eg: iGEM competition applications, safety forms, team fees). PIs should attend the Jamboree and they must also be available for contact with iGEM HQ
- Instructors help students out with day-to-day activities
- Advisors provide help, advice, mentorship
- Reach out to your local University; perhaps a professor is willing to be your PI!
- High School teachers can also be supervisors/ PIs. As of 2017, each high school team requires at least two PIs, and one must be a high school teacher
- Graduate and undergraduate students (especially those that have been previously involved with iGEM) may be willing to be an advisor. Check out nearby universities' previous iGEM teams and start your search for student advisors there. They can help you, but the students of the team must complete most of the lab work

Administrative

- Requirements change every year, check out full requirements for the year at: http://2017.igem.org/Competition/Team_Requirements
- Keep an eye on the iGEM calendar, it changes every year: http://2017.igem.org/Calendar
- Competition Applications: iGEM registration handbook; http://2017.igem.org/Competition/Registration/Handbook
    - Every team member must create an igem.org user account (PIs, instructors, advisors, students, and anyone else on the team). When applying, you will need to include the school you are affiliated with, NOT the team name that was created by the PI during team application: http://igem.org/Account_Apply
    - Team PIs must apply for and register the team: http://igem.org/New_Team
- Team Roster:
    - iGEM HQ manages the roster as each participant must submit consent forms. Team members visit join a team page and apply as pending members. Once consent forms are received by iGEM HQ, their application to join the team will be approved: http://igem.org/Join_Team
    - It is best to have your team roster as complete as possible when registering your team in March, but it must be finalized by the team roster freeze, typically in early September.
- Each high school student and their parent/guardian, PI, and team advisor/mentor must submit *participant consent form*: http://2017.igem.org/wiki/images/e/e3/2017_iGEMHS-ConsentForm-Participant_final.pdf
- Each high school principal must submit *principal consent form:* http://2017.igem.org/wiki/images/7/71/2017_iGEMHS-ConsentForm-Principal_final.pdf
- Hard copy and original consent forms must be sent to iGEM HQ; address found at: http://2017.igem.org/Competition/Registration
- Travelling to Boston will be more difficult for high school students; contact your local school board as quickly as possible to sort out travelling (especially if it is international) well before the competition date
- If travelling to Boston from out of the country, ensure you prepare the proper documentation (eg. passports, visas, etc.)

- Flights and accommodations should also be booked well in advance to the competition date

Finances

- Competition fees can be found here: http://2018.igem.org/Competition/Registration. We've also explained the fee breakdown (as of August 2018) below:
    - Registration: $4500 USD (late March; credit card, cheque, or wire transfer)
    - Late registration: $5000 USD (early May; credit card, cheque, or wire transfer)
    - Jamboree attendance: $695 USD per team member
- Equipment and chemical costs
- Available resources and funding: check with your school to see if there is room in their budget to financially support your team. If not, we've detailed some fundraising strategies in a later section of this manual
- Travel fees: Flights and accommodations for at least 4 nights in Boston
- Create a team bank account

Equipment

- Common instruments/equipment needed for synthetic biology:
    - Pipettes (large serological and small, adjustable pipettes ranging in size from <1 uL - 1 mL)
    - Beakers and flasks in all shapes in sizes
    - Graduated cylinders
    - Lab benches and chairs/ stools
    - Centrifuge
    - Incubator, water baths, and/or heating blocks
    - Agarose and SDS-PAGE electrophoresis equipment
    - Petri dishes and culture tubes
    - Microcentrifuge tubes of various sizes, Falcon tubes
    - Autoclave for sterilization
    - Balances, spatulas, weigh boats/weigh paper
    - Bunsen burners
    - Spreaders and loops
    - Hot plate/magnetic stirrer with stir bars
    - Thermometers
    - Test tube racks, falcon tube racks, microcentrifuge tube racks
    - Fridge, -20°C freezer, -80°C freezer
    - Spectrophotometer
    - Incubator/ shaker

- DIY instruments are possible, but pipettes must be bought. Check out http://diy-bio.com/diybio-lab-equipment/diy-centrifuge/ for instructions on DIY equipment
- DIY protocols for many common methods can also be found online. (Example: transformation using calcium supplements)
- Ask if you can obtain or rent lab space from your local university; there will be sufficient equipment already available
- Second-hand equipment may also be available from your local university
- Chemicals, reagents may need to be bought. Companies selling these may give discounts or donations to academic institutions – contact companies directly!

