

# Sprite-based animation

## INTRODUCTION

In this lesson, we learn how to animate images - which are known as "sprites". This technique uses particular parts of images that contain lots of animation frames. By drawing different sub-images we obtain an animation effect.

Here is an example of a *spritesheet*, where each line corresponds to a direction for animating a moving woman:



The first line corresponds to the direction we called "south", the second "south west", the third "west", etc. We've got 8 different lines for animating a woman moving in 8 different directions along the cardinal points.

Each line is composed of 13 small images that will make an "animated" sprite. If we

draw each of the 13 animations of the first line in turn, we will see a woman that seems to move towards the bottom of the screen. And if we draw it a little closer to the bottom of the screen, we obtain a woman that walks to the bottom of the screen and is moving her legs and arms as well!

Try it yourself: here is [a quick and dirty example to try at JSBin](#) that works with the above sprite sheet. Use the arrow keys and take a look! We accentuated the movement by changing the scale of the sprite as the woman moves up (further from us) or down (closer to us).

The screenshot shows a web browser window with the jsbin.com editor. The left pane contains JavaScript code for a 2D animation loop. The right pane, titled 'Output', shows a canvas with a character sprite. A red arrow points to a small black arrow icon in the top right of the output area, with a text box explaining its function.

```
// recall mainLoop every 1/60th of second
requestAnimationFrame(mainLoop);
}

window.onload = function() {
  canvas =
document.getElementById("canvas");
  ctx =
document.getElementById("canvas").getContext("2d");

  // load the spritesheet
  spritesheet = new Image();


  spritesheet.src="http://i.imgur.com/3VesWqx.png";
  spritesheet.onload = function() {

    // info about spritesheet
    var SPRITE_WIDTH = 48;
    var SPRITE_HEIGHT = 92;
    var NB_DIRECTIONS = 8;
    var NB_FRAMES_PER_POSTURE = 13;

    initSprites(spritesheet, SPRITE_WIDTH,
    SPRITE_HEIGHT,
    NB_DIRECTIONS,
    NB_FRAMES_PER_POSTURE);


    requestAnimationFrame(mainLoop);
  };
};
```

Output

Run with JS Auto-run JS 

Arrows to move

**Use your arrow keys after clicking in the canvas. It's better to try in standalone mode. Try clicking the small black arrow on top right.**



Bin info just now

womanSprite.png Tuteurs.xlsx jsbin.qumiso.4.html Tout afficher x

We have not yet explained how this works, nor have we re-used the small game engine

we started to build in earlier chapters. First, let's explain how to use "sprites" in JavaScript + canvas.