



Introduction To Zombie Runner

What Zombie Runner Teaches

- Creating a stunning 3D terrain.
- Built-in character controllers.
- AI navigation and pathfinding.
- VR compatible HUD interface.
- Item pick-ups.



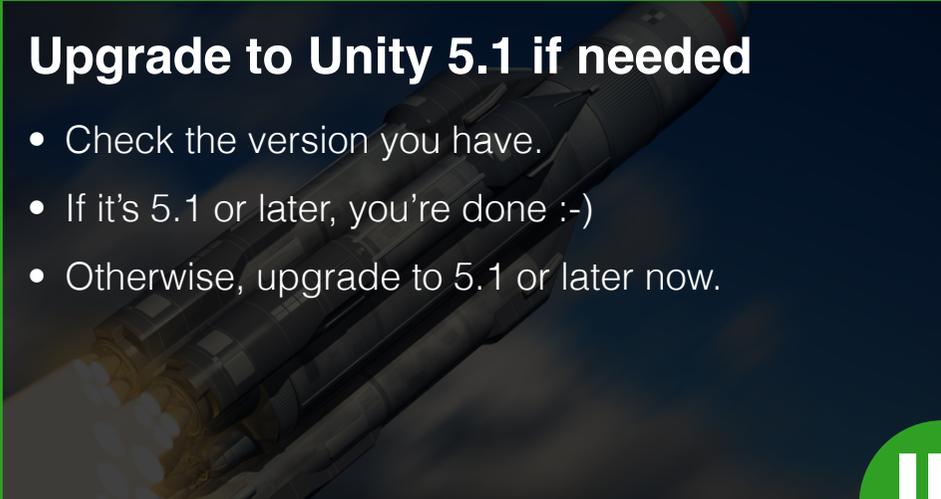
About Unity 5.1 Features

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In this video...

- Ensure you have Unity 5.1 or later installed.
- What's new in Unity 5.1*
- What we'll be using in this section.

* <https://unity3d.com/unity/whats-new/unity-5.1>



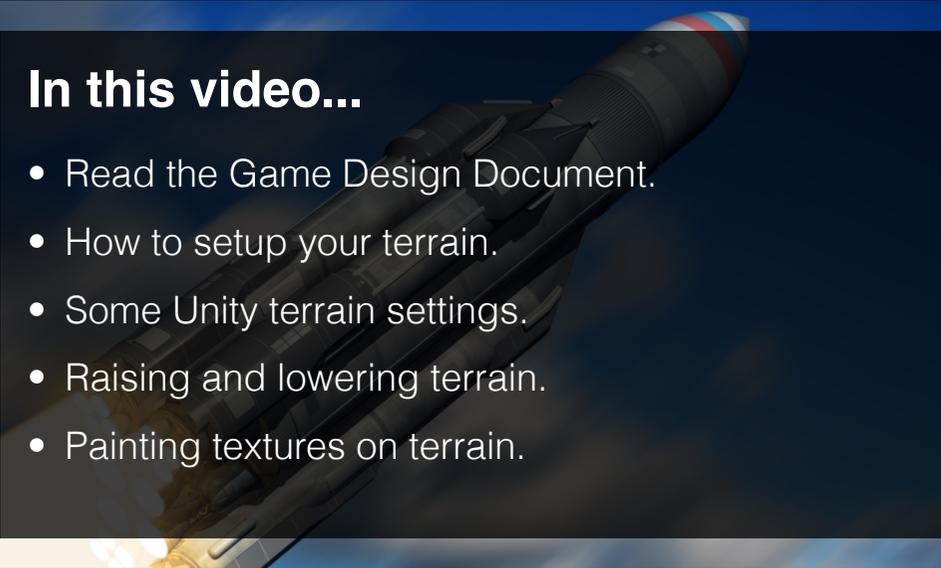
Upgrade to Unity 5.1 if needed

- Check the version you have.
- If it's 5.1 or later, you're done :-)
- Otherwise, upgrade to 5.1 or later now.



Creating A Terrain

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In this video...

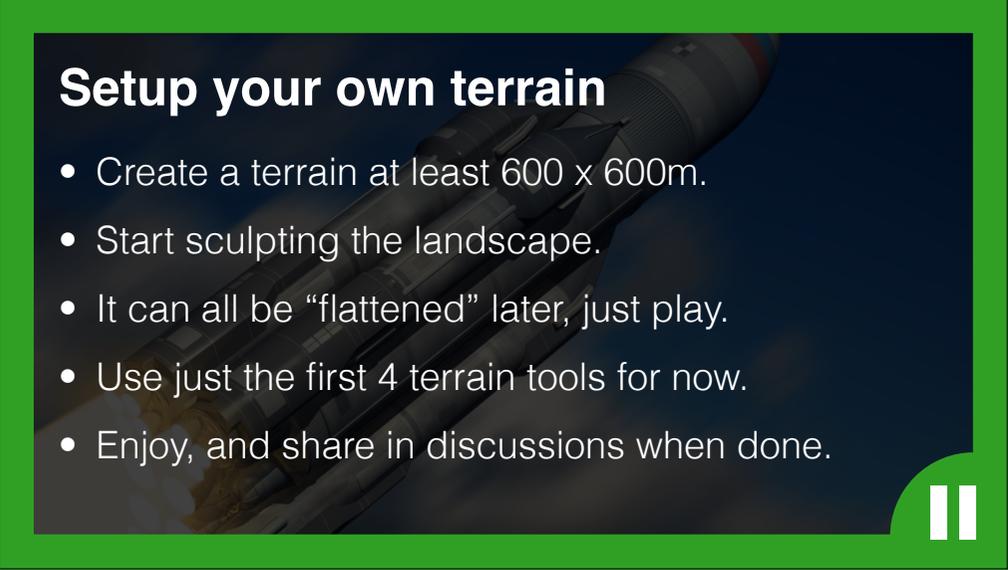
- Read the Game Design Document.
- How to setup your terrain.
- Some Unity terrain settings.
- Raising and lowering terrain.
- Painting textures on terrain.



Read the GDD

- Get a feel for where we are headed.
- Write down your own ideas.
- Share your ideas in the discussions.





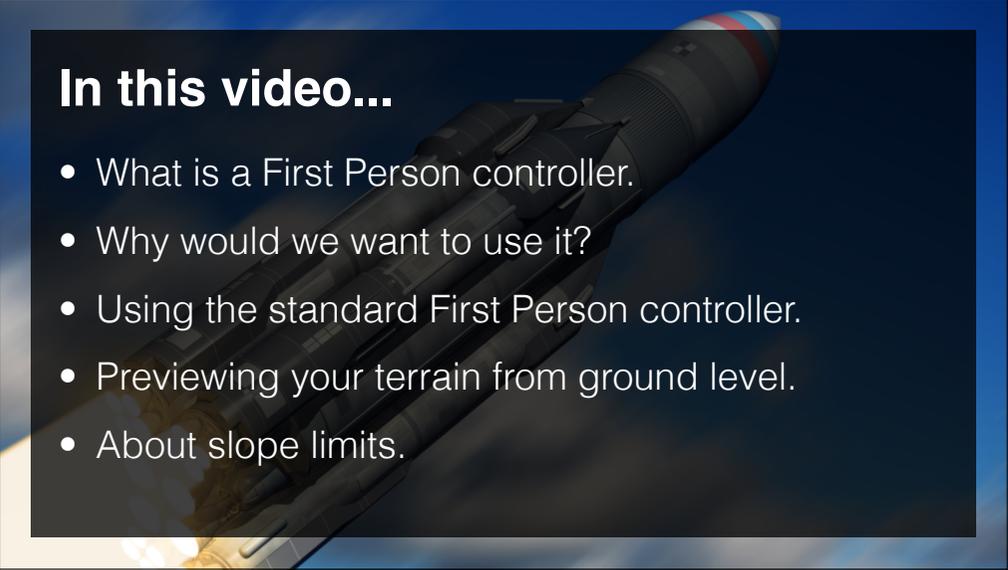
Setup your own terrain

- Create a terrain at least 600 x 600m.
- Start sculpting the landscape.
- It can all be “flattened” later, just play.
- Use just the first 4 terrain tools for now.
- Enjoy, and share in discussions when done.



