Microgerm Adventure: An 2D Educational Android Game for the Grade 8 students of Fairmont High School

A Thesis Proposal

Presented to the Faculty of the

Information and Communications Technology Program

STI College Fairview

In Partial Fulfilment

of the Requirements for the Degree

Bachelor of Science in Information Technology

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December 2, 2020

ENDORSEMENT FORM FOR PROPOSAL DEFENSE

TITLE OF RESEARCH: Microgerm Adventure: 2D Educational Game for Grade 8 Students of North Fairview High School

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Jayson A. Dela Cruz

Azariah Keith T. Gannaban

In Partial Fulfilment of the Requirements

for the degree Bachelor of Science in Information Technology

has been examined and is recommended for Proposal Defense.

ENDORSED BY:

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December 2, 2020

# APPROVAL SHEET

This thesis proposal titled: 2D Educational Game: Micro Germ Adventure prepared and submitted by Rafael Christopher C. Esteban; Jayson A. Dela Cruz; and Azariah Keith T. Gannban in partial fulfilment of the requirements for the degree of Bachelor of Science in Information Technology, has been examined and is recommended for acceptance an approval.

Keane Leigh Merin

Thesis Adviser

Accepted and approved by the Thesis Review Panel

in partial fulfilment of the requirements for the degree of

Bachelor of Science in Information Technology

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# Introduction

Most of the people nowadays have a mobile device especially to the students because it helps them to their studies, they can easily access to internet which they are using for educational purposes. We can’t deny that mobile devices are so efficient in our generations. Due to pandemic, there are no face to face classes in the schools and the only thing to attend the class is through technology like computers and smart phones.

Through these years, technology has developed so many platforms and improvements that evolves into a completely new level, technology has become one of the very important today in every individual for our daily life. It helps to improve our work finish faster and efficiently. One of the things that improve is game. Games are structured form of play these can include goals, rules, environment, challenges, items, characters, rewards and interaction of the players. Games can now use a tool for adapts a learning system that will give a benefit to people specially the students. Game is one the best ways to attract the attention of the people learning new things. Android platform is the most commonly used OS for mobile games. Also, android is easy to access and it has more functions and features than any other platform when it comes to mobile devices.

The majority of the mobile manufacturer tends to provide android platform when it comes to mobile use. Also, majority of the people chose android rather than any other platform.

This project aims to deliver a learning tool at the same time entertainment for the students not only for North Fairview High School but also for those who wants to learn about microbiology. This is an offline game and does not require any internet connection and it will function any android devices.

The school opened in 1994 as an annex of Lagro High School (former name was Lagro High School-Fairview Annex) with Mrs. Justina A. Farolan as Head Teacher-In-Charge. The school started with the first year level that was housed in an eight-room two-storey school building. A year after, a three-room makeshift building was built and added to accommodate more enrollees which included second year students. Seven sections for first and second year students were served.

When Mrs. Farolan was transferred to another school, Mrs. Rowena A. Cacanindin was tasked to take charge. Under her leadership, new structures such as additional makeshift classrooms, basketball court, fence on either side fronting the main gate, additional chairs and tables, cabinets and other necessary facilities and equipment were acquired. Also, the school canteen, staff and comfort rooms were renovated while the school quadrangle was asphalted.

When Mrs. Cacanindin was assigned as principal of Carlos P. Garcia High School, Mrs. Milagros G. Calica took over as Head Teacher In-Charge (HTIC). Mrs.Calica continued what the other HTIC started. She upgraded the existing school facilities like the library, staff room and school canteen until she was appointed Principal of San Jose High School.

In 1997, Ms. Betty C. Cavo took over as school administrator. During her administration, physical facilities were given priorities which include the improvement of the school canteen, guidance room, PTA room and computer room. A perimeter fence and additional makeshift rooms and stage were also built. It was also during her stint as administrator that the 12- room 3-storey Mathay Building was built.

The years 1999-2004 saw Dr. Cristina L. Doctor as administrator. For 5 years, Dr. Doctor strove to create a school where students were groomed to meet life as they should. Cleanliness, beautification, improvement of school facilities and discipline were the order of the day. A 16-room 4-storey SB Hall was built, a new canteen was put up and a cooperative store was established. A one-storey building was also constructed through the Chinese Business Club which housed the Technology and Home Economics department. It was also under her administration when Lagro High School-Fairview Annex became independent from its mother school, Lagro High School on June 22, 2001 under DECS Order No. 5 s.2001

When Dr. Doctor retired, Dr. Josefina M. Pamplina took over in 2005. Dr.Pamplina prioritized the reclassification of positions and promotions of teachers. This resulted to sudden promotion and becoming full-fledged Department Heads of Department Chairmen. She also recommended for promotion four Master Teachers, Teacher III and Teacher II positions.

When Dr. Pamplina retired from the service in 2007, Dr. Proceso T. Lera, former principal of Quezon City Science High School was tasked to take charged Dr. Lera focused on school facilities and development in the performance of both students and teachers. Such include construction of parents’ lounge, audio-visual room, rehabilitation and renovation of Simon building and library.

After Dr. Lera’s term, Mrs. Sheridan G. Evangelista assumed post as the new school head. Her initial plan of action is to develop the culture of excellence in terms of personal discipline, courtesy, respect, cleanliness and academic excellence. She believes that the culture of excellence can be internalized with an environment that is safe, clean, healthy and conducive to learning. A true administrator, she strives to create a school where students and teachers are groomed to meet life as they should.

When Mrs. Sheridan G. Evangelista was promoted and transferred to another school, Mrs. Angelita G. Regis took the lead as the new school principal of North Fairview High School. She assumed the post on October 01, 2014. At the span of six months, she was able to rehabilitate learning centers for some departments for a more conducive environment, renovated the Property Office, improved the water system, rehabilitated the Audio-Visual Room, transferred the TLE laboratory rooms from ground floor to second floor for safety and preservation of the tools and equipment, transferred the clinic, and many more. She also initiated the construction of the Covered Court through linkages to local government units. These will be her legacy as she planned to retire in this school.

## Background of the problem

Based on the survey that the proponent conducted, 69% of grade 8 students in North Fairview High School are struggling in Science subject specially in Microbiology because of its complicated term and lack of learning materials also the students are not interested on the said subject, the students are getting bored and not paying attention to this subject. Because of the online class today, the students are easily bored and the teachers cannot give them a fully attention. The modules given by the teachers are not accurate when they have their discussion in online so that they are struggling in answering their modules in the science subject.

The proponents conducted a survey to the 100 students of North Fairview High School, which currently enrolled as Grade 9 student that were done taking the subject of Biology. The purpose of the survey is to find out what problems that they are having difficulties in science subject. The proponents came up with the idea of an educational game which help the students to learn a certain topic that will easily catch their attention.

**General Problem**

How to design and develop Educational 2D Game that can help grade 8th student in their Science subject specially in Microbiology?

Based on the result of the surveys that the proponents conducted, 37% out of 100% of the respondents said that the biology is the subject that they are having the most difficulties, and the remaining 63% were among different subjects other than biology. The proponents asked 100 respondents why biology is difficulty for them 40% of respondents said “Complicated” and 39% “Not interested” and 21% “Confusing”. The subject of biology becomes complicated for the student due to the wide net topic. 82% of the respondents said that the teaching style of their teacher affects for them.

Specific Problems:

How to design and develop an educational game that will catch the student attention to learn more about Microbiology?

The proponents conducted a survey to 100 respondents, 69% students answered Microbiology is the most difficult branches and 21% said Botany and 10% said Zoology. The proponents asked why Microbiology is difficult topic for them 52% “not familiar”. Most grade 8th students are new to the topic of Microbiology they have difficulty remembering every lesson because their last topic since grade 7th is not about Biology.

How to design and develop an educational game that will help them to increase their knowledge about microbiology?

The proponents conducted a survey to 100 respondents, 52% out of 100% students answered they are having a hard time on familiarizing the microbiology in their subject, the students find it complicated due to several types of bacteria and the lack of learning materials and the other student not interested to familiarize the definition of bacteria, viruses, fungi, protozoa, algae, archaea, and prions. The definition of this sub-topics is not enough for them to keep it up to learn because they find it very difficult to learn and familiarize every now and then.

How to design and develop an educational game that will give supplementary tool to help students in their lesson?