Lab Space

- Previous iGEM teams have either worked in a lab at their high school or obtained a lab space at their local University
    - If you have found faculty members at your University who are willing to supervise/advise you, contact them to help organize lab space on campus. You can also contact specific departments to see if they have available space
    - If you don't have university faculty advising you, or you live far away from a university, high school lab space would be the best option
- A space with lots of tables and chairs, such as a classroom, for dry lab work is also needed
- Lab Safety is critical to your well-being and the iGEM competition and must be strictly adhered to!
    - iGEM has lab safety rules that must be followed: http://2018.igem.org/Safety/What_is_Safety
    - Lab Safety forms must be submitted online to iGEM HQ throughout the summer, so check the iGEM calendar regularly
    - If lab work is being conducted at a university, lab safety courses will need to be completed in compliance with the university's biosafety regulations
    - If lab work is being completed in a high school lab, lab safety will need to be followed in compliance with your regional high school science safety regulations

Things You'll Need (Collegiate)

iGEM's getting started advice: http://igem.org/Start_A_Team

Tips:
Always be on the lookout for iGEM Alumni, professors, synthetic biologists, and other mentors in your community that you can contact for mentorship, advice, or resources/contacts

When approaching your University's administration team for approval, it is important to let them know what good is coming out of your participation in iGEM and the uniqueness of this student-led research.

Start small and as a club! Clubs provide an opportunity to interact with like-minded and students from all backgrounds, making future recruitment easier. This helps establish the team as a long-term fixture at your school, instead of starting a new team every year.

Team

- 8-5 team members per team
    - Note: smaller teams are easier to manage and will cost less in the Jamboree registration fees
- Try to have a team that is as varied as possible with students with many different interests and skills (examples: wet lab skills, public engagement, coding, mathematical modelling, etc.)
- Team name:
    - Must be less than 20 characters
    - Can contain A-Z, underscore, hyphen
    - Cannot contain spaces, "iGEM," "team," "synthetic biology," or sponsors' names

PIs/Instructors/Advisors

- Supervisors are responsible for some administrative work, supervising students in the lab and some team organizational details (examples: iGEM competition applications, safety forms, team fees). PIs should attend the Jamboree and must also be available for contact with iGEM HQ
- Instructors help students out with day-to-day activities

- Advisors provide help, advice, mentorship
- As of 2018, teams need at least two PIs and one must be a faculty/staff member
- Graduate and undergraduate students (especially those that have been previously involved with iGEM) may be willing to be advisors. Check out nearby universities' previous iGEM teams and start your search for student advisors there. They can help you, but the students of the team must complete most of the lab work

Administrative

- Requirements change every year, check out full requirements for the year at: http://2018.igem.org/Competition/Team_Requirements
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    - Every team member must create an igem.org user account (PIs, instructors, advisors, students, and anyone else on the team). When applying you will need to include the school you are affiliated with, NOT the team name that was created by the PI during team application: http://igem.org/Account_Apply
    - The team PI must apply for and register the team: http://igem.org/New_Team
- Team Roster:
    - Team members can receive a registration code from PIs and use this to add themselves to the team: http://igem.org/Join_Team
    - Team members can join an existing team by searching up the team name (PIs will have to accept their application to join the team): http://igem.org/Join_Team
    - PIs can manually input names on the Team Information Page: http://igem.org/Team_List.cgi?year=2018
- If travelling to Boston from out of the country, ensure you prepare the proper documentation (eg. passports, visas, etc.)
- Flights and accommodations should also be booked well in advance to the competition date

Finances

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    - Late registration: $5000 USD (early May; credit card, cheque, or wire transfer)
    - Jamboree attendance: $695 USD per team member
- Equipment and chemical costs
- Available resources and funding:
    - Stable funding/baseline funding would be ideal for long-term iGEM teams. To do this, becoming affiliated with the University. Approach senior administration to ask for funding

    - Apply for grants! Many are available from a variety of biotechnological institutions; the iGEM website lists affiliated sponsors offering grant opportunities each year
- Travel fees: Flights and accommodations for at least 4 nights in Boston
- Create a bank account for the team to keep track of finances

Lab Space

- Contact deans, department heads, or other administrative groups at your university to get help obtaining an open lab space for your team's use
- A space with lots of tables and chairs, such as a classroom, for dry lab work is also needed
- Lab Safety is critical to your well-being and the iGEM competition and must be strictly adhered to!
    - iGEM has Lab safety rules that must be followed http://2018.igem.org/Safety/What_is_Safety
    - Lab Safety forms must be submitted online to iGEM HQ throughout the summer, so check the iGEM calendar regularly
    - Lab safety courses will need to be completed in compliance with school/university, local, and/or national biosafety regulations