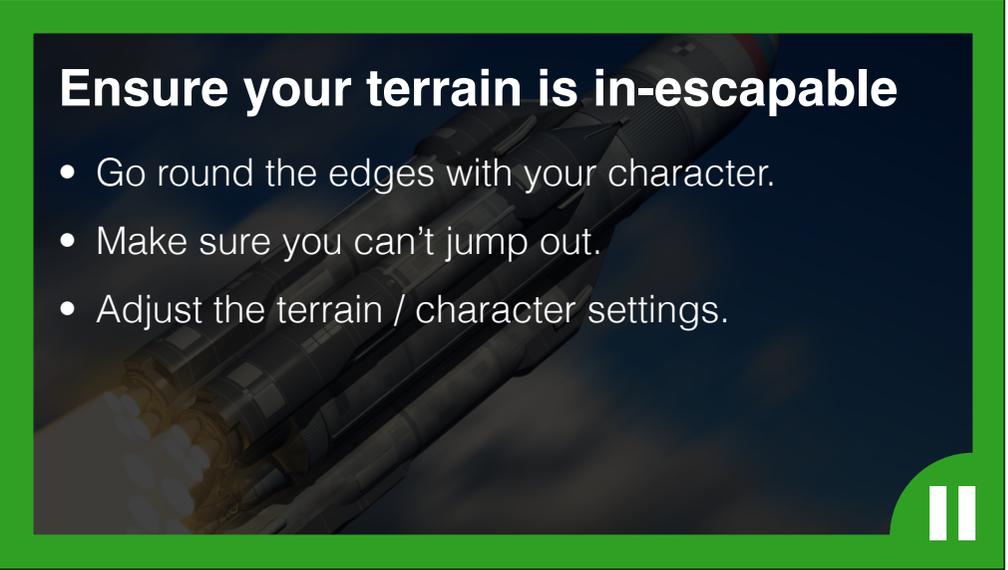
First Person Character Controller

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In this video...

- What is a First Person controller.
- Why would we want to use it?
- Using the standard First Person controller.
- Previewing your terrain from ground level.
- About slope limits.



Ensure your terrain is in-escapable

- Go round the edges with your character.
- Make sure you can't jump out.
- Adjust the terrain / character settings.





Placing Trees & Details

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In this video...

- How to place trees on your terrain.
- How to paint grass details.
- About grass and billboards.
- Performance impact of grass.

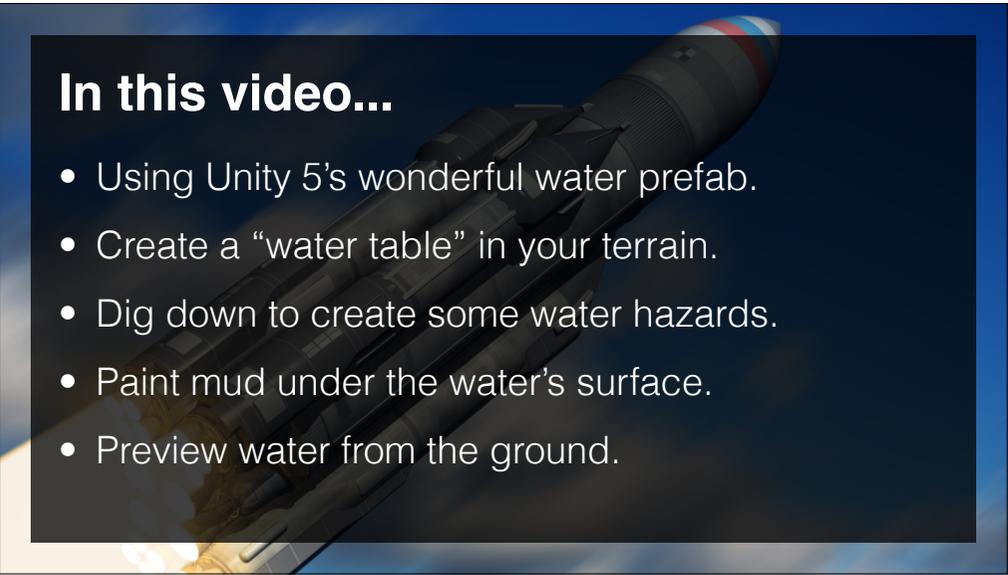
Detail your terrain

- Add detail to your terrain.
- Ensure it still runs ok regularly.
- Be subtle, think about the gameplay.



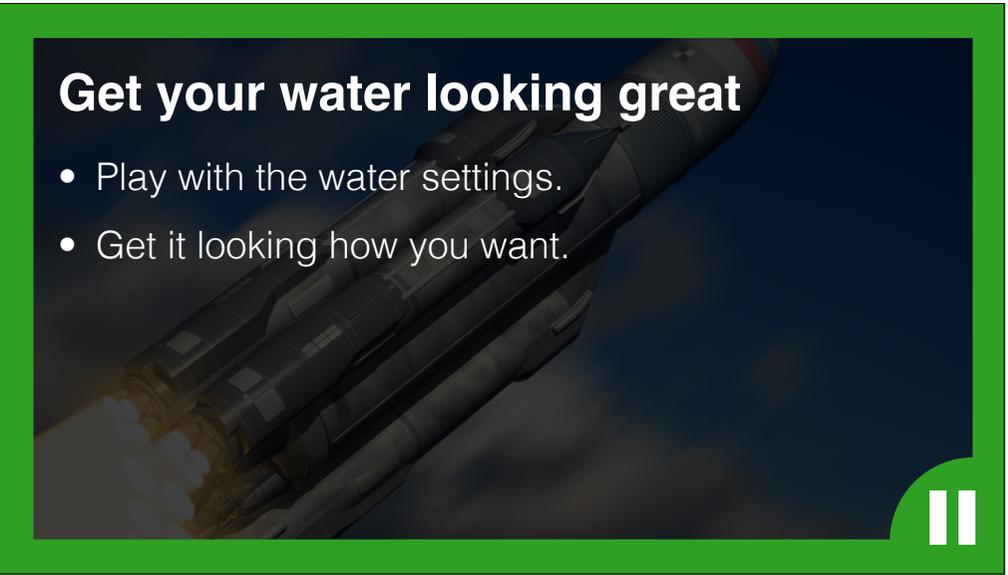
Adding A Water Table

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In this video...

- Using Unity 5's wonderful water prefab.
- Create a "water table" in your terrain.
- Dig down to create some water hazards.
- Paint mud under the water's surface.
- Preview water from the ground.

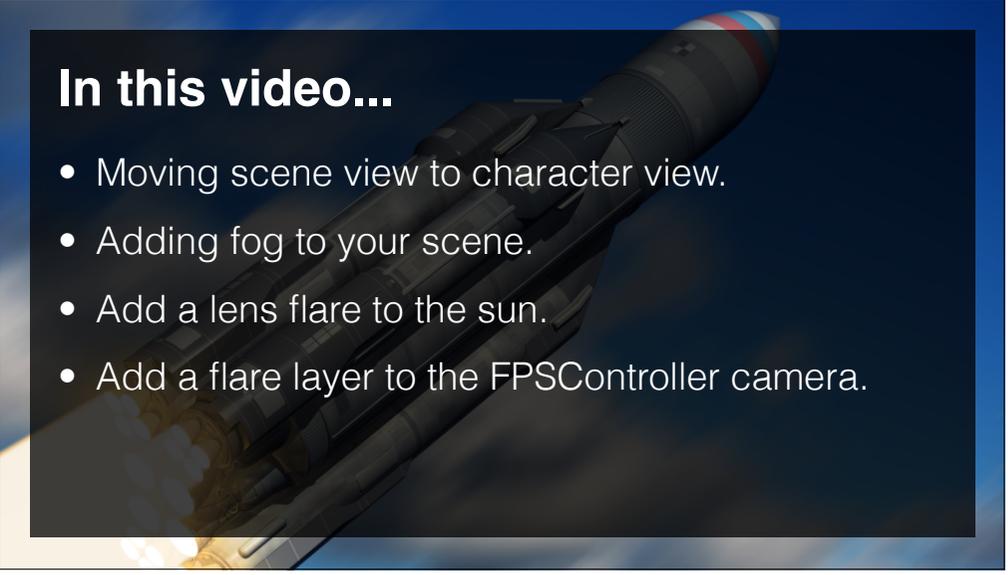


Get your water looking great

- Play with the water settings.
- Get it looking how you want.