The proponents conducted a survey to 100 respondents, 41% out of 100% answered that the Internet Surfing is provided by the teacher for additional student learning material but some students can be attached to certain apps on their smartphones and have diverted their focus to those application that cause of lack of knowledge to students.

## Overview of the current state of the technology

The teachers of North Fairview High School are using online class to teach their students. They are using Zoom Application to communicate each other. Teacher starting to discuss the lesson and after the discussion, the teacher started to ask question to the student if they understand the lesson. By creating an educational game, Student will benefit to this, students will enjoy while learning. The teacher will also benefit to this teacher will less his/her hassle in teaching.

## Manila paper - This learning material used by the teacher to present their lesson in a visualized way to catch student’s attentions.

Cartolina - This is same as the Manila paper but the difference is Cartolina was commonly used nowadays because it is more colorful and eye-catchy to the students.

Power Point Presentation – This is used to be more productive, creative in teaching because of its animations that is very good to catch the student’s attention.

## Handouts - This common learning material that the teacher want to use by the students because it has all the topic or lesson within the whole semester and they can bring it always. They also use it as a reviewer.

## Books - A classic learning material that teacher used for lecture. It has all the content of the subjects for the whole semester.

Questionnaire - This learning material use by the teacher to test the knowledge of the student if they really understand the lessons.

Zoom Application - This software application material is use by the teacher for the online class to teach the student.

## Objectives of the study

To design and develop an educational game that will help them to learn science subject particular in Microbiology

The proponents created a game that helps students who has difficulties in Microbiology that deals of study in bacteria, archaea, viruses, fungi, prions, protozoa, and algae, the proponents aim to develop an Educational 2D Game that has introduced a learning style and helped student in an effective way to find the significance of their subject Microbiology with in a view tips and trivia that made them understand the game also that helped them learn more about their subject. The proponents came up with an idea that constructed a logic and entertainment game that helps them also to understand Microbiology this also helps them to have mind set of an explorer that definitely helped them to become a better student and assists them to accomplish their objectives.

Specific Objectives

To design and develop an educational game that will catch the student’s attention to learn more about Microbiology?

Students lose their focus when they are not interested in the topic of science particularly in Microbiology, students are more attentive when it comes to mobile games now and the proponents aim to develop an interactive game that will encourage students to learn and get their attention through the concept and narrative proposed game.

To design and develop an educational game that will help them to increase their knowledge about Microbiology?

The proponents have created a game of informative clues and trivia that relies on a positive tactic, such as the completion of a word that provides the basic construction of microbiology. The proponents have developed an Adventure 2D Educational Game that will allow students to enhance their memory recall by familiarizing themselves with the topic of microbiology in the sense of applications. They would also be encouraged to extend their exposure to the sub-topics of their subject Microbiology.

To design and develop an educational game that will give them supplementary tool to help student their lesson.

## The proponents have created a fun and immersive game that will engage students to learn the subject in an entertaining way. The proponents have developed a game that will offer the student an idea and information that will enable them to learn the difficult topics about of Microbiology through the game that includes trivia on the themes of Microbiology will give the student additional knowledge that the game focuses on the needs of the student and will help them to revisit the subject.

## Scope and limitations of the study

Scope

Mechanics

The game will provide a quiz that are science related. There are hints and tricks to helps the obstacle for the player. The hints collected can be review before the quiz begins. The player needs to achieve a passing score of the stage’s to move in the next stage of the game. The game will provide you a fun objectives game play. The game will end if the players failed to finish the stages and loses his/her (5) five lives the character should move forward and backward using a right and left arrow on the left side of the screen and the character should jump and attack by pressing the buttons and a right side of the screen.

Tutorial

The main character provided with an instruction for the players on how to play the game and its basic controls and objectives of the game.

Stages

Stage 1 ”Ghouls”

In this stage, there are 15 hints and 15 questions randomly prepared but only 10 hints can be collected and only 10 question will be given to the player. The player needs to collect a Gem because this thing is a hint. The player has 5 lives it will be reduced when the Monster is able to attack him and when 5 lives are lost the game is over the game will go back to main menu. The player can jump on flatform and the other flatforms have a Monster when the player gets closer to the Monster the player will be attacked by the Monster slowly. The player can attack to defeat the Monsters each Monster defeated will drop a Gem and when the player picks up the Gem the game will pause automatically because a hint will appear on a screen and it depends on the player how long he will read it and the Gem will go to the player’s bag. When the player is able to defeat 10 Monsters and collect 10 Gems the player will face the Boss of the monsters Ghouls. If the player was able to defeat Ghouls. The player will decide if he will start the quiz or he will review it first. The player will answer 10 questions they need to get a score of 7 above to proceed to stage 2 but if the player scores 6 below the quiz will be repeated at the beginning but there’s only 3 chances to retake the quiz if the player has already consumed those 3 chances the game is over and the game is back to main menu. The question in this stage is all about Bacteria and Viruses.

Stage 2 “Saifu”

In this stage, there are 20 hints and 20 questions randomly prepared but only 15 hints can be collected and only 15 question will be given to the player. The player needs to collect a Gem because this thing is a hint. The player has 10 lives it will be reduced when the Monster is able to attack him and when 10 lives are lost the game is over the game will go back to main menu. The player can jump on flatform and the other flatforms have a Monster when the player gets closer to the Monster the player will be attacked by the Monster slowly. The player can attack to defeat the Monsters each Monster defeated will drop a Gem and when the player picks up the Gem the game will pause automatically because a hint will appear on a screen and it depends on the player how long he will read it and the Gem will go to the player’s bag. When the player is able to defeat 15 Monsters and collect 15 Gems the player will face the Boss of the monsters Saifu. If the player was able to defeat Saifu. The player will decide if he will start the quiz or he will review it first. The player will answer 15 questions they need to get a score of 10 above to proceed to stage 3 but if the player scores 9 below the quiz will be repeated at the beginning but there’s only 3 chances to retake the quiz if the player has already consumed those 3 chances the game is over and the game is back to main menu. The question in this stage is all about Fungi and Protozoa.

Stage 3 “Zack”

In this stage, there are 25 hints and 25 questions randomly prepared but only 20 hints can be collected and only 20 question will be given to the player. The player needs to collect a Gem because this thing is a hint. The player has 15 lives it will be reduced when the Monster is able to attack him and when 15 lives are lost the game is over the game will go back to main menu. The player can jump on flatform and the other flatforms have a Monster when the player gets closer to the Monster the player will be attacked by the Monster slowly. The player can attack to defeat the Monsters each Monster defeated will drop a Gem and when the player picks up the Gem the game will pause automatically because a hint will appear on a screen and it depends on the player how long he will read it and the Gem will go to the player’s bag. When the player is able to defeat 10 Monsters and collect 10 Gems the player will face the Boss of the Monsters Zack. If the player was able to defeat Zack. The player will decide if he will start the quiz or he will review it first. The player will answer 20 questions they need to get a score of 15 to finish the game but if the player scores 14 below the quiz will be repeated at the beginning but there’s only 3 chances to retake the quiz if the player has already consumed those 3 chances the game is over and the game is back to main menu. The question in this stage is all about Algae, Archaea and Prions.

Character

Obet - The Main Character of the game

Creeper – the mobs in stage 1, stage 2, and stage 3.

Ghouls – the enemy boss in the 1st stage of the game

Saifu – the enemy boss in the 2nd stage of the game

Zack – the last enemy boss in the game

Functionalities

GUI

Play - This button will make the game start.

Exit - This button will close the game.

Main Menu -This button appears if the game is over. This will bring back to the main menu.

Retry- This button appears if the game is over. This will start a new game for the player.

Pause- This button will pause the game.

Continue -This button appears when the game is pause. This will continue the started game.

Limitation

Online - This game will not be online. The game can be installed in an android phone. It is not essential to be online due to the process that works offline. The users can play or access the game even if it doesn’t have any access to internet

Multiplayer – this game is not multiplayer the proponents decided that the game is for single user only no other player can join in the game.

