LESSON: ECOSYSTEM EXPLORER

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TEACHER PREP

Prior to the lesson, students will need to be able to scan and capture objects using the Structure Sensor and Skanect Pro. The teacher will also need to create a Sketchfab account (http://www.sketchfab.com) where students may upload their 3D models.

LESSON OUTLINE

In this lesson, students will learn about the plants, animals and environment that make up their local ecosystem. An ecosystem is a community of interacting organisms and their physical environment. Ecosystems include forests and wetlands, but also urban environments, or micro-ecosystems (such as ponds).

Over the course of the project, students will go on a field trip (even right outside their classroom!) to find and 3D scan samples of their own local ecosystem and then view each other's work in virtual reality (VR). The lessons can be repeated, with students getting a broader view of what ecosystems exist around them over time.

As a class, or in groups, students will go to nearby locations (parks, schoolyard, lakes etc.) and take panoramic photos of the environment they find there using the “360 Panorama” app. From the location they choose, they will gather samples of plants to take back to the classroom, and photos (360 or traditional) of any animals and bugs that they may find.

Upon returning to the classroom, the plant samples will be 3D scanned using the Structure Sensor and Skanect Pro. The teacher will then upload the 3D scans to Sketchfab. The 360 photos will be

MATERIALS

- Structure Sensor
- Compatible Tablet
- iPhone X or XS
- Bridge (Polycarbonate)
- iOS Apps:
  - 360 Panorama
  - Sketchfab
  - Mobile VR Station
  - Discovery VR
  - Jaunt VR
  - Google Street View

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uploaded to the “Mobile VR Station” application.

Once everyone has scanned and uploaded their models and photos, the class will review the different local ecosystems. Students will use Bridge (Polycarbonate) to view the locations that others went to, and can view the 3D models using the Sketchfab app’s VR mode.

Since the models will last forever (while plants do not), the class can build up knowledge about a variety of local ecosystems over the course of the school year - reviewing 360 photos and 3D scans from previous expeditions.

The teacher can also use other VR apps such as Jaunt VR and Discovery VR to give students a glimpse of other environments to compare and contrast with the locations the students have been to. Google Street View could also be used to drop students anywhere in the world, and have them compare the location they see with the environments they’ve explored.

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