Equipment

- Chemicals, enzymes (restriction, ligase, etc.), buffers
- Common instruments/ equipment needed for synthetic biology:
    - Pipettes (large serological and small, adjustable pipettes ranging in size from <1 uL - 1 mL)
    - Beakers and flasks in all shapes in sizes
    - Graduated cylinders
    - Lab benches and chairs/ stools
    - Centrifuge
    - Incubator, water baths, and/or heating blocks
    - Agarose and SDS-PAGE electrophoresis equipment
    - Petri dishes and culture tubes
    - Microcentrifuge tubes of various sizes, Falcon tubes
    - Autoclave sterilizer
    - Balances, spatulas, weigh boats/weigh paper
    - Bunsen burners
    - Spreaders and loops
    - Hot plate/magnetic stirrer with stir bars
    - Thermometers
    - Test tube racks, falcon tube racks, microcentrifuge tube racks
    - Fridge, -20 °C freezer, -80°C freezer

- Spectrophotometer
- Incubator/ shaker
- PCR Thermocycler

Interdisciplinary Recruitment

Arts:
- Abilities: Graphic design (logo, posters, tshirts, wiki)
- Benefits: Build their portfolio, "internship" practice

Medicine:
- Abilities: Wet-lab work, techniques
- Benefits of being on the team: Research experience, possible medical applications of project

Business:
- Abilities: Fundraising, Public Engagement
- Benefits of being on the team: Market research, bioengineering industry

Law:
- Abilities: lobbying, reviewing policies and practices, suggestion of legislation regulating biotechnology
- Benefits of being on the team: Real-world outreach, policy research

Engineering:
- Abilities: Dry-lab work, applied design, modelling
- Benefits of being on the team: Familiarize with the newest fields of engineering, highlight the exponential growth of bioengineering

Science:
- Abilities: Wet-lab work, mathematical modelling, programming
- Benefits of being on the team: Research experience

Education:
- Abilities: Education and public engagement
- Benefits of being on the team: Communication, information delivery, presentation skills

General Recruitment Tips Regardless of Faculty:
- Research experience
- Internship experience
- Real-world problem solving
- Practice the presentation of knowledge in poster, verbal, and virtual format
- Networking opportunities
- Opportunity to travel to Boston, USA

General Skills to Look for Regardless of Faculty:
- Brings a special skill to the team (coding, graphic design, communication skill etc.)

- Punctual, hard-working, motivated, good work ethic, curiosity, passion for research/inquiry, interest in synthetic biology
- Strong verbal and written communication

General Tips for Success

1. Start early! The most successful teams start brainstorming project ideas well in advance of the summer where they complete the bulk of their work. Once you generate a few viable ideas, start with a comprehensive literature search phase to iron out any issues in your project before you get into the lab.
2. Start the Wiki and part Registry pages as soon as you have a direction and general theme for your project. This will save you a lot of anguish around WikiFreeze.
3. Fundraise right from the get-go. Fundraising takes a lot of effort, and having a dedicated fundraising team member may be beneficial. Make a clear budget before you start your project and attempt to fundraise for the duration of your project.
4. Pick a "themed" approach to your Human Practices efforts. A dedicated Human Practices subteam is a good idea if you are interested in applying for the Best Integrated Human Practices award.
5. Practice your presentation. Agree as a team what the style and substance of your presentation will be. Present your findings to as many people who will listen to gain feedback: professors, fellow peers, iGEM alumni, stakeholders, end users, etc.. Avoid making your presentations too flashy, as this will detract from your message. Technical presentation tips are available online.
6. Try contacting local media for publicity and to generate potential Human Practices and/or Public Outreach opportunities.

Grant Applications

Research - Look into grants available to you

- Look into internal and external grants
- Check your eligibility for the grants
- Note down the deadlines of all the grants you are eligible to apply
- Ask your friends and mentors about grants they have applied to in the past

Prepare - Contact referees and supervisors

- Save the deadline on calendar
- Start early and plan out a timeline for the application
- Research the requirements of the application
- Prepare a detailed proposal of your research which includes:
    - Objectives
    - Methods, Design
    - Possibly a project budget
    - Timeline for the project
- Prepare your CV/resume
    - List relevant experiences in reverse chronological order
    - Be specific and concise
- Contact your supervisor and send them details/requirements of the grant along with deadline(s) for the application
- If reference letters are required for the application, contact your referees early
- Let your referees know:
    - About the grant and why you think they would be a good referee
    - The deadline for the application

Writing the Application

- Follow a timeline for completing the application
- Read sample successful grant applications
- Make a list of important points that have to be mentioned in the application
- Organize your points
- Describe how your experience will help you carry out your project and how the project will enhance your skills
- Talk about what skills you will gain from the project and how it will benefit you
- Ask your PI/supervisor to proofread it
- Ask people who read grant applications and whose applications have been accepted for their feedback
- Proofread your work and read your application out loud
- Check if you have met all the requirements of the application
- Double and triple check
- Submit the application. Good luck!

