

# Plee The Bear - Graphism

— English version —

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## **Abstract**

This document presents how the game deals with graphism and try to explain which level of visual quality we want to reach. We will do a fast presentation of the levels' structure, then we'll give some details about the restrictions on the sprites and, finally, we'll give some rules on how to draw good pictures.

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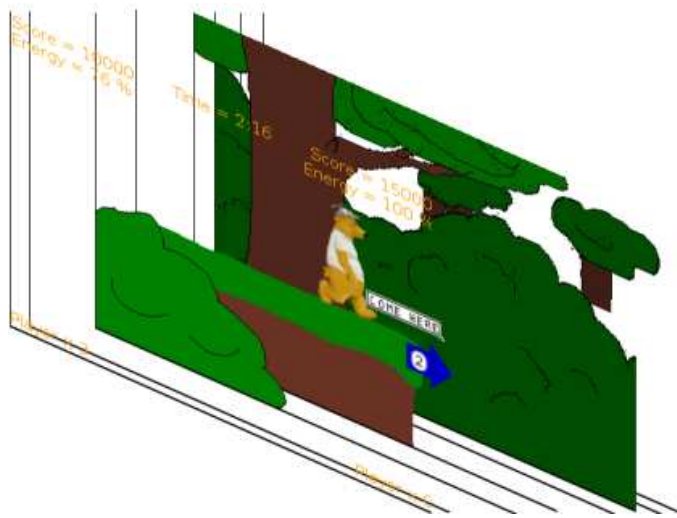


Figure 1: The different layers

## 1 Level structure

The levels are made of several layers (see fig. 1). From the foreground to the background, we have :

- one status layer, with scores, remaining lives, etc.
- one “bubbles” layer, that show also the positions of the players that are out of the screen,
- zero or more decoration layers, with sprites and animations,
- one action layer, where players and enemies are,
- zero ore more decoration layers.

The player’s view is represented by a camera. We calculate the current view with an orthogonal projection of the layers’ content through the camera box (see fig. 2). We use the action level as reference ; its size is exactly the size of the world. Smallest layers will scroll slower, while biggest layers will scroll faster. For example, a layer having half of the size of the action layer on each axe will scroll two times slower.

## 2 Sprites restrictions

To give an idea of the scale of the sprites, the height of the player is one third of the screen’s height. Most of the time, he will be placed in the middle of the screen.



Figure 2: The resulting view



Figure 3: Bounding boxes for a circle

The game doesn't do pixel-perfect collisions. Items are considered as rectangles, they are in collision if their rectangles intersect. For example, if your sprite is a line of 14 pixels with an angle of 45 degrees, it will be considered as a square box of  $10 \times 10$  pixels. If two of those boxes intersect in only one pixel, there will be a collision ; even if the lines seem to be far from each other. We allow the boxes to have a size different of the size of the sprite, so we can make some compromises.

Take the green circle of the figure 3 as example. Each box between the red squares is candidate for the sprite's box. We will probably choose the intermediate box. Although the objects are reduced to rectangles, try to do pictures with curves. The levels must not look like a set of square pieces put side by side.

### 3 How to draw good pictures

The game will look like a carefully drawn picture ; something between the flat drawing made by a child and the cold image that can make a 3D-modelling software. You must think "(beautiful) comic strip" :



Figure 4: Bad drawing



Figure 5: Good drawing

- pictures must look “hand-made”,
- we should never see two times the same decoration sprite on a screen,
- pictures must have as many details as possible.

Let’s take figures 4 and 5 as examples. For the first one, even if one can see and understand that Plee’s is here, with a honey pot in his hand, no one would want to look at this picture more than one second. Even though the second picture is more detailed, one would want to find all details, from the small nails to the paint marks on Plee’s arms.

Avoid repetitive textures and avoid any pictures provided with you image manipulation software. The player must think “Wow ! What a beautiful and unique screen !”, not “Hey ! They take that in photoshop !”.

The final rule will be : “if it’s enough for you, try to do better”.