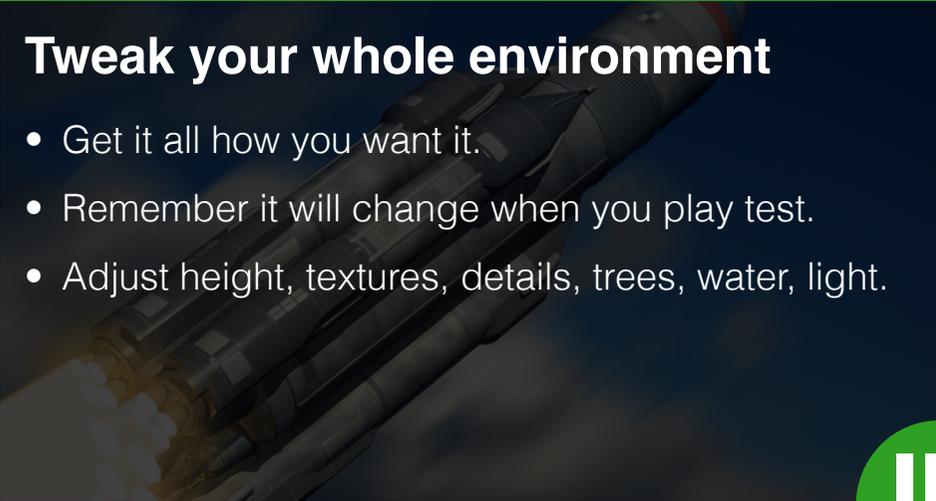
Awesome-ify Your Scene Lighting



In this video...

- Moving scene view to character view.
- Adding fog to your scene.
- Add a lens flare to the sun.
- Add a flare layer to the FPSController camera.

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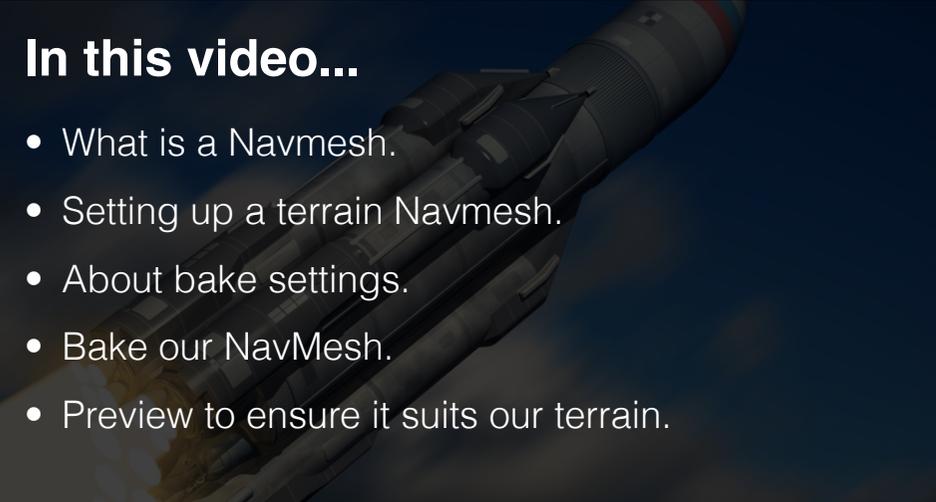
Tweak your whole environment

- Get it all how you want it.
- Remember it will change when you play test.
- Adjust height, textures, details, trees, water, light.



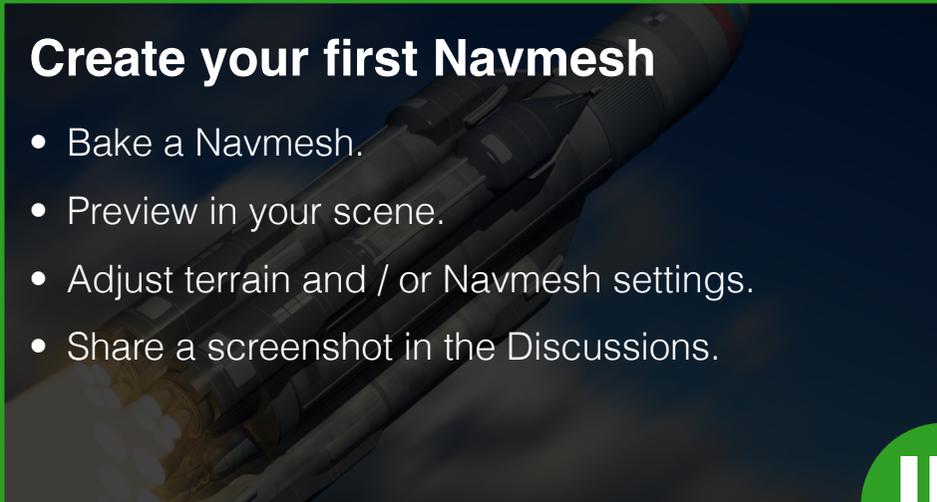
Setting Up Your Navmesh

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In this video...

- What is a Navmesh.
- Setting up a terrain Navmesh.
- About bake settings.
- Bake our NavMesh.
- Preview to ensure it suits our terrain.



Create your first Navmesh

- Bake a Navmesh.
- Preview in your scene.
- Adjust terrain and / or Navmesh settings.
- Share a screenshot in the Discussions.





Scaling Your Characters

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In this video...

- Using a reference cube in your scene.
- Setting your first person character eye height.
- Checking character scale against environment.

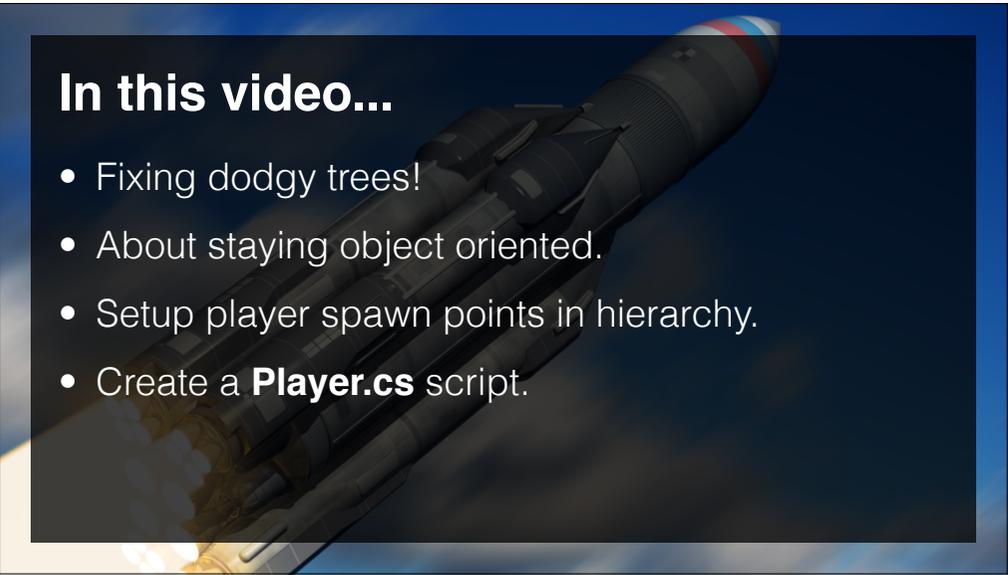
Adjust your scale

- Get your character's eye height just right.
- Check zombie placeholder against trees etc.
- Share a "photo" of zombie(s) against backdrop.