Synthetic Biology Mythbusting in Your Community

NanoEthics: Studies of New and Emerging Technologies. Misconceptions of synthetic biology: Lessons from an interdisciplinary summer school.
https://www.researchgate.net/publication/303914263_Misconceptions_of_Synthetic_Biology_Lessons_from_an_Interdisciplinary_Summer_School

Synthetic Biology and Biosecurity: Challenging the "Myths"
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4139924/

Public views on GMOs: deconstructing the myths
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1083956/

Why is public opinion about synthetic biology important?

- Support of synthetic biology products by the general public
- Understanding of synthetic biology is important for policy making
- Misconceptions by the public can impede the development of synbio tech

What is the current state of our understanding of synthetic biology?

Public/non-biologists understanding of synbio

- Lack of technical understanding
- Different understandings of "life" has varying meanings from person to person
- Different syntax that trigger different emotions than that used in science eg. GMO
- Overestimate the ability of scientists to manipulate life
- GMOs are generalized and not discussed as per a certain gene modification but was under an umbrella term
- Opposition to GMO, especially for agriculture
- Many perceive GMO as unnatural.

The public can view synthetic biologists as:

- Too focused with bench-side work to move synthetic biology toward the public

- Unable to communicate with the public and not academic peers
-

How to engage the local community

- Presentations at community events
- Make it relatable: talk about things the general public is likely to encounter
- Use simple language that general public will understand
- Incorporate hands-on activities to increase understanding
- Encourage discussions and questions from the audience

Myth Busting

Myth 1: The public is 'for' or 'against' GMOs

Ambivalent attitude. The Public Acceptance of Agricultural Biotechnologies (PABE) project surveyed stakeholders in the GMO controversy such as large food distributors, government departments and regulatory agencies, expert committees, scientists and their institutions, farmers' union, environmental and consumer protection groups, and NGOs. Participants were aware of pros and cons of GMOs.

Myth 2: Anyone can create biological weapons

The connection between synthetic biology and DIYbio is overstated. People who are involved in sophisticated experiments are not amateur members of society.

Myth 3: Synthetic biology could be used to design radically new pathogens

Lab experimental viruses usually accumulate mutations that attenuate the virus because of the passage through a series of host organisms (not subjected to any evolutionary pressures to maintain virulence).

Myth 4: Transgenic maize will contaminate and destroy land races.

Gene flow has occurred between maize and its progenitors, modern hybrids, and land races. This has not destroyed the land races.

Myth 5: Crops are natural and have not been modified by humans; plant breeding does not alter DNA

While direct genetic manipulation is a relatively new technology, crops have been selectively bred for thousands of years to select for desirable traits.

Marketing Your Project

Branding

- Branding is a way to communicate your team's story behind your chosen project

Project Branding

- Project Name
    - Choosing a name – create a list of words that relate to your project and try to connect these words together to form a name that is both appealing and able to describe the project accurately
    - Google search to ensure that your chosen name was not already used by previous iGEM teams and is not already used or owned by another company
    - Biology puns are a really fun way to get a unique name!
- Tagline(s)
    - Can include but not necessary
    - If included, ensure it adds to your project name by describing your project with a few key words
- Colours and logo
    - Choosing a colour scheme – determine how you want your Wiki and poster to look; use this design to decide the colours you would like to use
        - Tip: avoid dark background will not show up well on projectors at the Jamboree!
    - Designing a logo
        - Keep it simple; successful logos that are commonly recognized have a clean design (examples: Facebook, Twitter, and Instagram)
        - Keep it relevant to your project
        - Option: incorporate wordplay

Social Media

- Banners and cover photos

    - Create an image to showcase your project; this can be used on the main pages of your social media to draw the public's attention
- Promotional material
    - Create material that excites the public about your project
    - Include photos, videos, gifs, etc.
    - Ensure that your graphics and promotional material are consistent with your project's goals and branding design
        - If possible, try to create your own graphics to maintain consistency among the promotional material you distribute

