

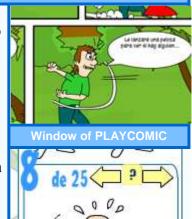
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- Playcomic does not pretend to be another design and edition comic software. This program pretends to go further: to use a cool, smart and amusing tool, comics, to foster the written expression of our students in both Spanish and English languages. With the correct difficulty grade, a constant help utility, a lot of already developed materials (with more than 40 different stories) and a great many of different activities, it is pretended that the student develop and improve skills such as:
 - Reading and comprehension of stories adapted to their knowledge.
 - To increase useful vocabulary, namely, vocabulary most commonly used in daily situations.
 - To make a dialog from the starting point of a narration.
 - To develop communication skills by means of the learning of the most used expressions in our daily vocabulary.
 - To convert dialogues in a well structured narrative.
 - Capacity to move to the written language everyday situations.
 - Imagination in the creation of stories.
 - To move thoughts and ideas to the formal structures provided by the written language.

This software starts with a home menu with the following sections:

PAINT A COMIC

- The student can paint a comic in her own way. She can make up a story and develop it with the help of more than 800 elements offered: more than 10 characters with 25 different positions, houses, objects, animals, backgrounds, lands, skies, effects, more than 5 types of comic balloons, creative texts, machines, cars, UFOs, furniture, windows, decoration items, tools, etc.
- In short, an incredible world of possibilities within reach of the student inside a simple and intuitive interface, where just with a click objects can be made bigger, moved, rotated, deleted, moved to the front/back.
- The student can **save the comic** in the hard disk of the computer and open it later on to continue with the work. Once it is finished it can be printed to be shared with the class mates.



A main character

FINISH THE COMIC

- In this section the student will have, distributed in several difficulty levels, 14 comics already started.
- After having decided which comic to finish the student has to give it a name and then, develop the end of comic.
- In the same way as the previous section, paint a comic, the student will have the image gallery at his disposal.
- Likewise the student can modify, delete or insert new elements and texts in the beginning of the story offered by this software.
- The students could save all their progress and open it again to continue the work in any other moment. Once the comic is finished, they will print it and could share it with their school mates.



FROM STORY TO COMIC

- The student will have the opportunity to choose among 12 narrative stories, 4 per level, and transform them in a comic.
- The narrative story difficulty will depend on the chosen level.
 In addition, the narrative length will be matched to its level.
- The student will have all the objects and characters provide by this tool to give expression to the story in a comic. Also, specific backgrounds and objects have been introduced to adapt the story.
- As previously explained, comics can be made in different work sessions as this tool supports the saving of the student progress.
- Once the comic has been finished, the student can print and share it with his friends.

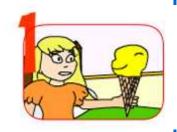


FROM COMIC TO STORY

- The student can choose among 12 finished comics, 4 per level, and transform them into a narrative.
- The difficulty degree will be marked by the complexity of the comic, its length, vocabulary used and grammatical structure of the dialogues.
- In this game the student can't modify the comic, just turn it into a story.
- Just like previous sections, student progress can be saved in order to develop the story in all the sessions needed.
- Once finished, the story can be printed and shared with the school mates.



A window of PLAYCOMIC



COMIC 1

FILL THE BALLOONS

- The student will have the opportunity to choose among 12 comics already finished, 4 per level. These comics, although they are finished, will be with empty balloons.
- The student must fill them to give a sense to the story.
- The difficulty degree will be marked by the complexity of the comic, its length and the number of balloons to be filled.
- Like previous sections, changes can be saved in order to finish the comic in the necessary sessions.
- Once the student has finished it can be printed and shown to the classroom.



Example of comic



Example of comic



PAINT A COMIC

WHAT DOES THE GAME INVOLVE?

- In this section the student has all the possibilities to make a comic his own way. The student will make up a story and develop it by means of the help of more than 800 elements at his disposal. Those elements will be explained later on.
- To sum up, an incredible world of possibilities within reach of the student inside an intuitive and easy interface
- The student could save his comic in the computer and open it later to continue his work. Once the comic is finished he could print and share it with his mates.