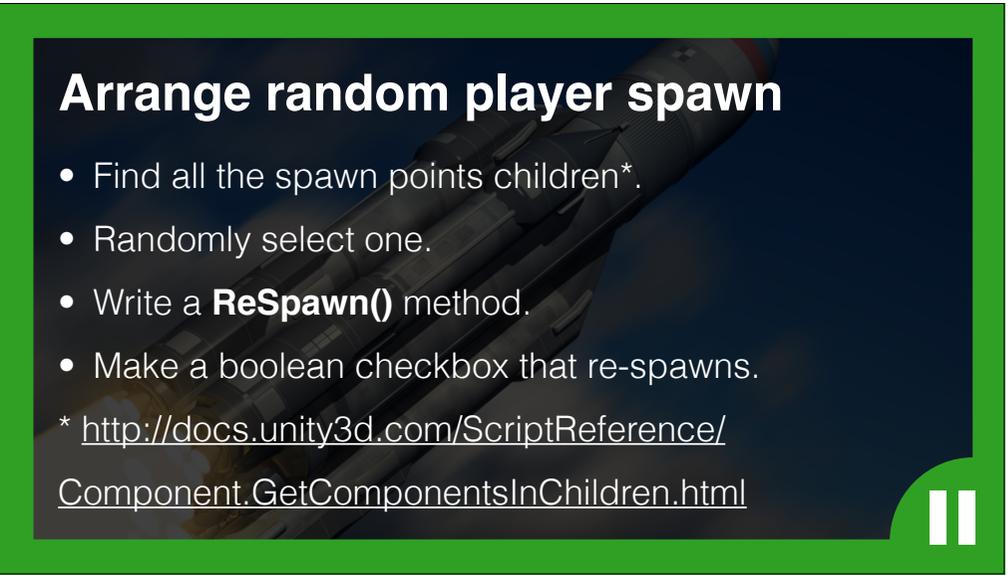
Setup Player Spawn Points

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In this video...

- Fixing dodgy trees!
- About staying object oriented.
- Setup player spawn points in hierarchy.
- Create a **Player.cs** script.



Arrange random player spawn

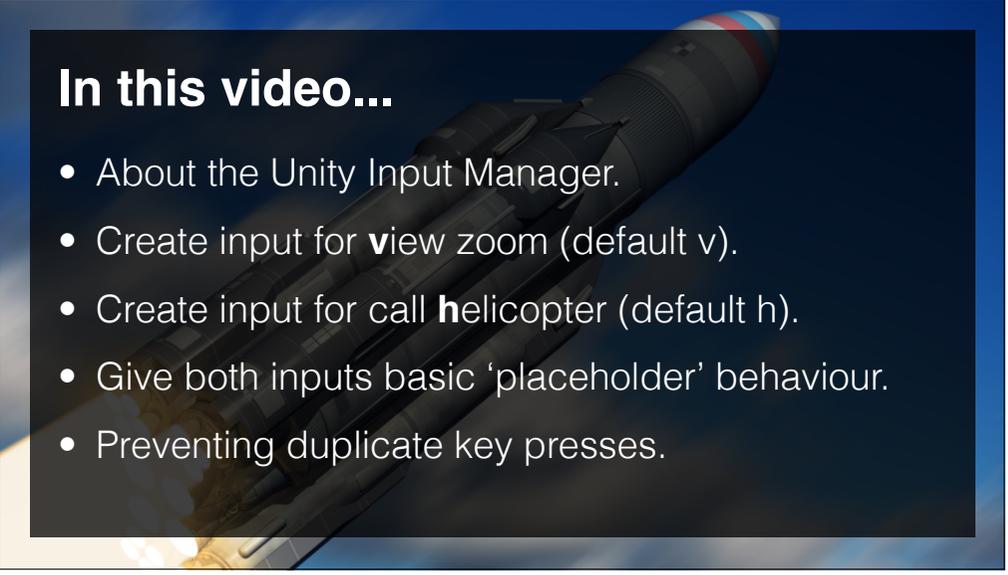
- Find all the spawn points children*.
- Randomly select one.
- Write a **ReSpawn()** method.
- Make a boolean checkbox that re-spawns.

* <http://docs.unity3d.com/ScriptReference/Component.GetComponentsInChildren.html>



Using Input Mapping

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In this video...

- About the Unity Input Manager.
- Create input for **v**iew zoom (default v).
- Create input for call **h**elicopter (default h).
- Give both inputs basic 'placeholder' behaviour.
- Preventing duplicate key presses.

Arrange view zooming

- Trigger from the “zoom” input.
- Change FOV of eyes to 1.5x smaller FOV.
- Revert when the key is released.



Make helicopter call work

- Create a CallHeli input.
- Trigger sound(s) when pressed.

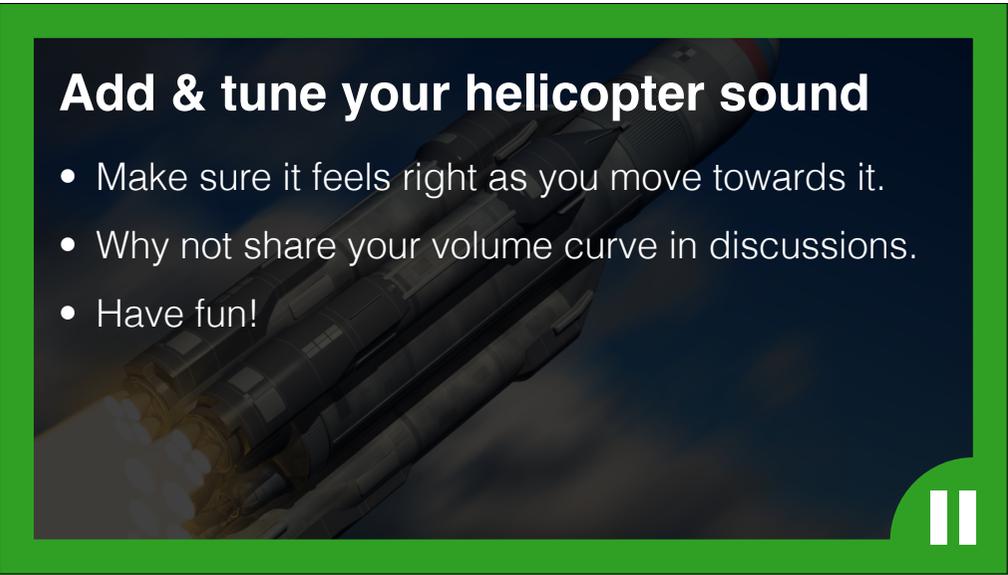


Adding 3D Helicopter Sound

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In this video...

- About 3D sounds.
- Attaching and tweaking your first 3D sound.
- Arranging simple helicopter landing.
- About 2D / 3D Spatial Blend.
- Using multiple audio sources.



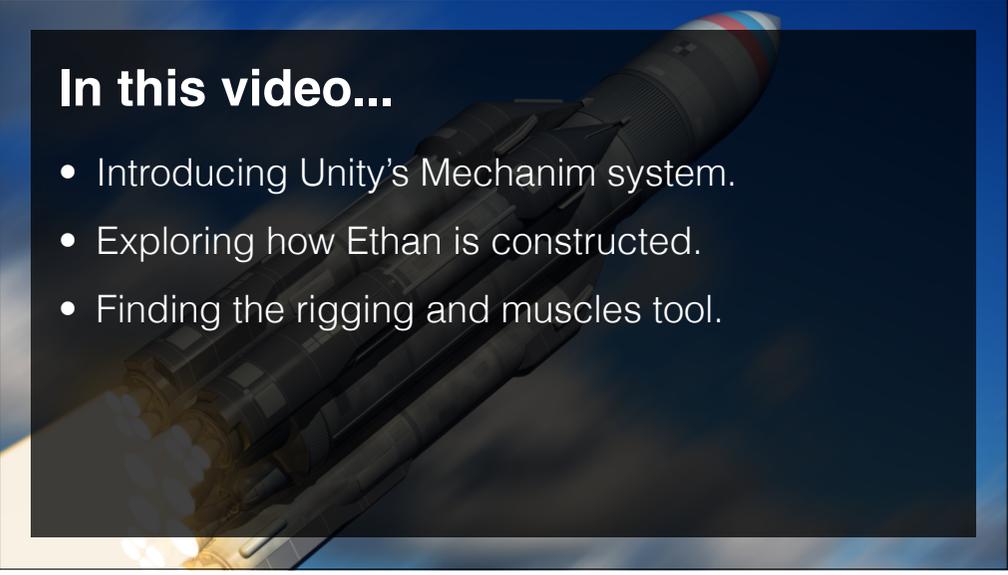
Add & tune your helicopter sound

- Make sure it feels right as you move towards it.
- Why not share your volume curve in discussions.
- Have fun!



