

Unity Essentials Lab Worksheet

SWE402 • 40 Minutes • Unity 6.0+

Name: _____ Date: _____ Section: _____

Quick Reference: Q=Hand | W=Move | E=Rotate | R=Scale | F=Frame | Alt+Click=Orbit | Right-Click+WASD=Fly

Task 1: Secret Code Scavenger Hunt

■ 10 min

Navigate through the Playground scene to find **4 hidden numbers** that form a secret code.

Setup:

- Open **_Unity Essentials > Scenes > 1_Playground_Navigation_Scene**
- Review the **_Shortcuts-Cheat_Sheet** in the **_Unity Essentials** folder

Find the Numbers:

#	Location	Hint	Digit
1st digit	Tower	Fly up and look down at the top	_____
2nd digit	Grill	Frame it, zoom inside	_____
3rd digit	Play Structure	Orbit underneath	_____
4th digit	Firepit	Switch to Isometric view (right-click gizmo)	_____

- **Verify:** Enter Play mode, input your code → Fireworks = correct!

Secret Code: _____

Task 2: Tangram Mural Design

■ 10 min

Use the **Move (W)** and **Rotate (E)** tools to arrange the tangram pieces into a creative design.

Instructions:

- Get a top-down Isometric view (click Y-axis on gizmo, then right-click > disable Perspective)
 - Enable **Tangram_Reference** GameObject to see design options (turtle, cat, swan, etc.)
 - Arrange all 7 pieces using Move and Rotate tools (use shortcuts W/E to switch quickly)
 - Disable reference when done, switch back to Perspective to admire your work
- *Tip: Select the green square at X/Z intersection to move on both axes.*

Design Created: _____

Task 3: Create Your Own 3D Physics Scene

■ 20 min

After watching the **bouncing ball demo**, create your own mini physics scenario. Use an existing scene (Kid's Room, Playground, or new scene) and apply what you learned.

Requirements — include at least:

- 2+ physics objects with Rigidbody
- Appropriate Colliders on all objects
- 1+ Physics Material (bouncy or slippery)
- 2+ custom Materials (different colors)
- 1+ custom Prefab you created
- Objects that interact when scene plays

Ideas to get you started:

- Bowling alley with pins
- Domino chain reaction
- Ball maze/obstacle course
- Your own idea!

Enhance your physics scene with **spatial 3D audio** to make it immersive. Add sounds that fit your scene's theme and behave realistically based on listener position.

Requirements — include at least:

- 2+ Audio Sources in your scene
- At least 1 looping ambient sound
- All sources set to **Spatial Blend = 1**(3D audio)
- Appropriate Min/Max Distance settings

Audio ideas based on your scene:

- Ambient background (wind, room tone, nature)
- Object sounds (machinery hum, fire crackle)
- Music from a radio/speaker object
- Environmental effects positioned in 3D space

■ *Remember: Spatial Blend at 0 = same volume everywhere (2D). At 1 = realistic 3D positioning. The Audio Listener on Main Camera acts as the player's ears.*