Corporate Sponsorship

- Contact companies with a natural partnership that directly benefits them
    - Don't be afraid to call! Phone calls often yield better results than emails
    - Provide a corporate sponsorship package
    - Attend networking events relevant to your team's project to acquire contacts
    - Create a brief 1-3 minute business pitch to explain your team goal to others
- Ask those around you if they know of any corporations that may be relevant
    - Ask professors
    - Ask TAs
    - Ask teachers
    - Ask parents
    - Ask friends of parents
    - Ask friends
    - Ask yourself!
    - Connect with people, ask them if their company would be willing to help sponsor your team, if not ask them what you could do to give them more value & ask them if they have contacts that might be interested

Public Engagement

- Include audiences with from cultures
- Include audiences with various levels of understanding
    - Elementary School
        - Keep thing very simple
        - Explain things in broad terms
        - Keep things fun, you'll lose their attention
    - Junior High
    - High School
    - Experts
    - Adults (general public with varied understanding)

- Include audiences with a bias
    - Bias for synthetic biology and GMOs
    - Bias against synthetic biology and GMOs
- Include audiences who can help with your project

Wiki Tips

- Start early
- Put one person in charge of programming the basic page template and then leading the wiki team. A computer science student would be super helpful with this.
- Have all your team graphics done by the same person (this can be the same person who does the programming or someone else). This ensures they are all done in the same style and there is a cohesiveness to the design.
- Try to make your graphics as vectors if possible. That way you can scale them to any size and not lose any detail.

Making templates:

- Create a new wiki page using: 2017.igem.org/Template:Team:TEAMNAME/PageTemplateName
- Add whatever HTML or CSS you desire.
- Include this template at the top of another page using {{Team:TEAMNAME/PageTemplateName}}
- You can use templates to include CSS styling or other HTML elements common across all pages

TIP: Make your navigation bar as a template and include that template in all your basic pages. That way if you need to add a page or change a navigation link, you only change one file instead of having to do it on 20 different pages.

Design:

- Content is the most important: your wiki is telling your team's story. If the information isn't there, then no amount of fancy gizmos and animations will make up for it
- Readability is key: use easy to read font and colours for body text and employ the use of margins, padding and line height. No one will notice a good design, but everyone will notice a bad one.

- Simple is probably better: the user should get to any piece of information within 3 clicks. Don't try to reinvent the wheel with super out of the box layouts if they detract from the actual content of your page.
- Use a grid layout to help with content hierarchy, and keep content locked to the grid.
- Keep it consistent! It looks funny if every page has a different layout
- Interpret and summarize your data: use figures, graphs, and graphics to get your point across. Remember, your audience isn't exclusively academics.
- Check out some blog posts on good design: this includes understanding rule of thirds, complementary colours etc.

The actual coding:

If you've never done any coding before, don't worry. You'll catch on quick.

- Check out online resources like Free Code Camp and Code Academy to get an introduction to the main languages you will need: HTML, CSS and Javascript.
- Use Google and YouTube: A lot of the things you are trying to do probably have step by step youtube tutorials or blog posts that explain how it works.
- Make a CSS Template that includes all the styling for your wiki (the background colour, font face and colour, header colours etc.) This will help make everything consistent; if you need to change something like the colour of your text, then you're only changing one line of code.

To Bootstrap or not to Bootstrap:

What is it? Bootstrap is an open-source framework that combines HTML, CSS, and Javascript. It's a collection of tools to help make websites and includes code for everything from forms, navigation, graphs and other components. It has a great grid system which means it should be responsive across all screen sizes.

So should you use Bootstrap?

This is 100% up to you. If you've never programmed before, it may be easier to get your wiki set up because you won't have to start anything from scratch. It will also ensure that your design is responsive. The downside is that many Bootstrap websites tend to look very similar and there is a lot of unnecessary code included. You may only end up using 5% or less of the built in functionality since the iGEM wikis really aren't all that complicated.

If you have a bit of experience programming you may want to try making your wiki from scratch. The world is your oyster in this case and you can really go crazy with originality. My first iGEM year I had never used HTML or CSS and went this route and still managed to make a great site. However, this does mean everything you do will have to be from scratch. Also, it

won’t be responsive by default so you will have to include some of that functionality manually if you want it to look nice on mobile devices. The upside is that if you are hoping to get a good grasp on HTML, CSS, and Javascript, this is the way to go. You will understand the language so much more in depth if you opt the non-Bootstrap way.

So which method is best?

That is completely up to you, your coding style and what you want out of the experience of making the website! Bootstrap will definitely be a lot faster as far as setting up a basic page, with fewer headaches of formatting things properly, but since you are working around an existing framework, you will have some limits on what you can do. Going from scratch can produce more unique and simpler code at times, but you will have to deal with more scaling and resizing issues.

In the end, it doesn’t really matter. Both methods can produce beautiful and well organized and functional wikis, so go with the one that makes more sense for your team! Good luck!