

1. Goals:

1.1 Game Goal: A throwback to the older Pokémon games set on RPI campus.

1.2 Current Goals: Road to Beta

- Be able to explore parts of campus.
 - Create interesting puzzles.
 - Create meaningful story/plot to maintain interest.
 - Finish game/battle/animation engines
 - Terminal integration.
 - Take photos and create color palette with RPI's textures
 - Match and create tiles to RPI
 - Take photos and obtain proper tints that match RPI's textures.
-

2. Story

The main storyline takes place in the same Pokémon world as the main series but in a different area. RPI is located somewhere far from the regions of Kanto (Blue/Red) and Sinnoh (Gold/Silver). These regions will be made first. Once we have the game engines polished, we can incorporate the game mechanics easily. Once we obtain beta status we can obtain feedback of the current game mechanics status and eliminate remaining bugs.

2.1 Main Game Spine (Archplot)

By implementing great plot and character development, the main character will obtain an “unconscious goal of desire” this goal will show how the main character triumphs over all the challenges at RPI and become a mature adult who has grown in his abilities. It will attempt to portray the lives we lead as students and how the work we do will pay off in the long run. This is my goal to tell the story like this.

[Exposition must be kept short to maintain interest in game. NO DATA DUMPING]

The game begins by welcoming the Class of 2018 and RPI theme song playing. Everyone who makes a new save file will begin as a freshmen regardless of actual class status. You will be able to pick your major, which will affect the exams you take (gym leaders that you fight throughout the game). The scene opens with Shirley telling you about the situation. The emergence of Pokémon in the real world has opened up entire realms of unanswered questions and things will never be the same again. Part of the Rensselaer plan has been revised in order to deal with these complex issues of “evolution” and supernatural powers that the Pokémon possess. It is your responsibility to utilize their abilities in order to create a better world. By

training and capturing Pokémon for research, you become stronger and obtain more knowledge that will help you with your mission.

Not all Pokémon will be used for good. Along the way, players will be approached by opposing trainers who are on the same quest to be the best that no one ever was. To catch them all is the real quest and to train them is the cause. You will travel across the land, searching far and wide. You must search the power that's inside each Pokémon. It's your destiny and Pokémon are your best friends in a world you must defend. Your courage will pull you through and the Pokémon will teach you and you will teach it. You will battle every day to claim your rightful place. Union College has joined the race and they want to destroy RPI students. Along the way, you will meet these students who will try to thwart your attempts to the best, but you will make their efforts futile.

The new Pokémon training program is elite and rigorous. Players will have to obtain badges by passing each final in a semester. After you obtain 8 badges (2 badges for each class year), you must take a final graduation exam in order to test the strength of your resolve.

2.2| Characters

GREAT CHARACTERS HAPPEN THROUGH CAREFUL AND SENSITIVE DESIGN

Protagonist; You... the antagonist must be as strong as the protagonist. The wills of conflicting personalities must clash.

Nemesis: This is the “unified face of opposition” The entirety of the opposition experience by the protagonist. (Not just one antagonist, could be a collection or an experience)

Pivotal character: without a pivotal character, there is no play. This character moves the plot forward and this character knows what he wants. Without him, there is no story. Does not have to be the main character. (i.e. the joker, max payne)

Mentor: All the teachers, these characters will give you key advice on how to pass certain classes. I want to be able to offer good advice through the game. In your break time while you play this game, maybe you learn tricks to time management. These characters will also assist in backstory.

IF player talks to an NPC, dynamically bind NPC to appropriate chunk of script. Game remembers this state data in case there are future interactions.

PROCEDURALLY GENERATED CONVERSATIONS

“Player actions (killing a dragon, solving a mystery, and leveling up, buying new clothes) will seed the database with new conversational items—these then spread out like ripples in a pond.