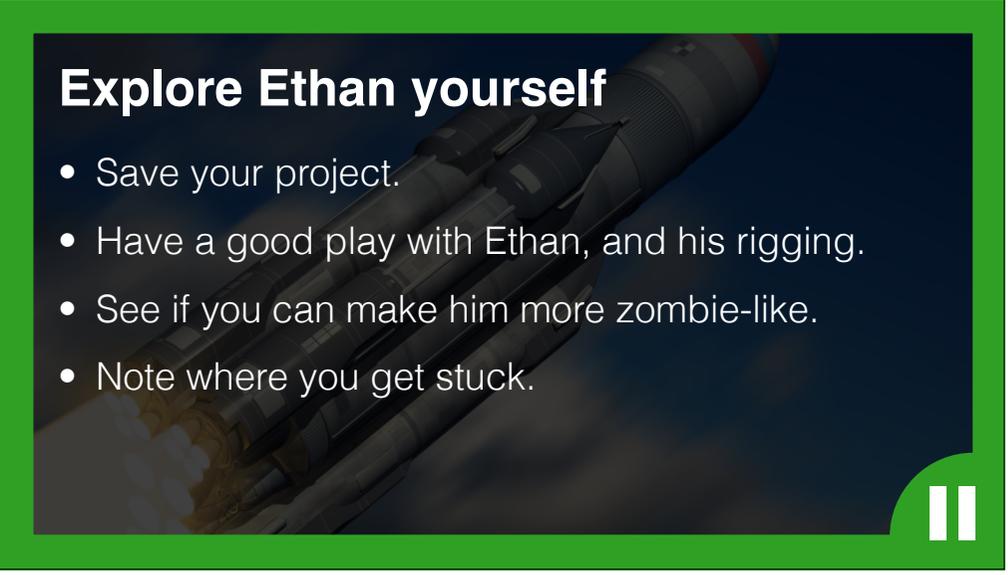
Rigged “Mechanim” Animation

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In this video...

- Introducing Unity’s Mechanim system.
- Exploring how Ethan is constructed.
- Finding the rigging and muscles tool.



Explore Ethan yourself

- Save your project.
- Have a good play with Ethan, and his rigging.
- See if you can make him more zombie-like.
- Note where you get stuck.





Exploring Humanoid Animation

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In this video...

- An overview of how Ethan is animated.
- About re-targeting animations.
- Introducing Blend Trees.
- What is Inverse Kinematics (IK)?

Explore Ethan's animations

- Explore Ethan's animations.
- Make some adjustments, and see the effect.
- See if you can make him move like a zombie.
- Share a video in the discussions!



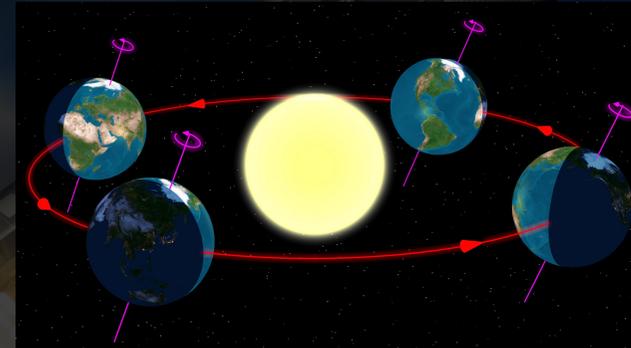
Simple Day-Night Cycle

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In this video...

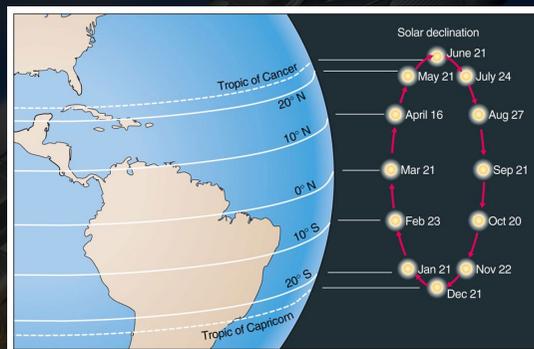
- A little about Earth's orbit.
- Coding a simple day-night cycle.
- Using a time scaling parameter.

Earth's orbit round the sun



https://upload.wikimedia.org/wikipedia/commons/8/8b/North_season.jpg

When the sun is directly overhead



http://www.geog.ucsb.edu/~joel/g110_w08/lecture_notes/sun_angle/agburt02_14.jpg

Write Daycycle.cs

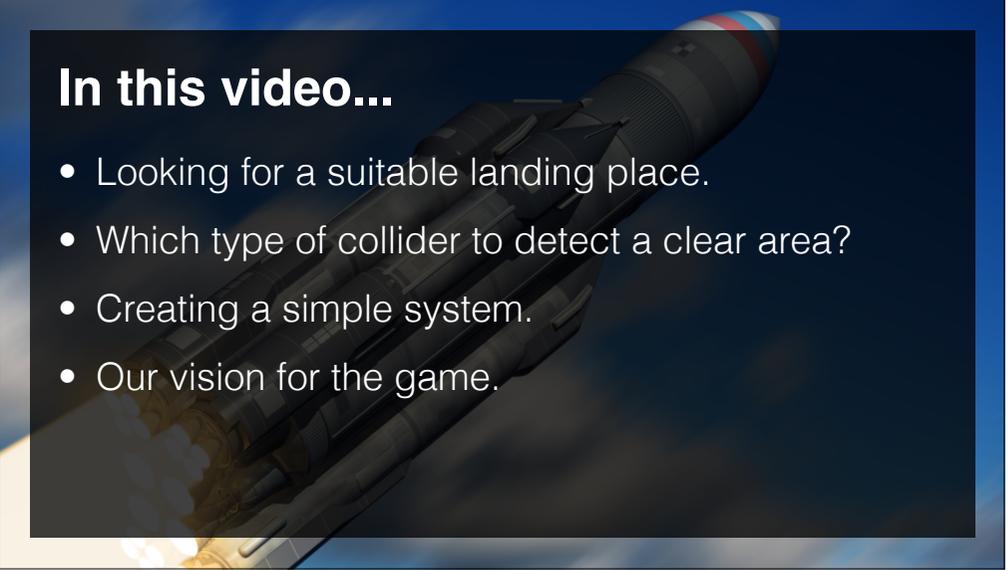
- Write a script on the Directional Light.
- Publicly expose **float timeScale**.
- This is the number of minutes per second.
- Try setting it to 60 initially.
- See the effect.





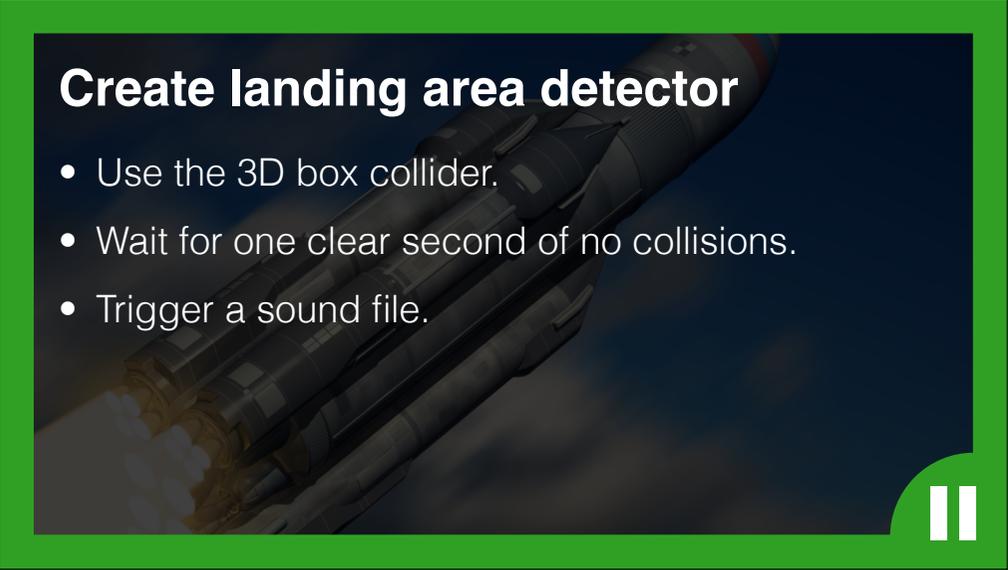
Searching For Clear Area

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In this video...