# Literature Review

## Review of related literature, studies or systems

Review of related literature, studies or systems

The main goal of Educational game is to engage students in the process of learning active. Some games can be challenging, time consuming, interactive and competitive games. The goal of it is to encourage and motivate student in participating in the learning process. Nowadays, Educational games tend to challenge the thinking skills of the students in order to measure the learning process of the students. So many educational games can be interactive and engaging game. Examples of this are:

**Super Mario Bros.**

Super Mario Bros (SMB) is the first in a series of 2D platforming games that entrusts players with the task of navigating one of the two titular brothers, Mario or Luigi2throughthe hazards of the Mushroom Kingdom in an effort to rescue Princess Toadstool (Peach)from the antagonist Bowser. To achieve this player must walk, run and jump across environments comprised of platforms, gaps, obstacles, traps and enemies. In addition, players are expected to collect coins and utilize power-ups that provide either increased health or new gameplay mechanics. The core mechanic of the Super Mario series is the ability to jump: which can be used to kill enemies, avoid projectiles and in later releases navigate high-structures or impassable terrain courtesy of wall jumps and spin-jumps respectively. Gameplay is segregated into ‘levels’ of play: in which players must navigate from the starting point to an obstacle at the far right of the map, typically a flagpole. The clearance of this obstacle while non-negotiable is easily achieved, with a score attributed to its completion to encourage optimal play. This is a significant deviation from the original Mario Bros. (Nintendo R&D1, 1983) in that players must continue to explore the world by scrolling the view-frame along the x-axis. The locale of levels varies throughout play, with locations on land, underground, on high ground or underwater (Figures 1a through 1d respectfully). In each instance, the locale may impose restrictions on movement through the environment: with underwater levels imposing a fresh set of controls and gameplay mechanics. These levels are often grouped together to form ‘worlds’ that embrace specific game design concepts or art styles for a fixed period of the game. Worlds conclude with the final level typically being a fortress or castle, where a larger enemy must be defeated in combat.

and upgrading, it has a story that you need to follow in order to finish the game and get more knowledge and a moral ending.

Bookworm adventures

This game is an educational adventure game and this is the puzzle game it features Lex as he unravels the mystery in the great library. This adventure is creating word and combine the sets of letters and designed of this game is for the purpose of the student to learn and be knowledgeable about the secondary English language, by spelling and fix the shuffle word the difference of this game and our game is the proponents applied in the proposed system the concept of bookworm adventure to collect and fix the words by shuffle.

## Synthesis

In Bookworm Adventure the developers adopt the concept of letters and words in the game, building letters to create a word to pass the stage. In Super Mario bros, the developers adopt the concept of the platforms, boxes and the movement which is jump, down, left, right movement and attack only. The uniqueness of the micro germ adventure is that it is based on a true to life situation, the happening today which we have a pandemic problem all over the world, the story of the game is based on the viruses and germ

## METHODOLOGY

## Methodology

Rapid Application Development (RAD) is a software development methodology that uses minimal planning in favors or rapid prototyping. A prototype is a working model that is functionality equivalent to a component of the product.

The prototype is vital. The proponents decided to choose RAD model which helped them to build and develop a game which doesn’t need to do more process.

In RAD model the, the functional modules are developed in a parallel model as prototypes and are integrated to make the complete product for faster product delivery. RAD model distributes the analysis, design, build, and test phases into a series:

Requirement/Planning Phase

This phase discusses and agrees on business needs, project scope, constraints, and system requirements. It ends when the team agrees on the key issues and obtains management authorization to continue. This phase is to plan on building a concept in the desired game.

The proponents have researched some related studies regarding the project. With the help of the internet, the proponents got an idea and legit information that they have used in the system development.

The proponents also conducted a survey which helped them to know the outcome, needs and make a new system.

The proponents also went to library and look in the thesis section to get other references that may be used to the study.

User design phase

This phase discussed the user’s interaction with the system’s analysts, develop models and prototypes that represent all systems processes, inputs and outputs.

In this phase, the proponents searched ideas from the internet which they can use in the game. The proponents also created an initiative design using different ideas from pictures that are not seen in other games.

Construction Phase

This phase focuses on program and application development task similar to the SDLC. In RAD, however, users continue to participate and can still suggest changes or improvements to the game. Its tasks are programming and application development, coding, unit-integration and system testing.

In this phase, the proponents do the coding part for the game. To have its functionality it will have its maintenance. The proponents used unity, a software where you can make 2D and 3D games.

Cutover Phase

It resembles the final task. It includes data conversation, testing, changeover to the new system and user training. The entire process is compressed. As a result, the new system is built, delivered, and placed in operation much sooner.

The proponents implemented and test the system in this phase. By testing research, the proponents have to test the research and debug it. The proponents have to know if it is ready to be played and to get some feedbacks from the players and if improvements are needed

H**ardware/Software**

Hardware requirements needed to run and complete the proposed system

Android Phone

Android phone is a powerful, high-tech smartphone that runs on the android

operating system (OS) developed by Google and is used by a variety of mobile phone manufacturers. The proponents chose to use android phones than desktop computers, android phones are more convenient and reliable, and the system is not capable on computers that is why the proponents chose this hardware requirement to test the system.

OS version at least 4.4 – 4.4.4 “KitKat to 8.0 – 8.1 “Oreo”

Android 4.4 KitKat is a version of Google’s operating system (OS) for smartphones and tablets. The android 4.4 KitKat operating system uses advanced memory optimization technologies. As a result, it is available on android devices with as little as 512MB of RAM.

The 4.4 – 4.4.4 version of android phone is chosen by the proponents, because it is easy and applicable to install the game.

At least 2GB RAM

It is the requirements in android phone to smoothly run the game, if the RAM of an android phone is below to 2GB, this system may be delayed and may not run properly. The proponents are requiring at least 2GB RAM to play the game, this will help to play the game for easy to tap and load the features of our game.

4.5 Screen size and up

If the screen size is less than 4.5 this system may not respond well to the respondents. The proponents are also requiring a screen size that is 4.5 and up. The screen size is important so that the player can see clearly what is in the game, it also helps to play our game without crashing

Software Requirements

Software requirements needed to install the following software.

Unity 5.3.5

Unity is a cross-platform game engine developed by Unity Technologies, which is primarily used to develop both three-dimensional and two-dimensional video games and simulations for computers, consoles and mobile devices. Unity is a software program that allows that user to build an android game. The proponents used Unity to create an Educational Game because it is user friendly and easy to understand the codes of this program than Android Studio.

\*Adobe Photoshop CC 2017

Adobe Photoshop is an image editing software developed and manufactured by Adobe Systems Incorporation. Adobe Photoshop is considered as one of the leaders in photo editing software. The software allows to manipulate, crop resize, and correct color on digital photos and0 shapes. Adobe Photoshop is a software program that is needed to be used for the d0esign and structure of a system, the proponents used the Adobe Photoshop CS6 to0 make the graphics of the game more creative and interesting yet enjoyable in term of design.

**Storyline**

Obet and his family are eating their dinner to their home, then a flash news came up and tells about an epidemic happening in their town, lot of people dying because of sickness, while eating his mother felt dizzy and start vomiting, then his father also he took them to the hospital and the doctor said that this is because of the epidemic, the virus doesn’t have a vaccine so that Obet find his own way to find a cure for that sickness. He start his adventure to find a cure and while on his way he discovered that epidemic comes from the dirt of surroundings, germs and fungi are turning into virus so that he must kill the germs and fungi in order to stop the evolution of virus, after killing the germs and fungi he saw the virus and get a knowledge about its composition which may make way to create a vaccine to the epidemic. After killing the virus, he went to a research laboratory and pass the information that he had during the battles of the microbiology. The research laboratory created a vaccine and distributed to the town and inject to all the people out there. Obet’s parents are safe and alive and the whole town lives happily ever after

Survey

1st Survey Questionnaire

Name (Optional): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Being a former grade 9 student of North Fairview high school, what subject

do you find difficult?

1. English
2. Math
3. A.P
4. Biology
5. E.S.P
6. T.L.E
7. Mapeh
8. Why do you think it is difficult?
9. Not interested
10. Complicated
11. Confusing
12. Does your teacher provide any kind of learning materials?
13. Yes
14. No
15. Sometimes
16. What learning materials does your teacher provide?
17. Module
18. Book
19. Visual aids
20. Do you get bored while listening in that particular subject?
21. Yes
22. No
23. Sometimes
24. Is your teacher knowledgeable in teaching that particular subject?
25. Yes
26. No
27. What do you think helps you to remember your lessons that your teachers teach you?
28. Reading books
29. Surfing internet
30. Reading notes
31. Does the teaching style of your teacher affect you on how you study the subject?