Developers can add new content both manually and programmatically, so rumors of a war might persist and grow for weeks before the armies actually get within sight. Like the childhood “whispering” game, where a phrase at one end of the room changes as it is whispered from child to child—exaggeration, substitution, and even mixing of rumors can take place on information stored this way. Players will feel a sense of integration into a larger whole, a real community—and intimately be part of your world as they see their own experiences woven into its history.”- (Sheldon (2013-04-03))

4. Core Mechanics

4.1 Battle Mechanics

Overview:

Players take turns battle each other using Pokémon. Each Pokémon has a specific learn set, which are moves that are learned after meeting a specific condition (leveling, evolution, etc...). In the original game, you could only have four moves at a time. Moves have limited uses called PP or power points. Power points decremented each time the move is used. They had to be restored using an item or by going to the Pokémon center.

Each time you got a new move, you had to erase an old move. We plan on allowing players to keep all the moves in memory and having the ability to change learned moves when accessing a Pokémon center. Possible implementations include Move EXP and Move Levels. Players can carry up to six Pokémon on them. Catching Pokémon with a full team sends them to PC storage. The players can access PCs located in their home or Pokémon Center and other locations. Players can improve their growth through.

Levels: Levels are gained by accumulating experience points from battling other Pokémon. Levels begin at 1 and end at 100. (Could possibly increase level cap). There are different rates of experience gain.

Stats: These stats are generated based on each pokemon’s individual value(IV) and extra stats can be gained through attaining effort values(EV).



Source: [Bulbapedia](https://bulbapedia.bulbagarden.net/wiki/Stat_calculations)

HP (Hit Points): Pokémon’s life: when it reaches 0 in battle, the Pokémon faints and must be healed at the Pokémon Center. Certain items restore HP in or out of combat. Some moves deal damage based on HP.

Attack: Determines the power of physical attacks.(Bug, Fighting, Flying, Ghost, Ground, Normal, Poison, Rock or Steel-type)

Speed: Determines which Pokémon has first attack in battle. Some items/moves disregard this stat.

Defense: Resistance to physical attacks.

Special Attack: Increases the power of Special Attacks. (Dark, Dragon, Electric, Fire, Grass, Ice, Psychic, or Water-type)

Formulas:

$$HP = \frac{(IV + Base + \frac{\sqrt{EV}}{8} + 50) \times Level}{50} + 10$$

$$Other\ stat = \frac{(IV + Base + \frac{\sqrt{EV}}{8}) \times Level}{50} + 5$$

The stat is rounded down if the result is a decimal. Note that the numerator is multiplied by two compared to this formula before rounding. For example, the quantity $(2*base + 2*IV + \sqrt{EV}/4)$ is rounded down to the nearest integer before multiplying by level and dividing by 100. This is crucial to calculating the exact stats, as otherwise rounding errors will occur.

Individual values: IVs have a range from 0-15, in binary 0000-1111. HP IV takes the final binary digit of the Attack, Defense, Speed, and Special Ivs and places it that order.

Effort Values: EVs behave the same in Generation II as they did in Generation I. Both Special Attack and Special Defense share the EV for Special to maintain compatibility. The amount of Special EVs received is equal to the defeated Pokémon's Special Attack base stat.

Generation II introduced the Pokérus, a rare status condition which doubles the effort points gained in battle.

This is a table of all [Pokemon ev yields](#). [Bulbapedia](#)

Stat Modifiers:

Certain moves have special stat modifiers that decrease specific stats.

Stages	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6
Mutliplier	2 / 8	2 / 7	2 / 6	2 / 5	2 / 4	2 / 3	2 / 2	3 / 2	4 / 2	5 / 2	6 / 2	7 / 2	8 / 2
Percentage	25%	29%	33%	40%	50%	67%	100%	150%	200%	250%	300%	350%	400%

This table shows the different stages of modifiers. [psypoke](#)

Critical Hit Chance: Critical hits doubles move damage. Moves begin at stage zero.

Stage	Chance of critical hit
+0	1/16 (6.25%)
+1	1/8 (12.5%)
+2	¼ (25%)
+3	1/3 (33.3%)
+4 and above	½ (50%)

Weight: Weight affects the following game mechanics: [Low Kick](#), [Grass Knot](#), [Heat Crash](#) and [Heavy Slam](#). Using a [Heavy Ball](#) modifies the [catch rate](#) of the targeted Pokémon depending on its weight.