- Looking for a suitable landing place.
- Which type of collider to detect a clear area?
- Creating a simple system.
- Our vision for the game.



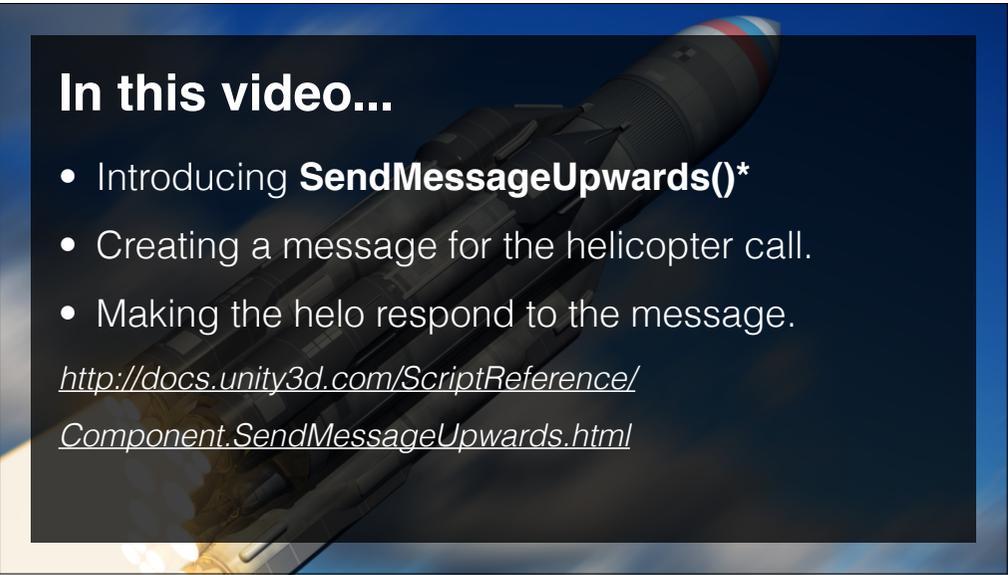
Create landing area detector

- Use the 3D box collider.
- Wait for one clear second of no collisions.
- Trigger a sound file.



Using SendMessageUpwards()

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In this video...

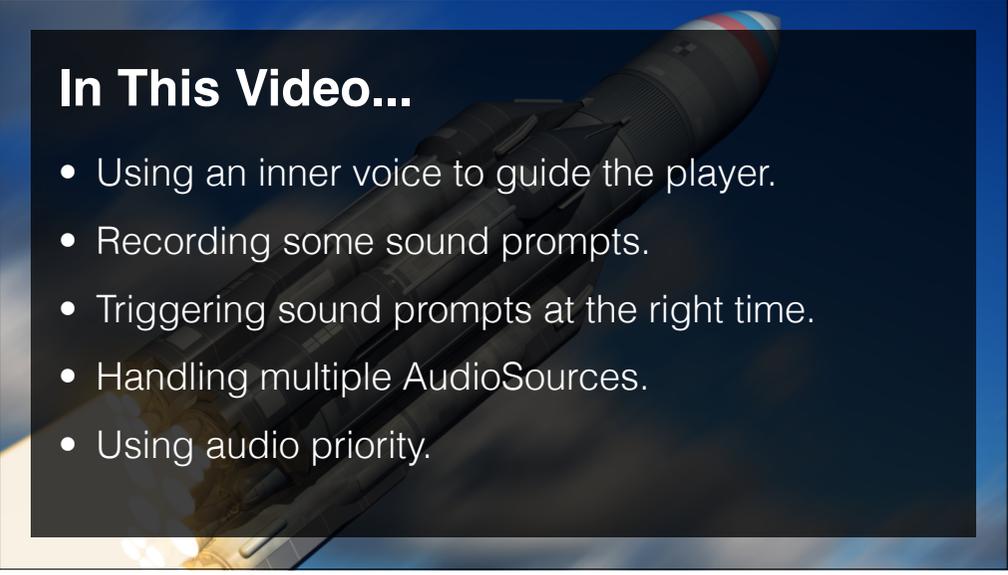
- Introducing **SendMessageUpwards()***
- Creating a message for the helicopter call.
- Making the helo respond to the message.

[http://docs.unity3d.com/ScriptReference/
Component.SendMessageUpwards.html](http://docs.unity3d.com/ScriptReference/Component.SendMessageUpwards.html)



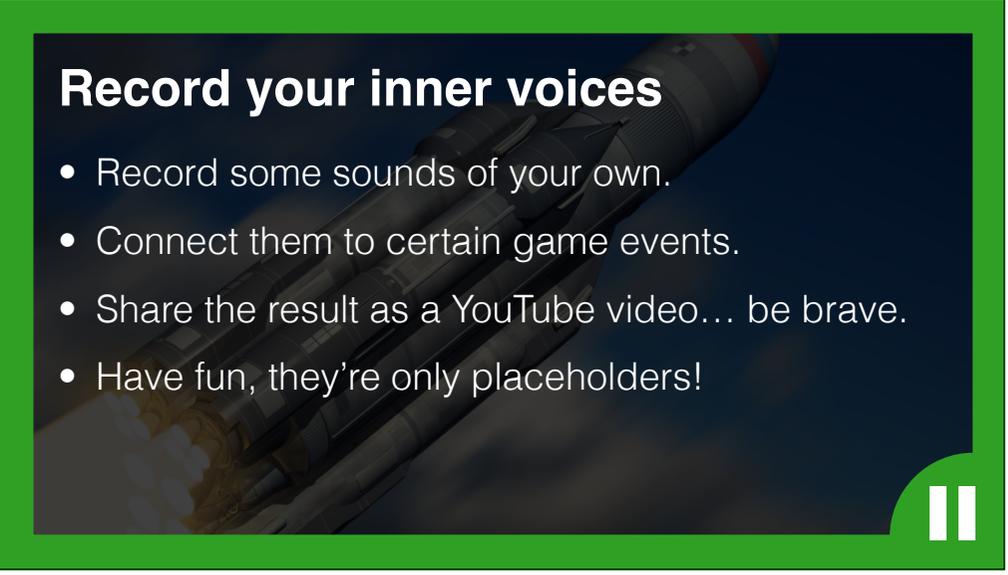
Inner Voice To Guide Player

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In This Video...

- Using an inner voice to guide the player.
- Recording some sound prompts.
- Triggering sound prompts at the right time.
- Handling multiple AudioSource.
- Using audio priority.



Record your inner voices

- Record some sounds of your own.
- Connect them to certain game events.
- Share the result as a YouTube video... be brave.
- Have fun, they're only placeholders!



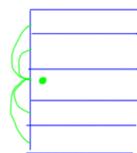
Using BroadcastMessage()

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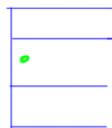
In This Video...

- **BroadcastMessage()** sends down the hierarchy.
- Creating a natural parent **RadioSystem** object.
- Creating a new child of player called **InnerVoice**.
- Reduce to one Audio Source per game object.

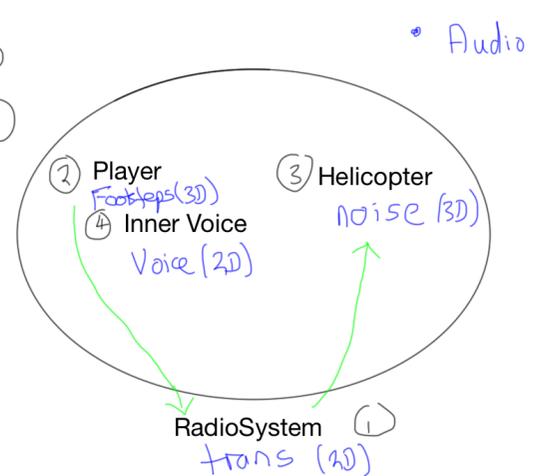
SendMessage()



SendMessageUpwards()



BroadcastMessage()





Refactoring Our Message System

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In This Video...