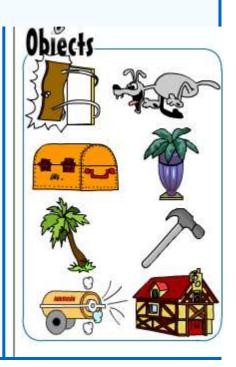
Example of comic

INSTRUCTIONS

- The student must give a name to the new comic. After the name is accepted he has to choose the cartoon model desired to insert the first page of the comic.
- After this election the student will start to make the comic clicking in the frame to be edited in the top left browser.
- The comic will change to edition mode and all the available elements will appear, as well as the work toolbox.
- Elements are organized in the following categories:

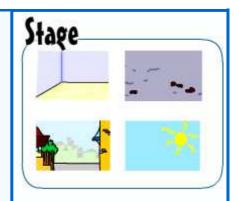
Objects

- Furniture: windows, doors, stairs, wall holes, etc
- Interior design: lamps, vases, pictures, etc
- Animals: bears, wolves, birds, cats, dogs, etc.
- Dwellings: country, city, façade pieces, etc.
- Operational objects: tools, balls, buttons, notebooks, backpacks, food, etc.
- Valuable objects: trunk, safes, money, gold ingots, etc.
- Exterior objects: different kind of trees, lampposts, mailboxes, etc.
- Machines and vehicles: space crafts, cars, transformation machines, cement mixers, etc.



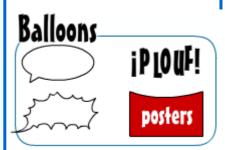
STAGE

- Interior scenarios: bedrooms and living rooms with many colors and shapes.
- Exterior scenarios: towns, forests, jungles, etc.
- Floors: if the student wants something more specific he could choose a floor and later on a sky.
- Skies: dawn, dusk, night, etc.



Balloons

- Basic balloons: most used, oval, rounded and squared.
- Special balloons: used in some situations where fear, thoughts... are involved.
- Artistic text: several times we need to introduce a word outside the balloon. Here you can find multiple and funny texts.
- Posters: banner with a message, greengrocer's sign, comic title. All this options can be satisfied with the elements in this category.



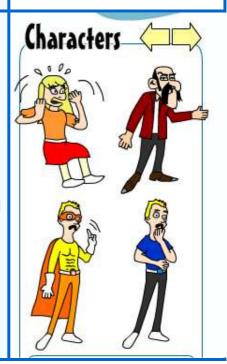
Effects

- Variety of effects: used for situations such as surprise, falls, crashes, etc.
- Lines: used to introduce movement sensation in our comic.



Characters

- The student has many main and supporting characters.
 First 8 characters have 24 positions each one.
- Supporting characters will have only 4 positions.
- It has been preferred to have fewer characters with more choices than a higher number of characters with only a few expressions and positions. We think that this will make more realistic, deep and dynamic comics possible.
- Once we have chosen the character to be introduced we can select in the down side of the window, its position and expression.
- To make our election as quick as possible 2 options are offered:
 - Click arrows to change position.
 - Press interrogation and select action.



After we have inserted the element or character this can be modified with the tools described and shown from left to right:



- Tool "move": this is the most used tool, as its own name says; it is used to move the
 object. It is easy how it works: if it is selected we only have to drag and drop the object
 our own way.
- Tool "make bigger": we have to click in this tool and after that, click at the object to make bigger. The more clicks the bigger it will be made.
- Tool "make smaller": similar to the previous one. We click in the tool and then press
 the object to make smaller. The more clicks the smaller it will be made.
- Tool "rotate": everything will be boring if all the characters and objects look at the same place. This tool gives us the opportunity to rotate the objects. We have to click this tool and the object to rotate after it.
- Tool "send to back": when we introduce a new element it is located by default in front of the previous ones. Although this is logic, sometimes, it is suitable or essential to put an object background. It is easy how this tool works: we have to click it and then, click the element to put back. The element will place behind the previous one. Sometimes we will have to use this tool a few times in a row to make our object go back several positions in our cartoons.
- Tool "send to front": as previously explained when we introduce a new element it is located by default in the front of the previous ones. Sometimes we need to put an object at the front, therefore it covers the others. To make this possible press this tool and the object to send to the front one position. In the same way that the previous tool works it is necessary to use it several times to make our element advance to the position we want.
- Tool "delete": as its name says this tool will be of use to delete the selected element.
 It is easy how it works: press the tool and click the object to be deleted.
- o **Tool "text":** as its name says this tool will be of use to fill the text's element. It is easy how it works: press the tool and click the ballon.

