Opacity

**Opacity** is a measure of how "see-through" an image or an object is.

 HDR: The less opaque an object is, the more see-through it is.

- Opacity of 100%, cannot see through the object
- Opacity of 0%, object is transparent (like clear glass)

In Alice, an object with an opacity of 0% is invisible.
Changing the Opacity

A change in opacity can be used to simulate real world conditions.

Example

A fish swimming away from the camera should fade away because water blurs our vision of distant objects.
Demo

Concepts illustrated in this example

As opacity is gradually decreased, the fish becomes less visible.

At an opacity of 0%, the object is still in the world (can still see it listed in the object tree) but is effectively invisible.
isShowing

The `isShowing` property has a Boolean value, either `true` or `false`.

- Setting an object's `isShowing` property to `false` makes the object invisible in the world.
- Once again, the object is not removed from the world, it is simply not visible in the world.
Demo

Concepts illustrated in this example

- A **billboard** can be used to display a title screen for the animation.
- A 2-second *wait* gives the user time to read the billboard.
- Changing the `isShowing` property to `false` makes the title screen disappear.
Two properties

- `isShowing` and `opacity` are two different properties.
  - `isShowing` works like an on/off switch
  - `opacity` works like a dimmer switch

Although each can be used to make an object invisible, changing one does not automatically change the value of the other!
Practical Uses of Invisible Objects

An invisible object is sometimes useful as a stationary marker that creates
- a target for a move to instruction
- an external reference point for object rotational motion
Invisible circle makes it possible to move the object to a landing target.

External reference point acts as a pivot for the rotational movement of each object.