- Sending messages up and down the hierarchy.
- Using **Invoke()** to delay audio playback.
- Writing **RadioSystem.cs** for radio communication.

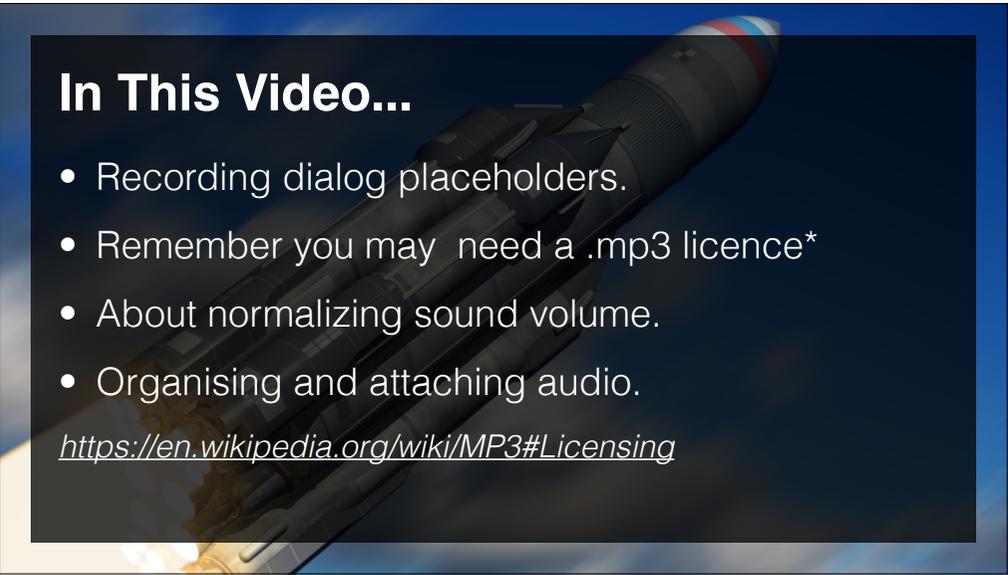
Write RadioSystem.cs

- Write **void OnMakeInitialHeliCall ()**
- Play initialHeliCall immediately.
- 1 second after this finishes, play initialCallReply and send a message to all children called "OnDispatchHelicopter".



Normalizing Audio Files

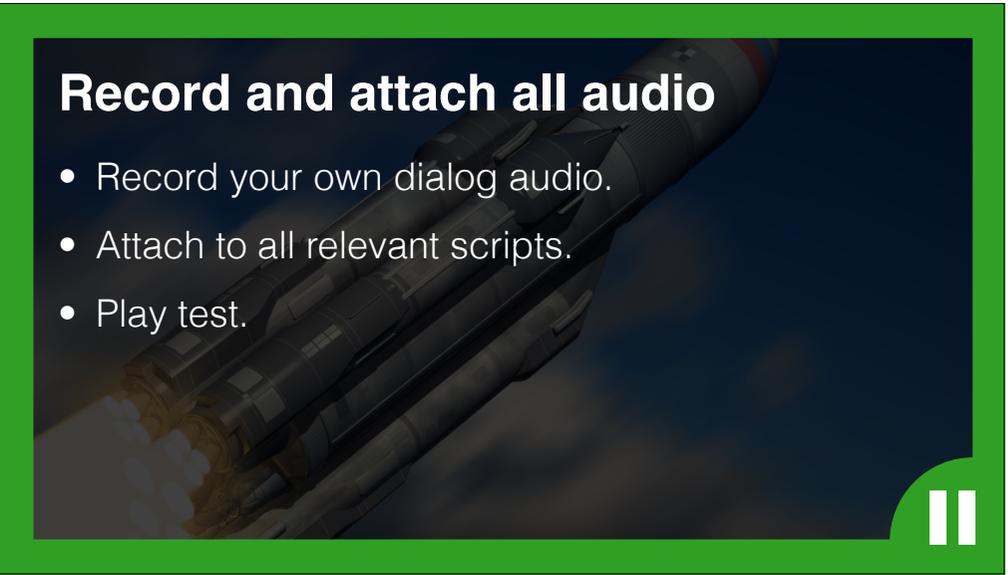
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In This Video...

- Recording dialog placeholders.
- Remember you may need a .mp3 licence*
- About normalizing sound volume.
- Organising and attaching audio.

<https://en.wikipedia.org/wiki/MP3#Licensing>



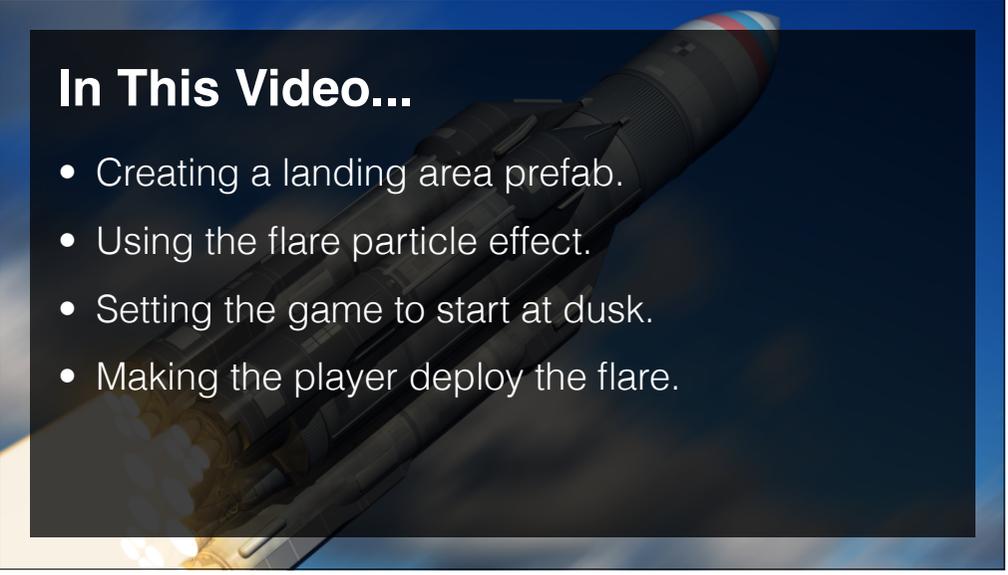
Record and attach all audio

- Record your own dialog audio.
- Attach to all relevant scripts.
- Play test.



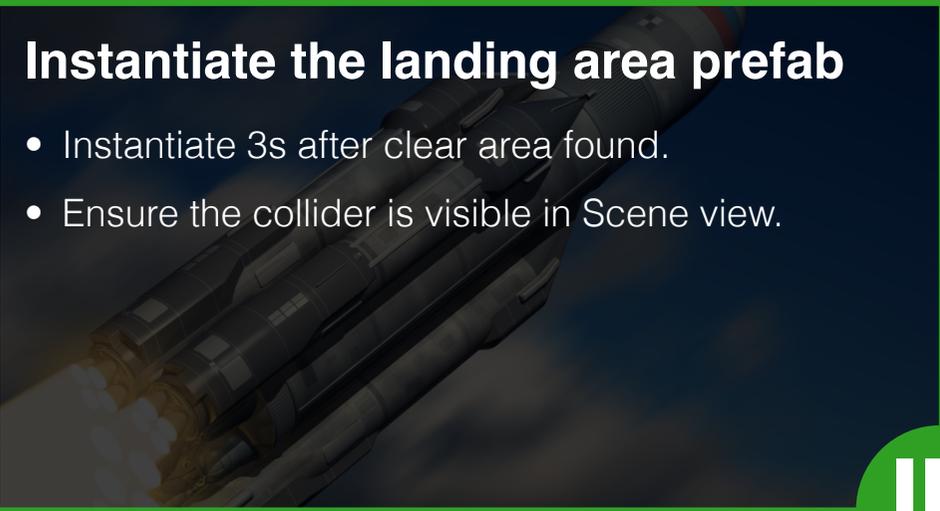
Landing Area Prefab

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In This Video...

- Creating a landing area prefab.
- Using the flare particle effect.
- Setting the game to start at dusk.
- Making the player deploy the flare.