A. Yes

B. No

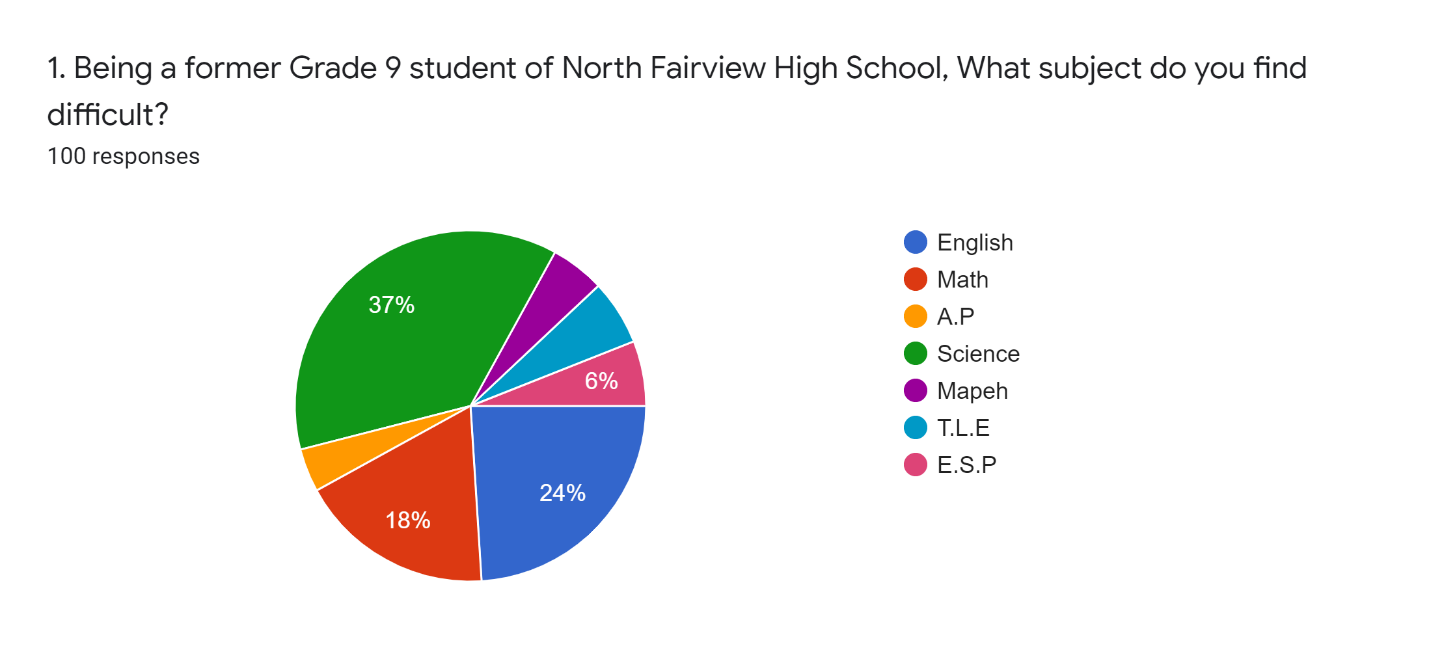
1. Does your professor give you any fun activities after discussion?
2. Sometimes
3. Always
4. Never
5. Often
6. Are you eager to learn more about that particular subject?
7. Yes
8. No