FINISH THE COMIC

WHAT DOES THE GAME INVOLVE?

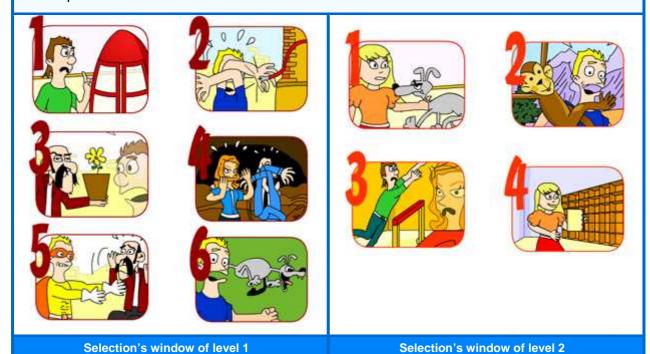
- In this section the student will have, in each difficulty grade, several comics already begun.
- Like the previous section, paint the comic, the student will have at his disposal the entire image gallery.
- As well, the student can modify, delete or introduce new elements and texts at the beginning of the story offered by the software.
- The students can save all their progress at all times.
 Once finished, the comic can be printed



Example of comic

INSTRUCTIONS

- The student must choose the comic he wants to finish among the 14 distributed in levels: 6 in level 1, 4 in level 2 and just 4 of level 3.
- After the election of the beginning of the comic a name must be given and the user has to press Accept.
- The comic already started will appear so that the student could introduce new elements, modify the already inserted objects, add new pages to the comic, new characters, etc.
- In this chapter the student will have all the elements previously explained in previous chapter: "Paint a comic".





Selection's window of level 3

A comic's summary

LEVEL SELECTION

The suitable level for each student will depend on his competence with the language chosen. To help in the suitable election of the difficulty we will mention the characteristics of the different levels in this section:

Level 1

- Length of the beginning of the comic won't be more than a page and a half.
- Complexity of the plot will be very easy.
- Possibilities to finish the comic will be quick and not in depth.
- Grammar structure of the sentences used will be not complex, using commonly the present tense.
- Vocabulary used will be generic with the possibility to appear some words (if needed) less known.
- Dialogues length will be short.
- Age recommended for the English version would be, always taking into account the knowledge of the student, from 6th course of primary school to 2nd course of E.S.O.

Level 2

- Length of the beginning of the comic will be, approximately, 2 pages.
- Complexity of the plot will be easy.
- Possibilities to finish the comic will be extended making the student to take complex decisions.
- Grammar structure of the sentences used will have a medium difficulty, prevailing present tenses but introducing some others like future and past.
- Vocabulary used will be generic with the possibility to appear some words (where needed) less known.
- Dialogues length will be medium, with the possibility to have more than 3 lines in a balloon.
- Age recommended for the English version would be, always taking into account the knowledge of the student, from 3rd to 4th course of E.S.O.

• Level 3

- Length of the beginning of the comic can reach 3 pages.
- Complex plots.
- Possibilities to finish the comic will be open and will require deep solutions needing certain maturity in the student.
- Grammar structure used will have a high level, appearing all kind of tenses.
- Variety and complexity of vocabulary.
- Dialogues length will be medium, with the possibility to have more than 3 lines in most of the balloons.
- Age recommended for the English version would be, always taking into account the knowledge of the student, from 1st to 2nd course of Bachiller.

IMPORTANT NOTE: age recommended is only a guide taking into account current level or the students in our education. In most of the cases these recommendations will be useless and the teacher will have to check the level, as sometimes the chosen level could be very easy for some students or extremely difficult for others.

