[B-6] Moving with Vector

Objective

To understand and apply vector math in Unity for continuous object movement in response to user input.

Tasks

1. Add a rigidbody component to the purple sphere object.
2. In Start(), get the rigidbody component of the object.
3. In Update(), script to move specific keys are pressed.
    a. Create a Vector3 variable to store the movement direction
    b. Change the movement direction based on the arrow keys
    c. Create a Vector3 variable to store the movement amount and direction
    d. Move the Rigidbody in the direction of the movement vector from its current position

Answer key next page!

Answer Key

```
using UnityEngine;

public class VectorMovementSolution : MonoBehaviour
{
    public float movementSpeed = 5.0f;
    private Rigidbody rb;

    void Start()
    {
        rb = GetComponent<Rigidbody>();
    }

    void Update()
    {
        Vector3 movementDirection = Vector3.zero;

        if (Input.GetKey(KeyCode.UpArrow))
        {
            movementDirection = transform.forward;
        }
        if (Input.GetKey(KeyCode.DownArrow))
        {
            // Transform doesn't contain a "back" direction,
            // so we use the negative of the forward direction
            movementDirection = -transform.forward;
        }
        if (Input.GetKey(KeyCode.LeftArrow))
        {
            // Transform doesn't contain a "left" direction,
            // so we use the negative of the right direction
            movementDirection = -transform.right;
        }
        if (Input.GetKey(KeyCode.RightArrow))
        {
            movementDirection = transform.right;
        }

        Vector3 movement = movementDirection * movementSpeed *
Time.deltaTime;
        rb.MovePosition(rb.position + movement);
    }
```

```
}
```

Starter Code

```
using UnityEngine;

public class VectorMovementSolution : MonoBehaviour
{
    public float movementSpeed = 5.0f;
    private Rigidbody rb;

    void Start()
    {
        // Get the Rigidbody component attached to this GameObject
    }

    void Update()
    {
        // Create a Vector3 variable to store the movement direction

        // Change the movement direction based on the arrow keys

        // Create a Vector3 variable to store the movement amount and
direction

        // Move the Rigidbody in the direction of the movement vector from
its current position
    }
}
```