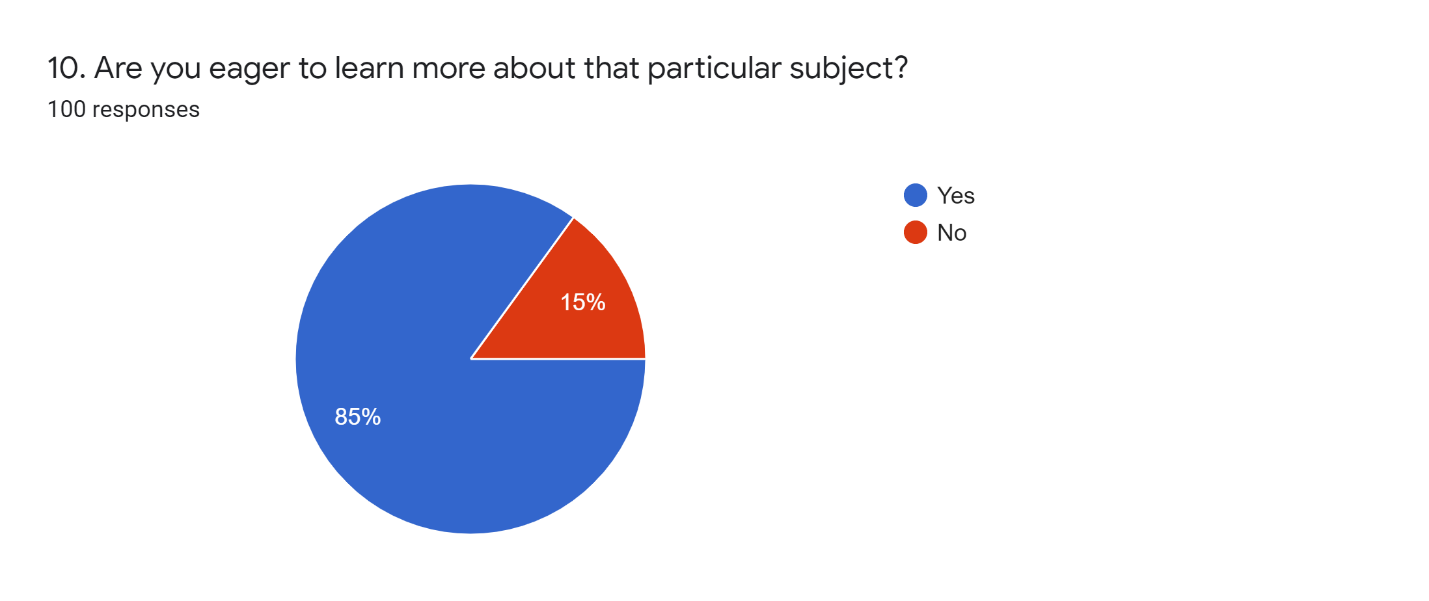
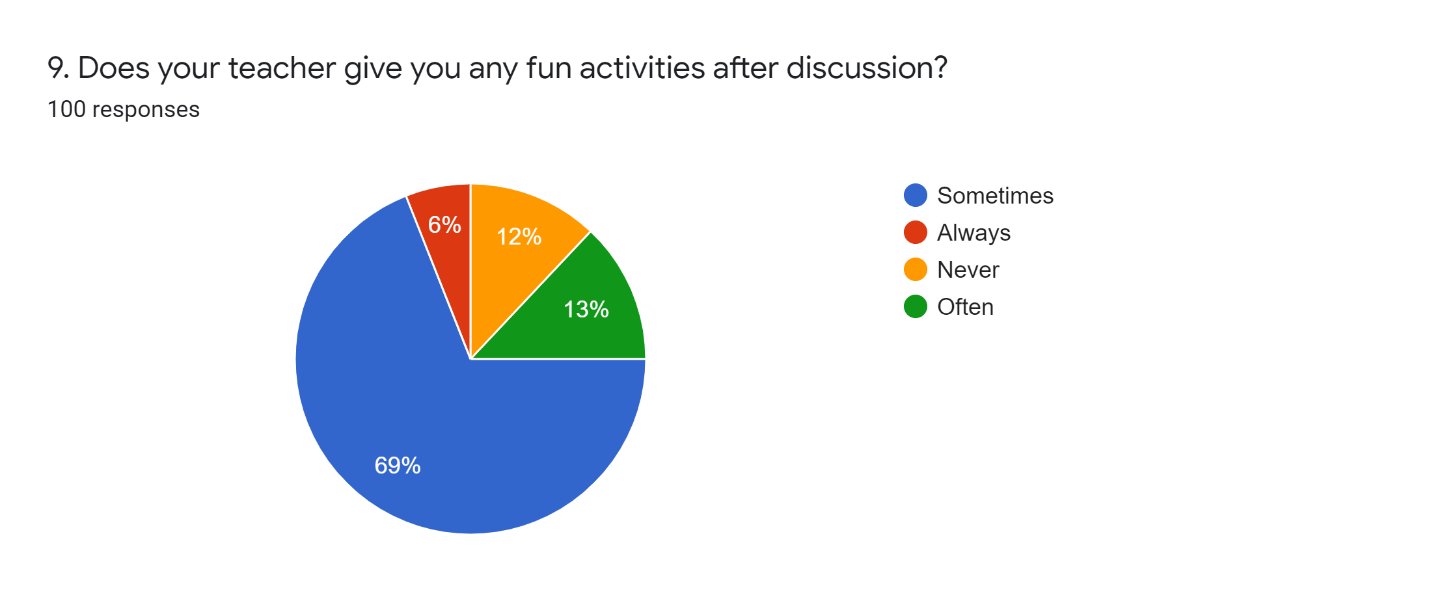
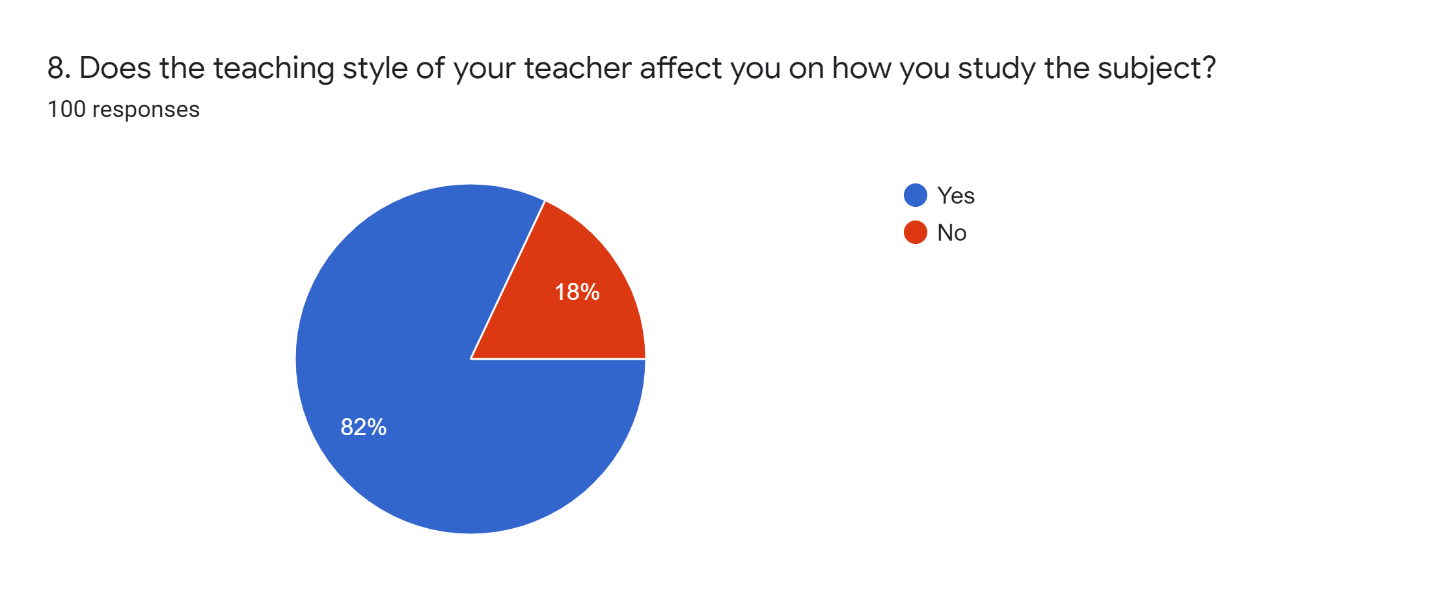
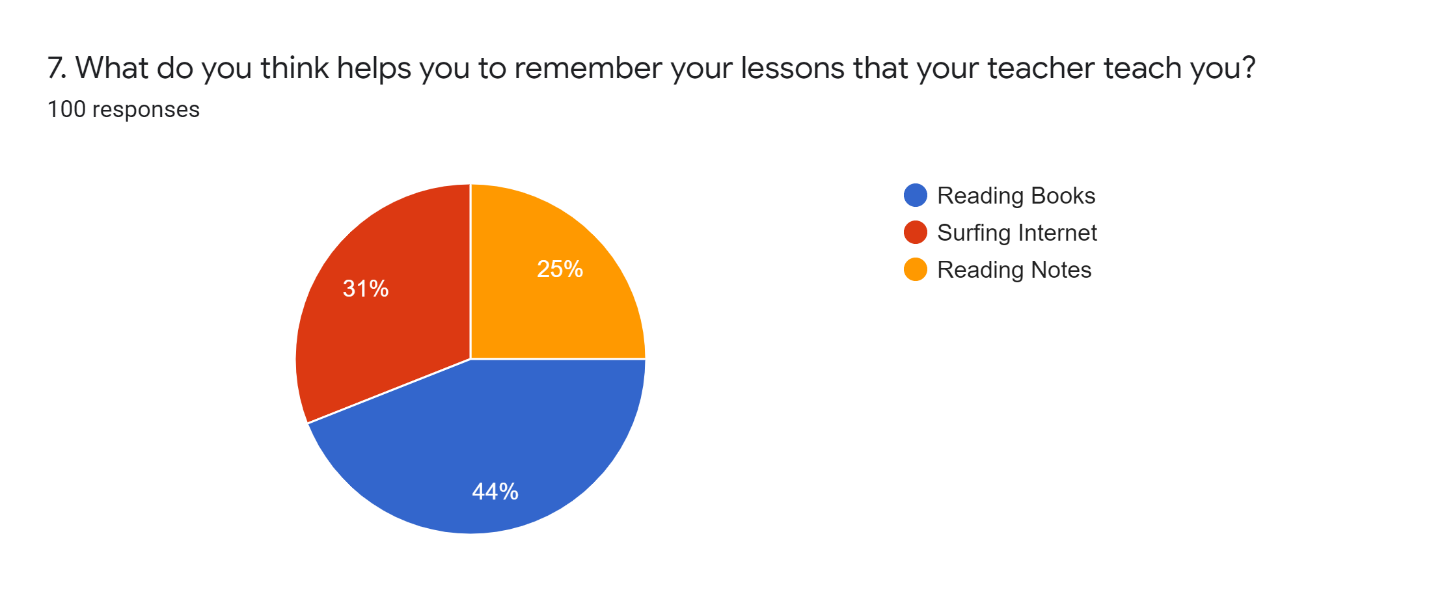
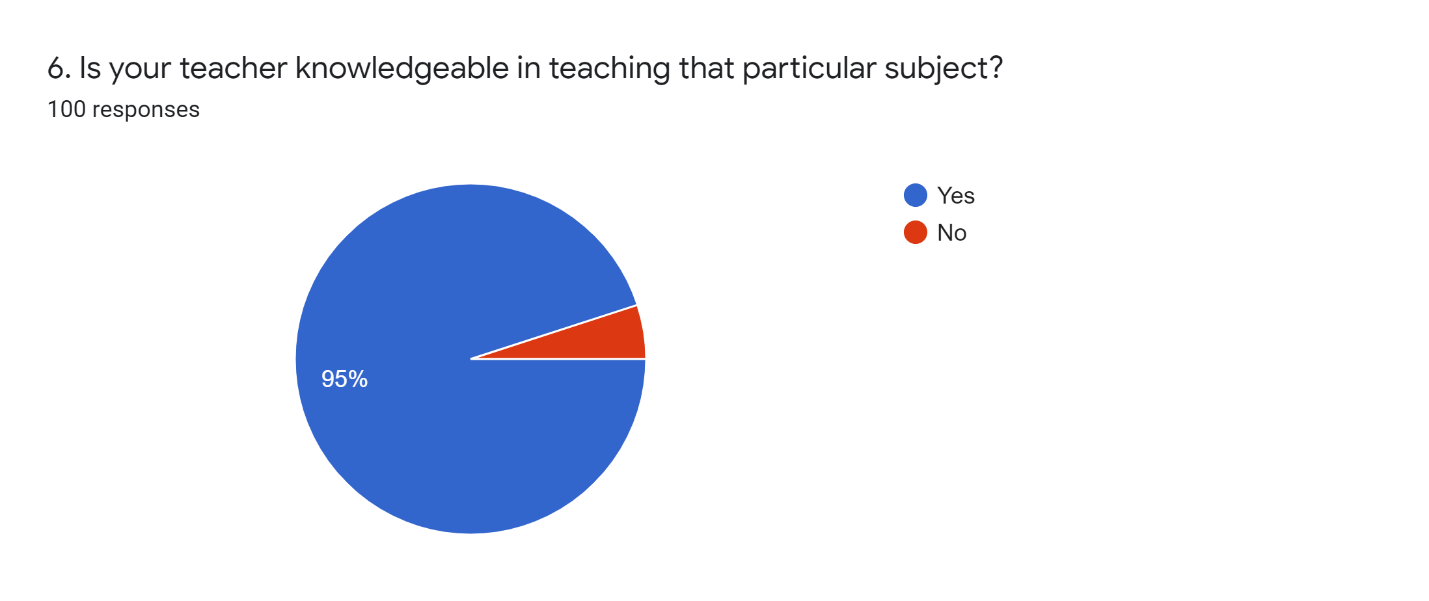