FROM STORY TO COMIC

WHAT DOES THE GAME INVOLVE?

- The student will be able to choose among 12 narratives,
 4 per level, and transform them into a comic.
- The student will have all the objects and characters previously explained to give expression to the story in a comic.
- Like previous chapters, the comics can be done in several sessions, as the software is able to save the student progress. Once it is finished it could be printed and shown to the other students



Button: "Read history'

INSTRUCTIONS

- The student will have to select the story he likes the most, to do that he will press the button that will offer a brief summary.
- Once this has been chosen a name must be given and press Accept.
- The selection page window will be displayed to choose the cartoon model the student prefers.
- In this section the student will have all the previous mentioned elements.





LEVEL SELECTION

The suitable level for each student will depend on his competence with the language chosen. To help in the suitable election of the difficulty we will mention the characteristics of the different levels in this section:

Level 1

- Length of the story will be very short, no more than half page.
- Plot complexity will be very easy.
- Possibilities to carry out the comic will be fast and easy.
- Grammar structure of the sentences used won't be complex, using the present tense in most of the cases.
- Phrases will be short.
- Vocabulary used will be generic with the possibility to appear some words (if needed) less known.
- Age recommended for the English version would be, always taking into account the knowledge of the student, from 6th course of primary school to 2nd course of E.S.O.

■ Level 2

- Length of the story will be, approximately, one page.
- Plot complexity will be easy.
- Possibilities to carry out the comic will be more open and complex.
- Grammar structure of the sentences used will have a medium difficulty, prevailing present tenses but introducing some others like future and past.
- Vocabulary used will be generic with the possibility to appear some words (where needed) less known.
- Age recommended for the English version would be, always taking into account the knowledge of the student, from 3rd to 4th course of E.S.O.

Level 3

- Length of the story can reach 2 or 3 pages.
- Complex plots.

Possibilities to finish the comic will be open and will require deep solutions needing certain maturity in the student.

- Grammar structure used will have a high level, appearing all kind of tenses.
- Phrases will be longer than previous levels.
- Vocabulary will be varied and complex.
- Age recommended for the English version would be, always taking into account the knowledge of the student, from 1st to 2nd course of Bachiller.

IMPORTANT NOTE: age recommended is only a guide taking into account current level or the students in our education. In most of the cases these recommendations will be useless and the teacher will have to check the level, as sometimes the chosen level could be very easy for some students or extremely difficult for others..

FROM COMIC TO STORY

WHAT DOES THE GAME INVOLVE?

- The student will be able to choose amount 12 comics already finished, 4 per level, and transform them into a narrative.
- In this game the student won't be able to modify the comic, only transform it into a story.
- Like the previous sections, progress can be **saved** so he could finish the story in several sessions.
- Once the story is finished it can be **printed** and **shared** with the rest of students



A window of PLAYCOMIC

INSTRUCTIONS

- The student will have to select the comic he prefers clicking the button that will show a brief summary.
- After this, a name must be given and press **Accept**.
- Once the comic is read the student can start to elaborate the story.



Selection's window of level 3

A comic's summary

LEVEL SELECTION

The suitable level for each student will depend on his competence with the language chosen. To help in the suitable election of the difficulty we will mention the characteristics of the different levels in this section:

Level 1

- Length of the comic will be very short, no more than two pages.
- Plot complexity will be very easy.
- Dialogues will be easy and short.
- Grammar structure of the sentences used won't be complex, using the present tense in most of the cases.
- Vocabulary used will be generic with the possibility to appear some words (if needed) less known.
- Age recommended for the English version would be, always taking into account the knowledge of the student, from 6th course of primary school to 2nd course of E.S.O.

Level 2

- Length of the comic will be, approximately, two or three pages.
- Plot complexity will be easy.
- Dialogues will have a medium difficulty and duration.
- Grammar structure of the sentences used will have a medium difficulty, prevailing present tenses but introducing some others like future and past.
- Vocabulary used will be generic with the possibility to appear some words (where needed) less known.
- Age recommended for the English version would be, always taking into account the knowledge of the student, from 3rd to 4th course of E.S.O.