[Gold](#), [Silver](#), and [Crystal](#) weight catch rates

Less than 100 kg (220.5 lbs.)	-20
Between 100 kg (220.5 lbs.) and 200 kg (440.9 lbs.)	+0
Between 200 kg (440.9 lbs.) and 300 kg (661.4 lbs.)	+20
More than 300 kg (661.4 lbs.)	+30

Height: Does nothing, physical characteristic.

Status effects:

Training: Players must level their Pokémon in order to become stronger and to be able to face tougher challenges.

Levels: Pokemon level by attaining enough **experience points**. Each level(1-100) has required amount which increases with higher levels.

Evolution: Pokemon evolve into different species at certain levels. This change increases base stats, allows learning of different moves, and sometimes changes the Pokémon's type. Most pokemon evolve once, some evolve twice, and some don't evolve at all.

Experience Points: 4 types of experience growth or attainment rate.

Experience gain in battle

1. The amount of experience gained in battle depends on the level and species of the defeated Pokémon in battle. The higher the defeated Pokémon's level is, the more experience points it yields. The Exp. All and Exp. Share can also further affect the gain of experience.
 2. Gain more exp, If the player is in a Trainer battle.
 3. If winning Pokémon was traded from someone else.
-

1. Fast

- a. The Fast experience group is one of the four experience groups introduced in Generation I, with 800,000 experience points making for a level 100 Pokémon. Many [Normal](#) and [Fairy-type](#) Pokémon are in this group.
- b. For a list of all Pokémon in this group, see [Pokémon in the Fast experience group](#).

$$EXP = \frac{4n^3}{5}$$

2. Medium Fast

- a. Requiring Pokémon to have an even 1,000,000 experience points to be at level 100, it is by far the most average of the experience groups, and the one with the simplest equation: to be at a given level, any Pokémon in this group requires experience equal to that level³. This group is also often called “cubic”, due to its function being a simple cube of the level.
- b. This experience group actually grows more slowly than the Medium Slow group up until about level 68 (level 47, if considering amount of experience required reaching the next level).
- c. For a list of all Pokémon in this group, see [Pokémon in the Medium Fast experience group](#).

$$EXP = n^3$$

3. Medium Slow

- a. All normal [starter Pokémon](#) are in this group. Requiring 1,059,860 experience points for a Pokémon to reach level 100, it is the only experience group whose level 100 experience is not evenly divisible by 10,000.

For a list of all Pokémon in this group, see [Pokémon in the Medium Slow experience group](#).

$$EXP = \frac{6}{5}n^3 - 15n^2 + 100n - 140$$

4. Slow

- a. The Slow group features the highest amount of experience required for a Pokémon to reach level 100 in Generations I and II, and the second highest amount since then. Containing many rare, powerful, and [Legendary Pokémon](#), all [pseudo-legendary Pokémon](#), by definition, are in this experience group. At level 100, a Pokémon in this experience group will have 1,250,000 experience points.

For a list of all Pokémon in this group, see [Pokémon in the Slow experience group](#).

$$EXP = \frac{5n^3}{4}$$

Weather Conditions:

Weather is a mechanic that affects in game battles. It is usually caused by an ability and only one weather effect can be active at a time. If a Pokémon uses a weather ability, it will overwrite any existing conditions. These effects potentially damage Pokémon or affect a Pokémon's stats. Overworld weather will affect Pokemon battles. In Gen II, only moves that caused weather existed and overworld weather did not. If we have time, we can implement overworld weather.

Types:

1. Clear Skies – absence of weather, no effects
2. Rain – Lasts 5 turns in battle if used by ability in battle.
 - a. Abilities: Rain Dance, TM 18
 - b. Increases power of Water-type moves by 50%.
 - c. Decreases power of Fire-type moves by 50%.
 - d. Solar beam deals half damage.
 - e. [Moonlight](#), [Synthesis](#), and [Morning Sun](#) to recover ¼ of max HP.
3. Sandstorm –
 - a. Damages Pokémon for 1/16 of their health per turn.
 - i. Rock, Steel, Ground types are unaffected

