

Normal

Swift ★★ ★

Starting from the [Playtime!](#) chapter in the [Augmented Reality Challenge](#) in the [Swift Playgrounds](#) app, build a project that:

- Has a red peach positioned in the centre of the plane.

Hard

Swift ★★ ★

Everything at Normal, plus:

- The character James from James and the Giant Peach positioned next to the red peach.

Ultra

Swift ★★ ★

Everything at Hard, plus:

- Place the characters The Ladybird and Miss Spider around the peach creating a scene from Roald Dahl's famous novel.

Prerequisites

- Review Lessons 7, 8 and 9 in [Learn to Code 1 & 2 Teacher Guide](#) and corresponding chapters from the [Swift Playgrounds](#) app.
- Review chapters [Plane-ing Around](#), [A Character is Born!](#) and [Interactive AR](#) in the [Augmented Reality Challenge](#).
- Save images of James, The Ladybird and Miss Spider from James and the Giant Peach in the Camera Roll of your iPad.

Tools

Things to remember from Swift Playgrounds

Learn to Code 1 & 2

Coordinate System—is used to position a shape in the 3D world.

Initialise—creating a new shape to be placed in the 3D world.

Point—specific place you will place the shapes, represented using an x and z value.

Augmented Reality Challenge

Plane—the flat digital surface that the shapes will be placed on.

Shape—will be positioned in the 3D world.

Texture—the image of the character that will go over the shape in the 3D world.

Tips

Ideas, Help, etc.

Go through the lessons in Learn to Code 2 to learn how to place objects, then try this in the 3D world by completing the [A Character is Born!](#) chapter in the [Augment Reality Challenge](#).

When declaring a new constant remember to give it a specific name like **peach**, **spider** or **James**.

Tricks

```
// Make sure your peach is red.
```

```
peach.color = .red
```