Level 3

- Length of the comic will be 3 or 4 pages.
- Complex plots.
- Dialogues can be long up to 3 or 4 lines.
- Grammar structure used will have a high level, appearing all kind of tenses.
- Vocabulary will be varied and complex.
- Age recommended for the English version would be, always taking into account the knowledge of the student, from 1st to 2nd course of Bachiller.

IMPORTANT NOTE: age recommended is only a guide taking into account current level or the students in our education. In most of the cases these recommendations will be useless and the teacher will have to check the level, as sometimes the chosen level could be very easy for some students or extremely difficult for others.

FILL THE BALLOONS

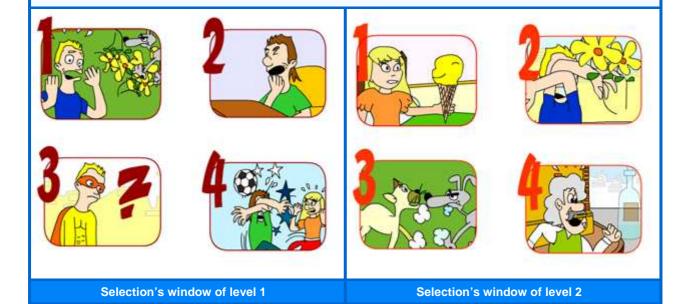
WHAT DOES THE GAME INVOLVE?

- The student will have the opportunity to choose among 12 comics already finished, 4 per level. These comics, although they are finished, will be with empty balloons.
- The student must fill them to give a sense to the story.
- The difficulty degree will be marked by the complexity of the comic, its length and the number of balloons to be filled.
- Like previous sections, changes can be saved in order to finish the comic in the necessary sessions.
- Once the student has finished it can be printed and shown to the classroom.



INSTRUCTIONS

- The student will have to select the comic he prefers clicking the button that will show a brief summary.
- After this, a name must be given and press Accept.
- Once the comic is read the student can start to fill the ballons.





Selection's window of level 3

A comic's summary

LEVEL SELECTION

• In this section the difficulty levels will be marked only by the length and number of balloons in the comics. There will be more balloons as we **increase the difficulty degree**.

IMPORTANT NOTE: age recommended is only a guide taking into account current level or the students in our education. In most of the cases these recommendations will be useless and the teacher will have to check the level, as sometimes the chosen level could be very easy for some students or extremely difficult for others.

EDUCATIONAL SUGGESTIONS

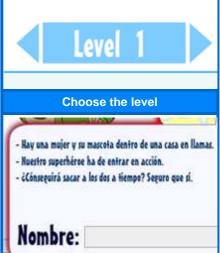
 Besides the activities related to this section the teacher can make a great many of educational experiences with the materials. You can find a list of educational experiences that can be made with this software as possible help:

- o Paint a comic: the student will be able to design a comic his own way. He has to enter in the section "Paint a comic".
- Finish the comic: sometimes to start from scratch is very difficult. To solve this barrier has been thought this game that consists of finish the comic. Just choose the comic and, go ahead with the end. Section "Finish the comic".
- From story to comic: we give you the plot and you add the color and ideas.
 Section "From story to comic".
- From comic to story: this activity consists on transform a finished comic into a narrative. Choose section "From comic to story".
- Fill the balloons: the teacher will read a finished comic of section "From comic to story". The student must fill the ballons of readed comic. Choose the section "Fill the ballons".
- Paint a situation: the teacher will raise an everyday situation, such as going to the fruit store and buy peaches, go to the bank to withdraw money, etc. The student will choose section "Paint a comic" and will give expression to this situation in a fantastic comic.
- Listen and paint: the teacher will tell a scene, for example, two boys playing in the playground or a teacher explaining while a boy raise his hand; the student will listen and paint the scene. To do that section "Paint a comic" has to be selected.
- Listen the dialog and create a cartoon: the teacher or two students will simulate a short dialog. Choose section "Paint a comic" and give expression to this dialog in some cartoons.
- Dramatize a comic: choose a comic already finished from section "From comic to story", get into the comic characters and dramatize with some of your class mates the comic as if it were a theater play.
- Reading comics: once a comic is finished you can read it to your classmates.
- Share comics: share your creations with the rest of classmates and have fun with all the comics made by your friends.
- Describe and paint: the teacher will read loudly a scenery description or a living room. She will enumerate all the elements. Choose the section "Paint a comic".
- How is your bedroom?: Choose the section "Paint a comic". Once there you
 should paint your bedroom and then describe it into the text window. Logically it
 can also be done with any other place known by the student.
- Listen a story and paint: the teacher will tell a story. The students will listen and should create a comic from this story.
- Translate the comic: in spite of the fact that the translation is not an objective of this software, if the teacher wants to, any comic already started can be chosen in the section "Finish the comic", and, apart from contribute to finish it, translate all the balloons. This task can be done translating a comic finished previously in Spanish too

