UNIVERSITY OF WESTMINSTER

**Lesson Plan: Creating Digital Twins through photogrammetry 3D Scan**

**Age Group:** 12–16
**Length:** 60 minutes
**Theme:** Using photogrammetry to explore how digital tools can help us understand and share stories about our environment.

**Learning Objectives**: By the end of the session, students will
1. understand that climate data can take many forms objects, sounds, stories, environments.
2. Learn how to 3D scanning a real world object using free softwares (eg. Polycam).
3. Reflect on how digital models can tell stories about environmental change.

**Introduction (10 min)**
Begin with a short discussion: "What do we think counts as climate data?" (e.g. temperatures, pollution levels, but also plants, animals, sounds, memories). Show an example of Datascape Realities projects via datascaperealities.com (coral reef, London park, Beijing Hutong) and explain how VR helps us see hidden or intangible climate stories.

**Activity Part 1: Making (15 min)**
Students quickly create or collect a small object which they believe forms part of or is impacted by the climate (a leaf, a rock, a paper model of a home, etc.).

**Activity Part 2: Scanning (20 min)**
Teacher demonstrates Polycam (free app for iOS/Android) or equivalent on school tablets. Students work in pairs or groups to photograph their object from multiple angles and process it into a 3D model. Teacher circulates to help with scanning and uploading.

**Discussion and Reflection (15 min)**
Project some of the 3D scans onto the board. Polycam allow any device with a internet browsers to view 3D scans via shared link. Discuss: "What does this digital version capture well? What does it miss?" Relate this back to climate data: digital tools are powerful, but imperfect—just like our ways of seeing climate change.

Wrap up by connecting to future possibilities (VR, AR, immersive worlds). Upload models into a shared online space (e.g. Sketchfab). Challenge students to imagine how their object could be placed in a digital climate story.