**SCUBA STEVE: A CONCEPT OVERVIEW**

**The Fellowship**

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Our objective is to engineer an educational program that is dynamic for teachers and engaging for 1st and 2nd graders. Keeping that in mind, our math game concept is based on the character Scuba Steve who needs help scuba diving to retrieve the five parts of the Starfish Key buried around the world so he can unlock the treasure chest deep down at Barracuda Point.

The opening screen is a simple login page with input fields for username and password. The teachers' login will automatically navigate to an interface that allows them to view data from the whole class, generate progress reports for individual students, and input specific math problems to be included in gameplay (see image). Math problems provided by the teacher will be given first, but if the student runs out of teacher-provided problems, random problems will be generated. However, the difficulty of these generated levels can also be controlled. The teacher will be able to set a particular range of numbers that the students' skills are to be tested against. If such a range is not defined, there will be a default difficulty set for each level.

When students login, they are taken to the colorful main menu, where they can choose to look at their past statistics or choose to play the game. On the first log-on, students will see the story about Scuba Steve so they are informed of their objectives. This goal-oriented approach helps students become engaged. When the game starts, they will be brought to a picture of a world map with 5 popular scuba diving locations, two of which are locked. The three unlocked options will cover addition, subtraction and number identification, while the locked two will be mixtures of all three categories of math problems.

When gameplay starts, they are brought to their chosen scuba diving location where they see Scuba Steve on his boat, getting ready to make a dive. He needs to fill his tank with oxygen before he dives, and this is where he needs help from the student. For every correct answer the student gets, the air tank fills up a certain amount. For every incorrect answer, they make no progress, and they see the correct answer displayed. An audio cue will accompany the outcome of every problem. To fill the air tank enough, students must answer a certain amount of questions with a good percentage. If students do not have a good enough percentage to fill the tank after the minimum number of questions, they will be given another round of questions in order to give them another chance to meet the minimum percentage to dive. If they do not receive the required percentage by the end of another round of questions, they must repeat the level from the beginning.

When Scuba Steve's air tank is full, he's ready to dive. He jumps in the water and swims down to the ocean floor to retrieve the piece of the Starfish Key. This animation sequence is not interactive. After getting to the ocean floor, the animated sequence will end, and the student will be shown a real image from the site that they are “diving” at.

After completing levels 1 through 3, and unlocking and completing level 4, the students will play the final level at Barracuda Point, which would have a certain degree of interactivity, and a higher level of difficulty. A monstrous Barracuda guards the treasure chest, and the students will have to defeat the Barracuda (with the power of mathematics) in order to receive the last piece of the Starfish Key and open the treasure chest.   
 Statistics over time about student progress will be based on correct answers and speed of answering. Frequency of gameplay will also be recorded, and categorical analyses will be generated. These statistics can then be used to track progress and long-term goals for each student. Once the game has been beaten, students can go back and play the levels again to try for a better score.

**Level Ordering**

1. Hawaii
2. Great Barrier Reef
3. Cancun, Mexico
4. San Fruttuoso, Italy
5. Barracuda Point, Malaysia