- b. Abilities: Sandstorm
- c. Activates Sand Veil
- d. Solar Beam deals half damage

Pokémon Type Chart — Generations 2-5

created by pokemondb.net

0	No effect (0%)	½	Not very effective (50%)		Normal (100%)	2	Super-effective (200%)										
DEFENSE → ATTACK ↴	NOR	FIR	WAT	ELE	GRA	ICE	FIG	POI	GRO	FLY	PSY	BUG	ROC	GHO	DRA	DAR	STE
NORMAL													½	0			½
FIRE		½	½		2	2						2	½		½		2
WATER		2	½		½				2				2		½		
ELECTRIC			2	½	½				0	2					½		
GRASS		½	2		½			½	2	½		½	2		½		½
ICE		½	½		2	½			2	2					2		½
FIGHTING	2					2		½		½	½	½	2	0		2	2
POISON					2			½	½				½	½			0
GROUND		2		2	½			2		0		½	2				2
FLYING				½	2		2					2	½				½
PSYCHIC							2	2			½					0	½
BUG		½			2		½	½		½	2			½		2	½
ROCK		2				2	½		½	2		2					½
GHOST	0										2			2		½	½
DRAGON															2		½
DARK							½				2			2		½	½
STEEL		½	½	½		2							2				½

Type Chart displaying Gen2-5 Pokémon type strengths/weaknesses. pokemondb.net

Type: All moves/Pokémon have types which have strengths and weaknesses. During combat, Players should counter the opponent's Pokémon type.

Plot Outline DraftNotes:

- Continuous Story Progression
- Team Rocket/Rival placeholder names.

Central Plot – Inciting Incident:

Acceptance into RPI.

Central Plot:

The goal of the game is to become the Pokémon master in this region by passing all 8 exams. In the end you have to take the final exam which consists of the Elite Four and Champion and then you can finally graduate.

Side Plot:

You obtain keys to dorm room, pick your Pokémon, and get shown around freshmen hall. Tutorial mostly here.

Side Plot:

You have to pass your first exam in order to access the next area.

Side Plot:

On the way to the exam, you meet your rival, who will have the counter-type Pokémon.

Central Plot:

The first gym is located in DCC and is probably some freshman IHSS course. It has a simple maze puzzle.

Central Plot:

After you beat the gym, the teacher congratulates you and sends you to the Union. You are shown around to the shops and games room. (Tutorial for buying/selling and access to PC. Also show you how to use Pokémon center) You are given pokeballs at the end.

Central Plot:

You find out that the second exam is located in Russell Sage Laboratory. Puzzle will be a series of doors guarded by NPC trainers. Find the correct door to the gym leader.

Side Plot:

On the way to Sage Labs, you run into Team. They try to steal your Pokémon, but you defeat them. You can explore the '86 Field area and the field in front of Sage Labs. There will be wild Pokémon and items around.

Central Plot:

You go through Sage Labs to the fifth floor and solve the puzzle in order to defeat the gym leader. The gym leader congratulates you and you ask about Team Rocket. The gym leader tells you that they are an evil organization that is trying to steal Pokémon and that they probably have ulterior motives.

Side Plot:

The second gym leader needs you to look through the archives in the library to find out about Team Rocket. Team Rocket continually attempts to block your way to the library and inside it.

Side Plot: When you reach the final room on the top floor, you defeat the Team Rocket officer and find out that Team Rocket wants to obtain the use of the weather machine to freeze all the Pokémon and steal them.

Central Plot:

The third gym is located in Lally. Binary puzzle using 4 bit integers possible. Item found at end gives you a key to Team Rocket Base.

Central Plot:

The third gym leader gives you HM Strength and informs you about how to get to Team Rocket Base hidden within the DCC tunnels.

Side Plot:

Using HM Strength, you find your way into the base. You defeat the base, thwart Team Rocket for now, and obtain the master ball.

Side Plot:

Shirley gives you a phone call, congratulating you on your victory and asking for you to return the Weather machine back.

Side Plot:

On your way to the President's office, you meet the leader of Team Rocket. You are surrounded and give back the weather machine. You wake up at a nearby Pokémon center. Rival runs into you outside and you battle.

