

## Criterion A: Planning

### Scenario

My clients for this project are two close friends of mine, who are studying the IB Natural Sciences. One takes HL Biology, and both are HL Chemistry students. Since I'm someone who also has an amateur interest in Biology, they often consult me, and complain to me how difficult the subjects are to understand and how hard it is to study for exams. Since I also personally relate to having a case of non-existent attention span and lack of motivation to study, I can resonate with their pain. Seeing as a potential study site would greatly benefit not only my friends, but potentially other students – while also serving as my IA – I've decided to hit two birds with one stone and ensure all parties are satisfied.

My friends asked if I could help them, so I offered to absolve them of their suffering and make a website for them to use as a fun and useful study guide to review for Biology and Chemistry exams. We held a meeting during school recess (see appendix A1) to discuss the issue in more detail, during which they said that some of the features they would like to see in a study website are the ability to access past papers, get randomly-generated questions they could answer, have a quiz- or flashcard-like system, and have an archive of materials that are difficult to find, such as simulated labs. We agreed that a dedicated software would benefit their studying, by having all sorts of review materials all in one place, as well as questions and tasks to complete for practice. Therefore, my goal for this project is to provide an easy-to-use IB Biology and Chemistry study website that would ameliorate my friends' academic performance in a more enjoyable way.

### Rationale for Solution

My friends expressed no preference for the platform, however a website format was chosen due to its simplicity to use and navigate, and not requiring to be downloaded. JavaScript was selected as the back-end programming language, due to efficiency and wide-spread usage in building websites. HTML and CSS will be

used for stylization and creation for a simple and appealing GUI-like interface, due to my familiarity with them and compatibility with JavaScript. VSCode was chosen as the IDE, due to my experience with using it, and the HTML and CSS compatibility. The aforementioned pieces of software will aid me in creating a website that will be convenient and primitive enough for my client to use, but also complex enough to support various functions within.

## Language

I opted to use JavaScript for the following reasons:

- It is the most efficient language to build websites in
- Allows the website to be more interactive and user-friendly, for styling and visual appeal
- I would like to practice working in JS, since we have learned the language as part of our CS course, as well as experiment with its potential through frameworks like Vue.

## Success Criteria

- The website offers a database of authorized past IB Biology & Chemistry papers
- The website also features a collection of formulae, embedded videos by teachers or instructors with tips, which can be added to a list of favorites saved on the user's profile
- The databases can be filtered through via tags or search (e.g. by subject, type and year)
- User information will be recorded and stored
- A quiz or a flashcard game system will be implemented, which can be edited or created by the user
- The program offers a question generator that may be generated randomly based on the user prompt or selected criteria.
- **BONUS: A Plague Inc.- style simulator minigame can be implemented as a fun and engaging way to learn or memorize material. In the minigame,**

**users can create a pathogen with adjustable stats (only a certain amount of points can go to each stat, and all points must be distributed across all stats), which can be added only if the user answers a question relevant to the topic.**

**Word Count: 647**