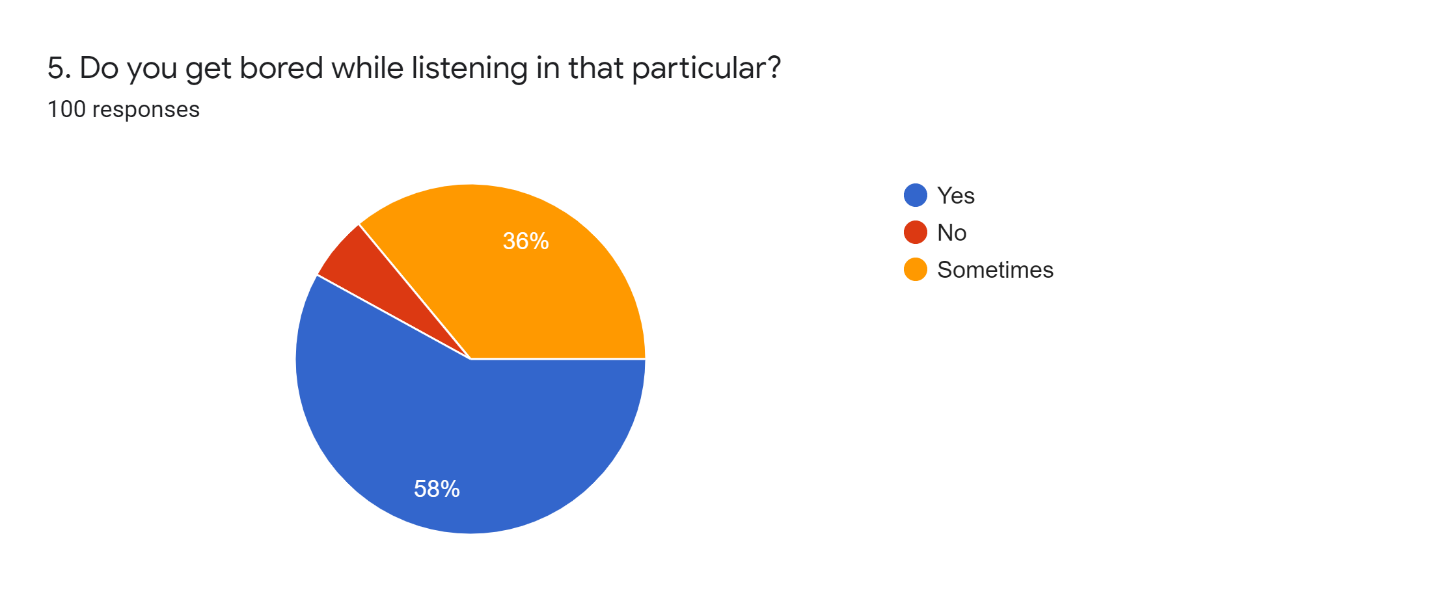
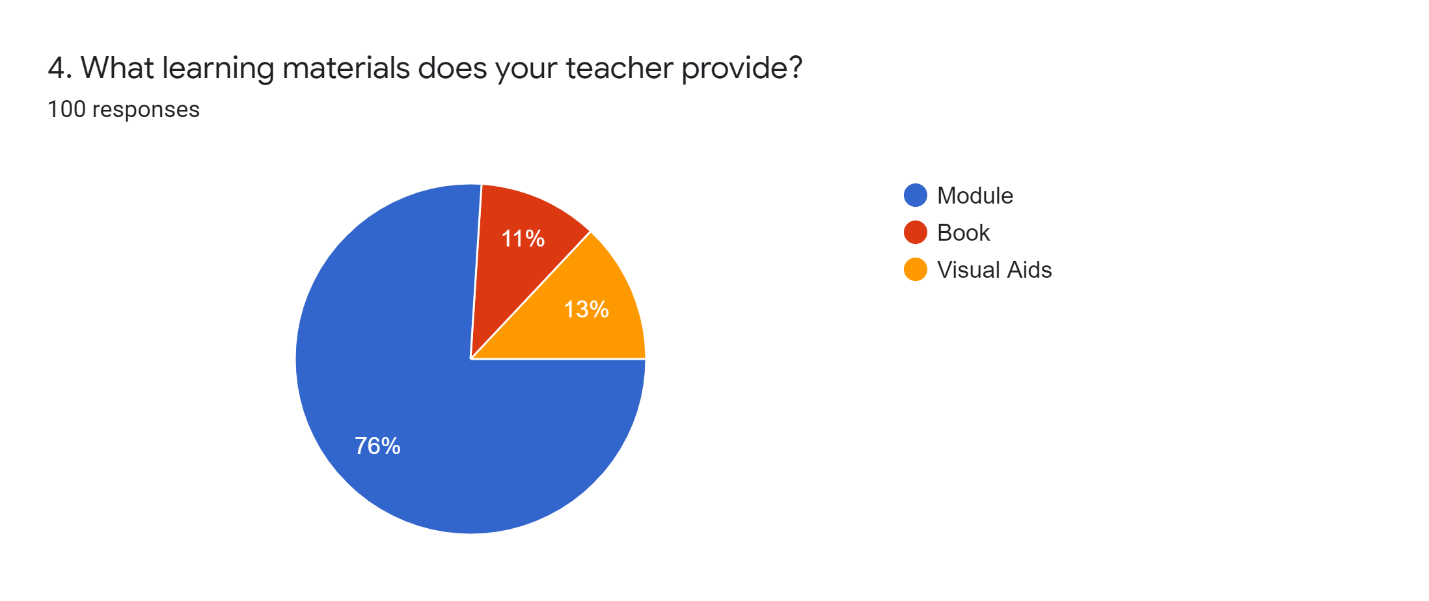
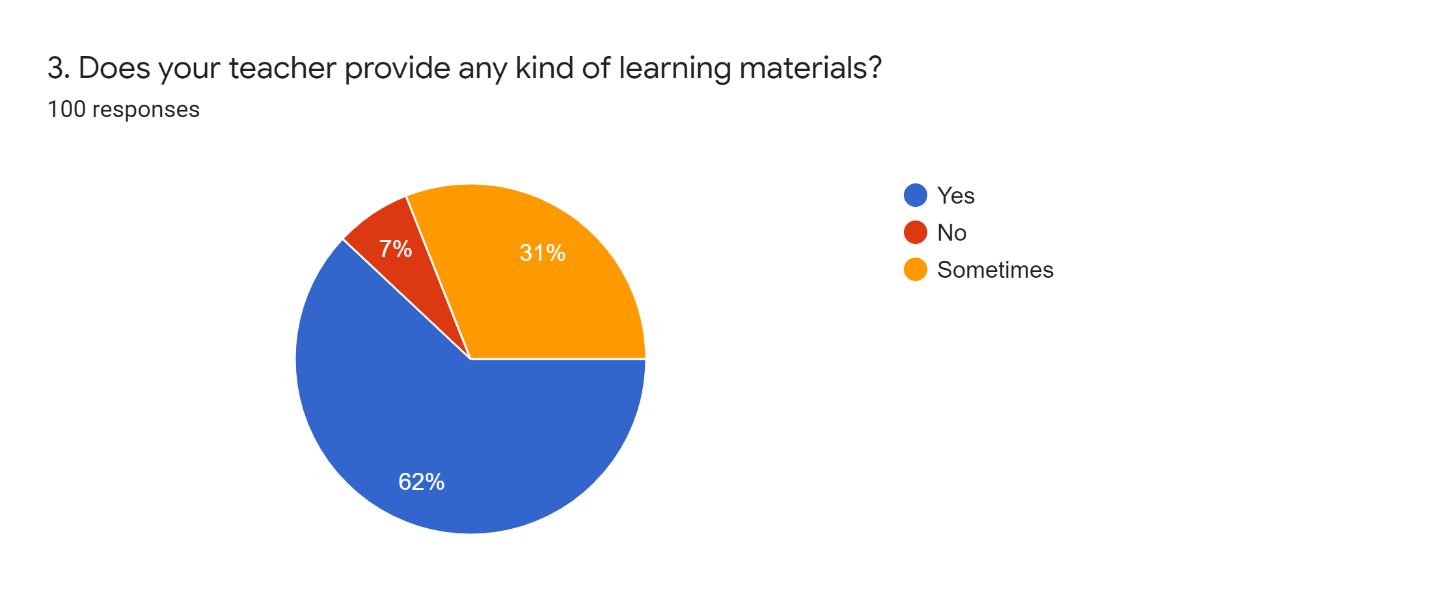
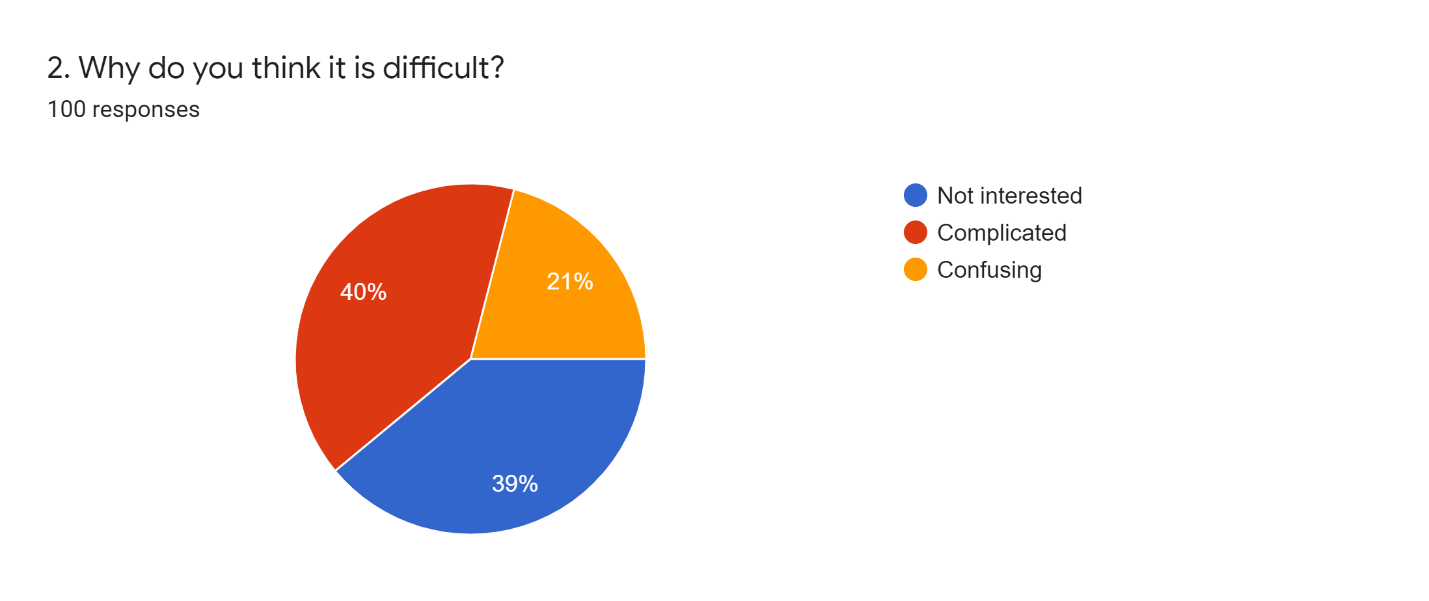
**2nd Survey Questionnaire**