DIFFICULTY GRADATION AND HELP

DIFFICULTY GRADATION

- To get a suitable difficulty gradation 3 levels have been designed. As we have mentioned before the association to each level of a specific age turns out a little complicated, apart from not too much useful, as it will depend on the linguistic competence of the student in the chosen language to use this software. Currently there are some 6th course students that have studied in bilingual schools that have better knowledge of the English language than students of Bachillerato.
- However, to make the selection of the suitable difficulty level more easy we have established, in each section (look at the detailed guide), the text characteristics, dialogues and the elements left of the considered activities.
- To sum up, there will be the following:



A comic's summary

LEVEL 1

- Length of stories and comics will be very short. For example, they won't be, in "From story to comic" section, more than one page, and in "From comic to story" section, more than two pages.
- Argumentative difficulty of stories will be very easy and the possible endings of the comics will be more direct and easy to carry out.
- Vocabulary used will be easy. In this level, student comprehension will take precedence over the dialogues flexibility.
- Formal structures of texts and dialogues will be easy using the great majority of times present tense.
- The amount of balloons in the comic will be low as well as the number of phrases inside each balloon.

LEVEL 2

- Length of stories and comics will be medium sized. For example, in "From story to comic" section, length will be one or two pages, while in "From comic to story" section it could be two or three pages.
- Argumentative difficulty of the stories will be easy and the possible endings of the comics will be varied and deep.
- Vocabulary used will be easy. Although we focus on the comprehension some new elements are introduced to make dialogues more flexible.
- Formal structures of texts and dialogues will be easy using present tense, future and past.
- The amount of balloons in the comic will be medium as well as the number of phrases inside each balloon.

LEVEL 3

 Length of stories and comics will be longer than previous level. For example, in section "From story to comic" length will be around two pages and section "From comic to story" will have three or four pages.

- Argumentative difficulty of the stories will be complex and the possible endings of the comics will be open and deep requiring some sort of maturity for students.
- We will have variety of vocabulary, having difficult words that will require use of a dictionary.
- Formal structures of texts and dialogues will be complex having any tense.
- The number of balloons in the comics will be high as well as the number of phrases in each balloon

HELP SYSTEM

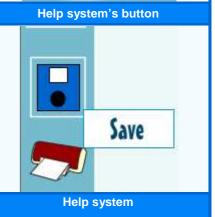
- Our first help system can be found in a panel in the down side of the window called "Help messages". The panel text will depend either on the tool selected or the action we were doing, for instance, if we were introducing text in a balloon the following message will be displayed: Click the Move tool when you finish writing the balloon.
- The second help system is situated on the left down side of the window. Interrogation mark will show us help about:

Software operation

 In this section we will offer help about the correct use of the software tools, the successfully insertion of the characters, collocation of the elements, etc.







Instrucciones del juego
No sé como se usan las herramientas
Quiero introducir personajes
Quiero insertar y escribir en los bocadillos
¿Dónde está el objeto que busco?



