

AP Computer Science A Unit: Java Game Design with Processing



Lesson Title	G5: Working with Images
Objectives	<ol style="list-style-type: none">1. SWBAT add a background image to their game.2. SWBAT add & move a Sprite with an image to their game.3. SWBAT utilize methods in the PImage class to manipulate images in their project.
Standards	9-12.DL.4 Independently select advanced digital tools and resources to create, revise, and publish complex digital artifacts or collection of artifacts.
Materials	<ul style="list-style-type: none">• Student Computer (Setup with VSCode + Git)• Worksheet - Google Doc• Digital Materials:<ul style="list-style-type: none">○ Instruction Slides/Notes○ Project Reference Sheet
Agenda	<ol style="list-style-type: none">1. Students will open their project and a shared <i>Project Lesson 5: Images Google Doc</i> for the instruction worksheet for Images.2. Students will find the background image for the project from the internet.3. The teacher will model uploading the background image following instructions on <i>Project Lesson 5: Images Google Doc</i>. Students will follow the instructions as the teacher models.4. Students will explore the Image Reference to expand their project.
Assessment	<ul style="list-style-type: none">• Circulating the classroom while students work in pairs - the teacher will check if the students have uploaded the background image and an extra image that is resized.• Checking student work in VSCode• Questioning during the class discussion

Project Lesson 5: Images

Name:

Date:

Directions:

1. Open your project in VSCode.
2. Download a background image from the internet. Make sure that you know the exact file path and change the name of the image.



3. Create a PImage variable called bg. For example:
`PImage bg;`
4. Inside of the setup() method, load the downloaded background image into Processing using loadImage() function. (**To load an image as the background, it must be the same width and height as the screen. Resize the background image dimension using programs such as Paint as needed.) For example:
`bg = loadImage("images/grid.jpg");`
5. If you need to adjust the size of the image while you add extra images, use the resize(width, height) function to change width and height. For example:
`PImage x_letter;`
`x_letter.resize(100,100);`
6. Inside the draw() method, use image(img, a, b) function to draw an image to the display window. The img parameter specifies the image to display and by default the a and b parameters define the location of its upper-left corner. For example:
`image(bg, 0, 0);`
7. Use [Image Reference](#) on Processing website for more methods.

Example Source Code:

```
PImage bg;
```

```
PImage x_letter;
```

```
PImage o_letter;
```

```
void setup() {  
  size(440,440); //match screen size to bg image size
```

```
  //Load images used
```

```
  bg = loadImage("images/grid.jpg");
```

```
  x_letter = loadImage("images/x_wood.png");
```

```
  x_letter.resize(100,100);
```

```
  o_letter = loadImage("images/o_wood.png");
```

```
  o_letter.resize(100,100);
```

```
}
```

```
void draw() {
```

```
  image(bg, 0, 0);
```

```
}
```