**Name (Optional): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

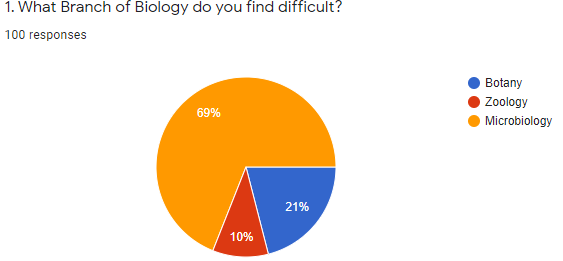
1. What branch of biology do you find difficult?
2. Botany
3. Zoology
4. Microbiology
5. Do you find that particular topic interesting?
6. Yes
7. Not familiar
8. Boring
9. Confusing
10. Complicated
11. It’s hard
12. Based on your answer in number 1, why do you think it is difficult?
13. Not familiar
14. Not interested
15. Lack of learning materials
16. complicated
17. What learning materials does your teacher provide?
18. Books
19. Module
20. Internet surfing
21. Visual aids
22. Does the learning materials provide by the teacher effective?
23. Yes
24. No
25. Other than learning materials provided by the teacher to you, do you have any other learning source?
26. Internet surfing
27. None
28. Videos
29. Others
30. Does your teacher assist you when you have trouble learning the topic?
31. Yes
32. No
33. Sometimes
34. Does your teacher carefully elaborate the topic before proceeding to another topic?
35. Yes
36. No
37. Sometimes
38. If ever a game will be developed, do you think it would be effective?
39. Definitely
40. Not
41. Maybe
42. What type of platform do you prefer in playing educational game?
43. Mobile
44. PC