Central Plot:

Rival informs you where to find the fourth gym badge, located in Sage Labs 2510. This is the game design room. The Pokémon here have smart AI, but weaker stats. The gym leader has a tough and balanced team composition. The puzzle in this gym involves a maze of locked doors. Levers activate different set of locked doors and you have to push the levers in the correct sequence to get to the gym leaders. After defeating the gym leader, you gain HM Fly. He informs you about Team Rocket's history and that they will attack again.

Side Plot:

After obtaining your shiny new badge, there will be Team Rocket members roaming around Sage Labs. Players can choose to clear the floor of the room or leave. Friendly trainer informs you that his Pokémon was stolen by Team Rocket. You retrieve the stolen Pokémon and gain a special Pokémon reward.

Side Plot:

Outside of the labs, a blizzard begins picking up. Ice Pokémon gain power. Landscape changes with snowy tiles. You see Team Rocket kidnapping many frozen Pokémon.

//Final Battle:**Shirley in the EMPAC.**

Weather machine randomly changes, boosting powers of random type pokemon.

Team battle → use powerful pokemon teamed with "WEATHERMACHINE". This weather machine can cast all weather abilities.

3. Gameplay

LEVEL DESIGN**Zone: ECAV/BARH**

Your character will start in the ECAV gym where you will choose the starting Pokémon and pick up your room key. (Future implementation: residence hall choice) Possibly, you will be able to choose two starters from the 6 from Generations 1 and 2. All of the starters begin at level 5. You will be given 10 Pokéballs and a Pokédex as well. Shirley will congratulate you on arriving here at RPI. You are sent to your room where you have to talk to your RA and put away

your things. The area between ECAV and BARH will be a low level Pokemon start zone inhabited by:

[Ratatat, Caterpie, Weedles, Kakunas, Spinaraks, Pidgeys, Hoothoot, Diglett, and Ledybas (Could put rarer occurring Pokémon here and also night Pokémon).]

There will be various items strewn across the map: Poke balls, potions, berries, and other new trainers. After you arrive in your room, you can access your PC and store Pokémon. The PC will have many functions such as hall of fame checking (after you graduate), decorations for your room. There will be a Pokémon center and mart nearby.

After becoming situated, you will receive a schedule (list of quests and tasks to do) from your RA. You've got a major test coming up, even though it's your first day (WELCOME TO RPI.) You have to train in order to pass your first gym badge. [Add side quests and other characters for the player to do.] Campus tour function should be added also. You talk to a tour guide who gives you the map of RPI on the way out of your residence hall.

The first quest is to visit the Union and find your student ID where you meet your rival. After this tutorial, you gain access to the rest of campus. This area is very huge and we should add specific characters that generate a lot of the back story. We go back to RPI's founding in 1824. I'd like these characters to be talked to optionally. This allows exposition through choice which won't force players to sit through the dialogue they don't want to hear. Your first class begins in DCC 318. These are a series of Pokémon battles to test your strength and earn money. There is a maze here. Students will be blocking pathways and hiding items. This gives you a chance to explore and make the room less boring. The items set you up to the back hallways of the DCC building. (It'd be cool if we could implement the tunnels).

Sprites/Animations

Pokémon in/out of battle are portrayed as 16x16 sprites. Still trying to access ROM data to get sprites

- happiness/breeding/daycare(not yet implemented)

- Items

 - can be picked up/used/found in the world

 - can be held to give benefits

Different types:

- berries, Pokéballs, fishing rod, bike, running shoes

- TM/HM

- Interactive NPC
 - Procedurally generated conversation
 - Event handling
- rival
- friend

4. Ideas

Pokémon double team tournament (multiplayer/single player)

- Players will choose two Pokémon each and go through a tournament. The longer they last, the more rewards and maybe special Pokémon could be rewarded.

Achievements

New Game+ (grad school)

- This allows the player to replay the entire game on a much harder difficulty, but allows the player to keep their Pokémon from the previous play through.

Rolling animation to dodge boulders/holes

DayZ pokemon rpi – random spawn in campus, permanent “death”

References