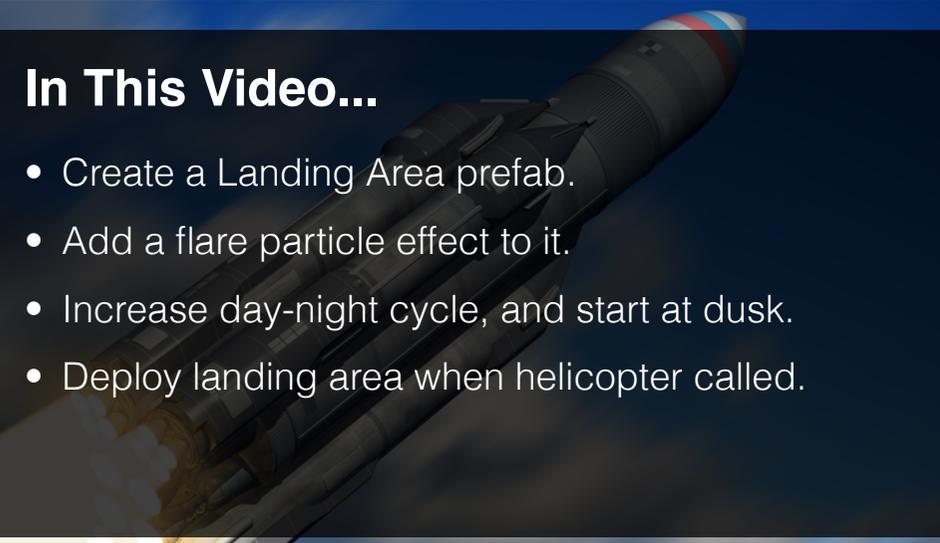
Instantiate the landing area prefab

- Instantiate 3s after clear area found.
- Ensure the collider is visible in Scene view.



Creating A Landing Area

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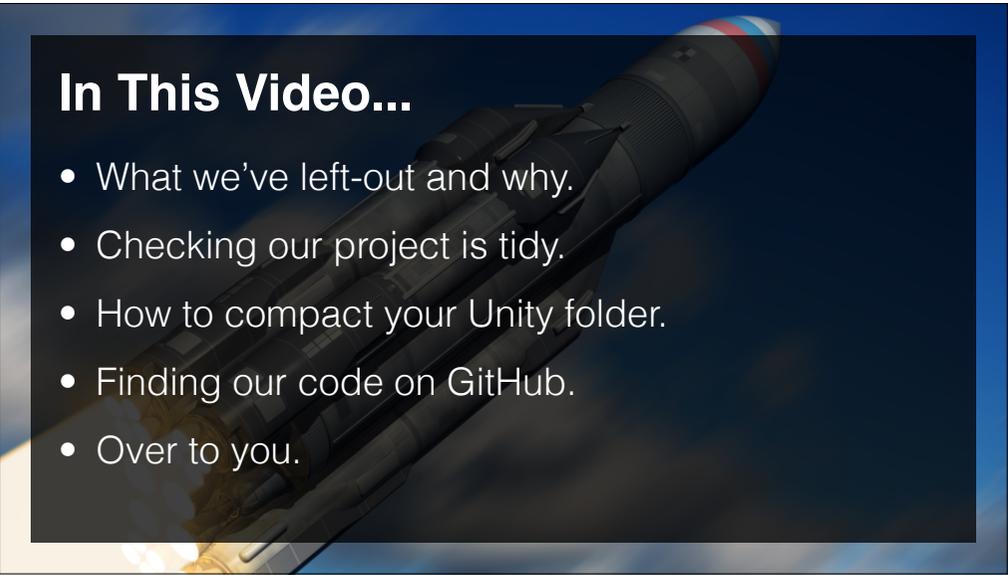
In This Video...

- Create a Landing Area prefab.
- Add a flare particle effect to it.
- Increase day-night cycle, and start at dusk.
- Deploy landing area when helicopter called.



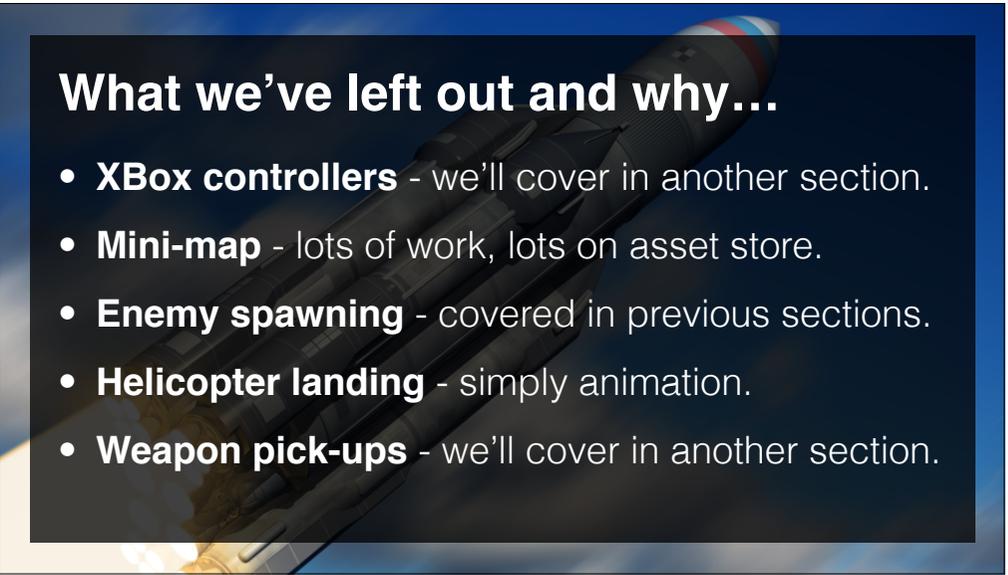
Compacting Your Unity Folder

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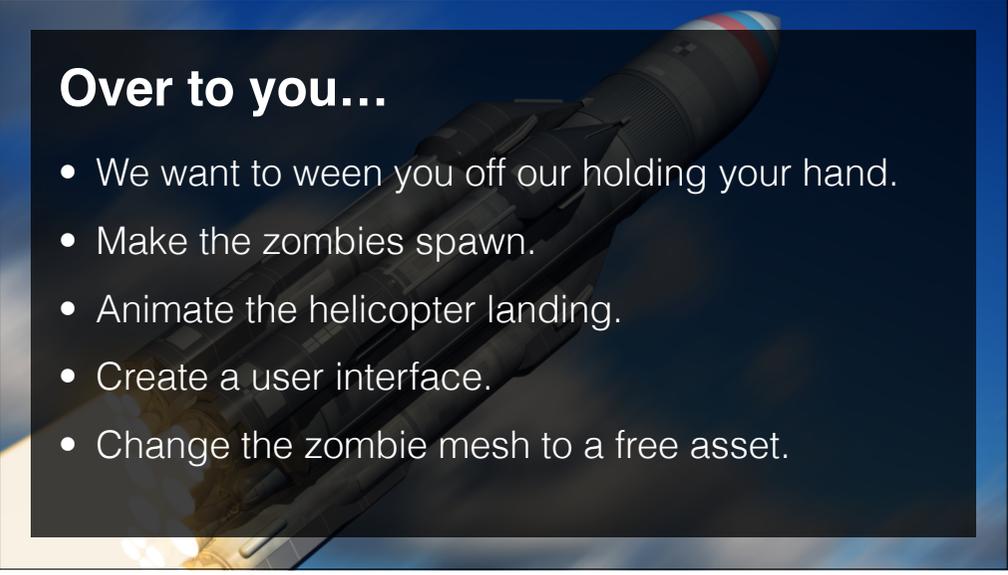
In This Video...

- What we've left-out and why.
- Checking our project is tidy.
- How to compact your Unity folder.
- Finding our code on GitHub.
- Over to you.



What we've left out and why...

- **XBox controllers** - we'll cover in another section.
- **Mini-map** - lots of work, lots on asset store.
- **Enemy spawning** - covered in previous sections.
- **Helicopter landing** - simply animation.
- **Weapon pick-ups** - we'll cover in another section.



Over to you...

- We want to ween you off our holding your hand.
- Make the zombies spawn.
- Animate the helicopter landing.
- Create a user interface.
- Change the zombie mesh to a free asset.



Section Wrap Up