- Regarding accessibility it has been intended to accomplish all the requirements established
 in the level A of Accessibility. To do that an accessible version of the software has been
 designed that will satisfy all the necessities of the people that would require this
 accessibility.
- Although in the beginning it was thought to use shortcuts and auditory phrases for each element of the flash film, after taking a look at this feature finished we realized that, although we had improved the required accessibility level, the user experience was very difficult, as well as slow, because of the fact that it had a high level of audios. Also, some actions like the movement of the objects inside a cartoon were impossible to make accessible, from a realistic perspective.
- For all these reasons, we didn't resign ourselves and the decision to make an accessible version thought by and for people that require this accessibility was made. An accessible software with a logic structure that will provide a full educational experience as exciting as the non accessible flash film.
- A software where the user could enjoy of the reading of a comic in which each cartoon is related thanks to Alt property of the images. A software that allows the student to transform a read comic into a story or to fill the dialogues inside a comic.
- We will see in depth the adjustments that have been done in order to accomplish the accessibility requirements required:

Section Read the comic

- This section contains 6 comics, distributed in levels. Student can enjoy the reading of a comic. To do that the following transformations have been done:
 - Each cartoon of the comic has been captured and cut up in images.
 - They have been placed into a table so that the student can identify the cartoon order.
 - For its reading, in each cartoon the following data are provided in its Alt property:
 - Scene: here the scene will be described. For example, Luis runs along the street very fast.
 - Character balloon: here the content of the balloon it is described inside quotation marks. For example: Luis´ balloon: "I have to hurry up."

Section Finish the comic

- This section has 6 activities distributed in levels. The student could enjoy the reading of the beginning of a comic to finish with the ending wished.
 - Each of the cartoons of the beginning of the comics have been captured and cut up into images.



Section Read the comic



2. TERMINA EL COMIC

Section Finish the comic

- They have been placed into a table so that the student can identify the cartoon order.
- For its reading, in each cartoon the previously described data are provided in its Alt property.
- A page with a text field has been inserted so that the student could finish the comic.

Section Fill Balloons

- This section has 3 activities, distributed in levels. The student could introduce, by means of text fields, the content of the balloons in the comics.
 - Each of the cartoons of the beginning of the comics have been captured and cut up into images.
 - o The contents of each balloon have been deleted.
 - For its reading, in each cartoon the previously described data are provided in its Alt property.
 - Text fields have been introduced with the correct order of tabulation and with a tag called Title that sets up the character that owns each balloon and its order.

Section From comic to story

- This section contains 6 comics already finished, distributed in levels. The student will be able to read the comic to transform it into a story.
- To read the comic the same transformations that previous sections have been done.
- We expect that, with all these activities, this accessible version turns out to be useful to all the people that request it. However, I offer my compromise to improve, transform, modify or extend any element of the software to make the educational experience with PLAYCOMIC full for EVERYBODYs.



Section Fill Ballons



4. DE COMIC A HISTORIA

Section From comic to story

TECHNICAL FEATURES

PLAYCOMIC has been designed and programmed with Flash CS3 Professional. Dreamweaver CS3 has been required to integrate the films and to make the software accessible version. To make this guide Adobe Photoshop has been required to optimize images.



- The programming language used has been ActionScript 2.0 for Flash.
- All the objects, backgrounds, characters, and, in general terms, any drawing, are original and painted in a vectorial environment that makes the resolution changes possible without any quality loss in graphics and texts.
- All these painted elements have been fully optimized to make its size minimum and could, in this way, get a suitable flow in the use of the tools.
- In spite of the length of the file is medium-sized it is not required to make a full download because it contains different scenes. In addition, the download has been optimized with splash screens that will prevent any delay during the software. However, to make sure that everything works smoothly, some checks have been done with an ADSL connection of a public school, and the waiting period didn't exceed one second, so we can say that the window appears almost immediately.



- Expected resolution for this software is 100% x 100%, adapting to the user window to be shown as big as possible. If the necessities of the web site where this software would be published say it has to be used with a fixed resolution, there would not be any drawback because the vectorial environment offers us this possibility without any resolution loss.
- Likewise the software has been tested with different screen resolutions and different computers, and, as it could be thought, although the best experience is got with the best computer and resolution, very good results have been obtained in even Pentium 2 computers (that some educational centers still have).

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