**Nickname**: Código Secreto (Secret Code)

Name: Suggest a name for the game

Date: April 25, 2014

|  |  |
| --- | --- |
| Suite: | Interactive Object: 2 |
| 5th Grade | Level of difficulty: Medium |
| Subject: Math | Theme: diferentes sistemas de numeração (romano, japonês, egípcio) (different numbering systems (Roman, Japanese, Egyptian)) |
| Book Pages: | |
| Unit 2 | |

**Purpose:**  
Understanding the existence of different numbering systems in different places of the world and over time.

Main Mechanism:

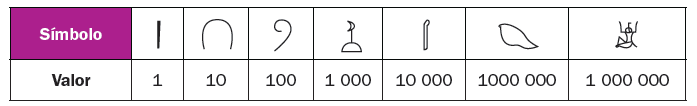
Sílvia explains that she will travel all over the world to get acquainted with different types of civilizations, and invites the player to accompany her in this adventure.

At each game level, Sílvia will be in a different part of the world, with some monument characteristic of this place local or time. To enter and get to know this monument, he will have to solve the numbers relating to the riddle. After the number is unveiled, the player will have to pull a lever to release the door.

For instance, in phase 1, this lever may be located in the front of an Egyptian pyramid. A papyrus will be located by the entrance, and when the player clicks that papyrus, it opens and shows the riddle to open the door. This riddle is brought with a text and numbers. These figures should be unveiled using a chart with Egyptian numbering. Eg.:

In the last harvest of this imperial province, the following products were obtained: 15,000 barrels of wheat and 72,500 barrels of barley for meals and 2855 barrels of flax to produce clothing. Moreover, 5,000 fruits have been collected, including dates, apples, bananas and grapes.

For instance, find below a chart which will have the equivalence of numbers:



And other chart for the player to complete with the symbols: Eg.:

|  |  |
| --- | --- |
| 15000 |  |
| 72500 |  |
| 2855 |  |
| 5000 |  |

The player will have to click the number he/she wants to complete, which will be marked, and, afterwards, drag the symbols to form the number. He/she may choose up to 20 symbols for each number. When he/she is satisfied, he/she should click the next number and repeat the procedure.

Once all numbers are finished, he/she will have to pull the lever to check the numbering informed.

Getting the riddle right, the door will open and he/she will enter the pyramid, which is the passage to the next level.

The game will have three levels and the same logic will be applied in the other two levels, which will bring other monuments and numbering systems, following the same process.

**Rules and Restrictions:**

- There will be 3 phases, which will open automatically to the extent that the previous is completed. Before the phase changes, the player will be congratulated and asked if he/she wants to move on to the next level – “Sim” (Yes) or “Não” (No).

- If the numbering is correct, a sound of bells will be heard while the door opens.

- If the numbering is not correct, a sound of doorbell will not be heard, and the incorrect numbers will be highlighted, a pop up with the feedback message will be opened. While the time is not through, the player may close the feedback message to have new trials.

- The player may drag the symbols to the answer chart and get them back to the symbol chart as many times as he/she wants.

- In the last phase, the player receives a congratulation message for him to have completed the game and will have the option to play again.

- The player will have a time to discover the code, which will be viewed by means of a an hourglass. After this time is through, he/she will have to resume from where he/she stopped.

**Balancing:**

The game has the following configurable parameters:

Time and Score Points:

For each right number informed, the player will win 30 score points. For each wrong number, he/she will have 10 points removed as a penalty.

If he/she completes the challenge in less than 50% of the time, he/she will win a bonus of 50 points. Between 50% and 75% of the time, he/she will win 30 points.

**DEFINITIONS PER MECHANISM**

**Character:**

1. Silvia

**Levels:**

1. Yes

**Score:**

1. Yes

**Star:**

1. No

**Ranking:**

1. Yes

**Time**

1. Yes

**Pause**

1. No

**Mistake**

1. Feedback Effect

**Success**

1. No effect

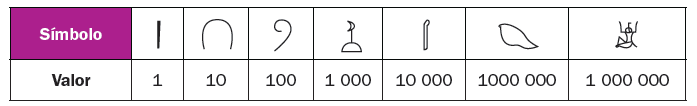
**Tutorial**

1. No

Configurable Elements of the Content:

**Game opening text said by Sílvia:**

**Scenery 1:** **(Suggestion) (Egyptian numbering)**



**Venue -** Egyptian Pyramids

**Place where the code is –** Papyrus

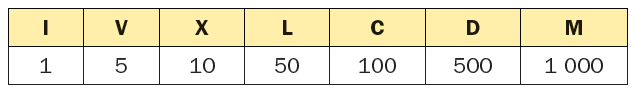
**Secret Code –** Scribe’s note: (scribe’s note registering how the harvest in one of the ancient Egypt’s provinces was)

|  |  |
| --- | --- |
|  | 15000 |
|  | 72500 |
|  | 2855 |
|  | 5000 |

In the last harvest of this imperial province, the following products were obtained: 15,000 barrels of wheat and 72,500 barrels of barley for meals and 2855 barrels of flax to produce clothing. Moreover, 5,000 fruits have been collected, including dates, apples, bananas and grapes.

**Mistake Feedback -** Remember that the Egyptian numbering system is based on groupings. To write different numbers, you may use up to nine symbols of each value.

**Scenery 2:** **(Suggestion) (Roman numbering)**



**Venue –** Ancient Rome

**Place where the code is –** Roman column

|  |  |
| --- | --- |
| **LII** | **52** |
| **MMMMMMMMMDV** | **9505** |
| **IV** | **4** |
| **MMCD** | **2400** |
| **MMMMMD** | **5500** |

**Secret Code –** Roman column (Roman column where the results of a battle for territory spearheaded by one of the greatest Roman emperors were written);

In the last battle, in 52 B.C., 9,505 prisoners were captured. The emperor’s campaign had 4 legions, with 24,000 men, besides auxiliary troops, with more than 55,000 soldiers.

**Mistake Feedback - NB:**  repeating each symbol twice or thrice (never more than three), the number is twice or thrice bigger. The symbols V, L and D never repeat. The numerals of smaller value placed on the left were subtracted from the numeral of higher value.

**Scenery 3:** **(Suggestion) (Chinese numbering)**



**Venue –** Ancient China

**Place where the code is –** calculating board (see reference) – according to a Chinese legend, the magic box was discovered by Emperor Lo.

**Secret Code** – Magic box with numbers in Chinese (the resolution may be a challenge)

|  |  |  |
| --- | --- | --- |
|  |  |  |
|  |  |  |
|  |  |  |

**Answer:**

|  |  |  |
| --- | --- | --- |
| **4** | **9** | **2** |
| **3** | **5** | **7** |
| **8** | **1** | **6** |

**Mistake Feedback -**  Remember that the result of the sum of all numbers is always 15, be it in vertical, horizontal or diagonal direction.

**Final Feedback**

Mandou bem! Você desvendou todos os enigmas! (Well done! You solved all the riddles!)