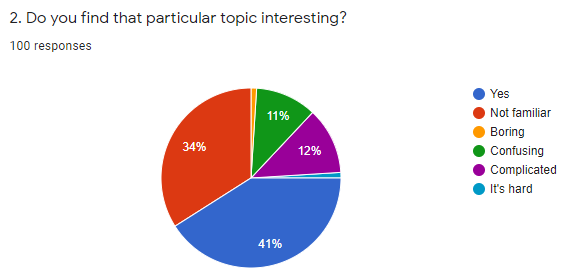
1ST Survey Result

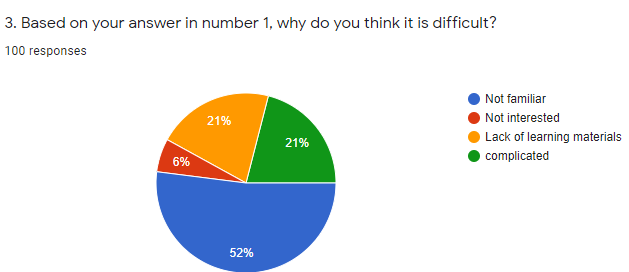


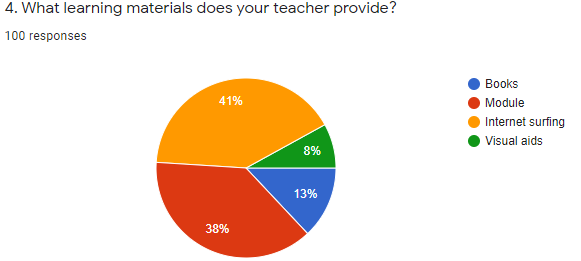


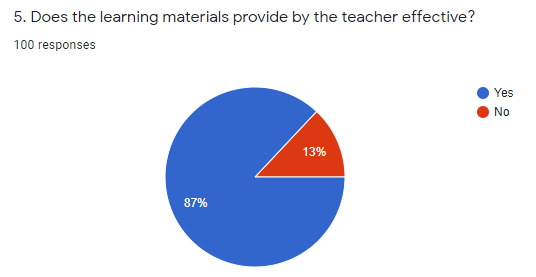
2nd Survey Result

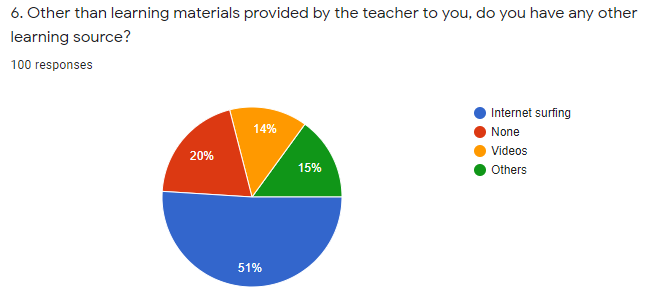


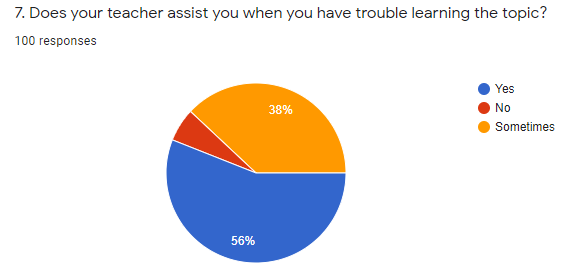


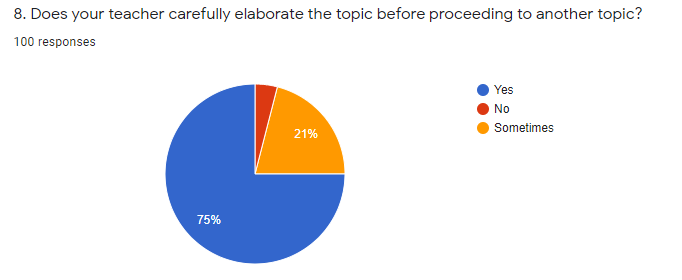


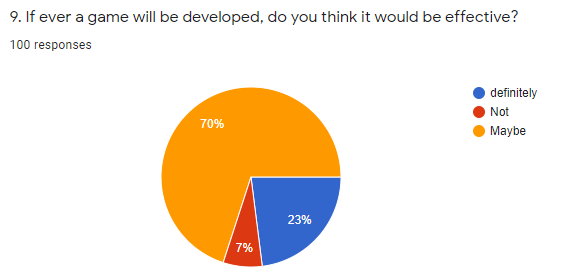












Calendar of Activities

**Gantt chart of Activities**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| MONTH | SEPTEMBER | | | | OCTOBER | | | | NOVEMBER | | | | DECEMBER | | | | JANUARY | | | | FEBRUARY | | | | MARCH | | | | APRIL | | | | MAY | | | | JUNE | | | |
| ACTIVITY |
| Requirements  PLANNING |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Planning |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Interview |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Defining the problem |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Documentation |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| User Design |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| System Analysis |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Database Structure |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| System Design |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Construction |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Coding |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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## Budgetary Estimate

Budgetary Estimate

|  |  |  |
| --- | --- | --- |
| Quantity | Specifics | Approximate Cost |
| 100 pieces | 1st Questionnaire | 200.00 |
| 100 pieces | 2nd Questionnaire | 100.00 |
|  | Total | 300.00 |

## Human Resources

Curriculum Vitae of

Rafael Christopher Cruz Esteban

2812 BICOLEYTE STREET BARANGAY COMMONWEALTH QUEZON CITY

Paengesteban24@gmail.com

09995814061

EDUCATIONAL BACKGROUND

|  |  |  |
| --- | --- | --- |
| Level | Inclusive Dates | Name of school/ Institution |
| Tertiary | 2015-Present | STI College Fairview |
| Vocational/Technical |  |  |
| High School | 2008-2012 | New Era High School |
| Elementary | 2002-2008 | Commonwealth Elementary School |

PROFESSIONAL OR VOLUNTEER EXPERIENCE

|  |  |  |
| --- | --- | --- |
| Inclusive Dates | Nature of Experience/  Job Title | Name and Address of Company or Organization |
| 2017-2019 | Kitchen | Golden Arches Development Corporation  Mc Donald’s |
|  |  |  |
|  |  |  |
|  |  |  |

Listed in reverse chronological order (most recent first).

AFFILIATIONS

|  |  |  |
| --- | --- | --- |
| Inclusive Dates | Name of Organization | Position |
| month year |  |  |
| month year |  |  |
| month year |  |  |
| month year |  |  |

Listed in reverse chronological order (most recent first).

SKILLS

|  |  |  |
| --- | --- | --- |
| SKILLS | Level of Competency | Date Acquired |
|  |  | month year |
|  |  | month year |
|  |  | month year |

TRAININGS, SEMINARS OR WORKSHOP ATTENDED

|  |  |
| --- | --- |
| Inclusive Dates | Title of Training, Seminar or Workshop |
| month year |  |
| month year |  |
| month year |  |
| month year |  |

Listed in reverse chronological order (most recent first).

Curriculum Vitae of

Jayson A. Dela Cruz

Blk 212 lot 3 schilling St. North Fair Park Subd Quezon City

Delacruzjayson115@gmail.com

09504496371

EDUCATIONAL BACKGROUND

|  |  |  |
| --- | --- | --- |
| Level | Inclusive Dates | Name of school/ Institution |
| Tertiary | 2014-Present | STI College Fairview |
| Vocational/Technical |  |  |
| High School | 20010-2014 | North Fairview High School |
| Elementary | 2002-2008 | North Fairview Elementary School |

PROFESSIONAL OR VOLUNTEER EXPERIENCE

|  |  |  |
| --- | --- | --- |
| Inclusive Dates | Nature of Experience/  Job Title | Name and Address of Company or Organization |
| month year |  |  |
| month year |  |  |
| month year |  |  |
| month year |  |  |

Listed in reverse chronological order (most recent first).

AFFILIATIONS

|  |  |  |
| --- | --- | --- |
| Inclusive Dates | Name of Organization | Position |
| month year |  |  |
| month year |  |  |
| month year |  |  |
| month year |  |  |

Listed in reverse chronological order (most recent first).

SKILLS

|  |  |  |
| --- | --- | --- |
| SKILLS | Level of Competency | Date Acquired |
|  |  | month year |
|  |  | month year |
|  |  | month year |

TRAININGS, SEMINARS OR WORKSHOP ATTENDED

|  |  |
| --- | --- |
| Inclusive Dates | Title of Training, Seminar or Workshop |
| month year |  |
| month year |  |
| month year |  |
| month year |  |

Listed in reverse chronological order (most recent first).

Curriculum Vitae of

Azariah Keith T. Gannaban

Blk 71 Lot Ph8 North Fairview High School Subd Quezon City

Keith14305gannaban@gmail.com

09669623942

EDUCATIONAL BACKGROUND

|  |  |  |
| --- | --- | --- |
| Level | Inclusive Dates | Name of school/ Institution |
| Tertiary | 2016-Present | STI College Fairview |
| Vocational/Technical |  |  |
| High School | 2010-2014 | Tabuk National High School |
| Elementary | 2002-2008 | Tabuk Central School |

PROFESSIONAL OR VOLUNTEER EXPERIENCE

|  |  |  |
| --- | --- | --- |
| Inclusive Dates | Nature of Experience/  Job Title | Name and Address of Company or Organization |
| month year |  |  |
| month year |  |  |
| month year |  |  |
| month year |  |  |

Listed in reverse chronological order (most recent first).

AFFILIATIONS

|  |  |  |
| --- | --- | --- |
| Inclusive Dates | Name of Organization | Position |
| month year |  |  |
| month year |  |  |
| month year |  |  |
| month year |  |  |

Listed in reverse chronological order (most recent first).

SKILLS

|  |  |  |
| --- | --- | --- |
| SKILLS | Level of Competency | Date Acquired |
|  |  | month year |
|  |  | month year |
|  |  | month year |

TRAININGS, SEMINARS OR WORKSHOP ATTENDED

|  |  |
| --- | --- |
| Inclusive Dates | Title of Training, Seminar or Workshop |
| month year |  |
| month year |  |
| month year |  |
| month year |  |

Listed in reverse chronological order (most recent first).

ADVISER’S ACCEPTANCE FORM

NAME OF PROPONENTS: Rafael Christopher C. Esteban

Jayson A. Dela Cruz

Azariah Keith T. Gannaban

APPROVED RESEARCH TITLE: Microgerm Adventure: 2D Educational Game for Grade 8 Students of North Fairview High School

AREA OF STUDY: <Area of Research and Field of Study>

CONFORME:

Keane Leigh Merin

Thesis Adviser

APPROVED BY:

Rubinato Lubian Date: Dec 2, 2020

Thesis Coordinator

NOTED BY:

Leodigario R. Bongco

Program Head

# References

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