




**Working with ShapeFactory AR to
Enhance Spatial Skills: Case Study
on Geometry Learning**



Yang Yang*, Hangyi Shi, Manolis Mavrikis, Eirini Geraniou

IOE, UCL's Faculty of Education and Society, University College London

* dtnvany@ucl.ac.uk



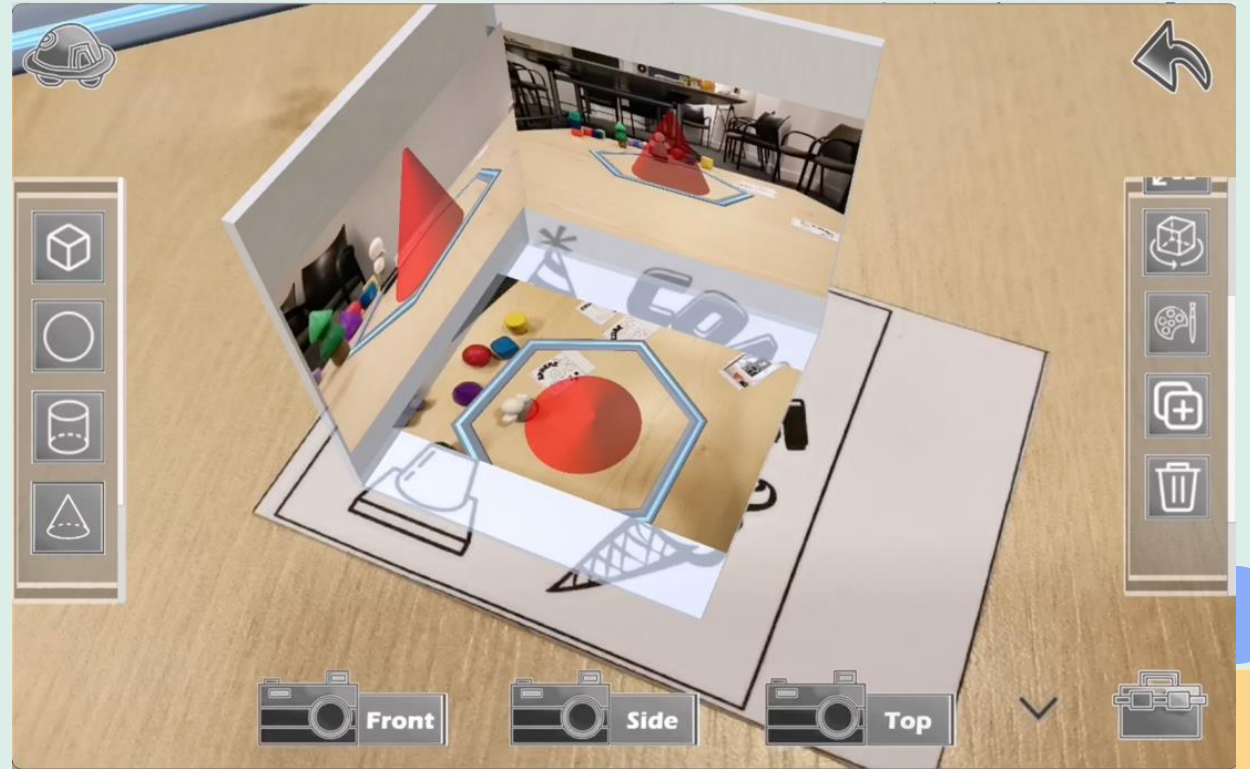
Unity + Huawei AR Engine

Marker-based recognition

Plane-based recognition



Pre-made markers



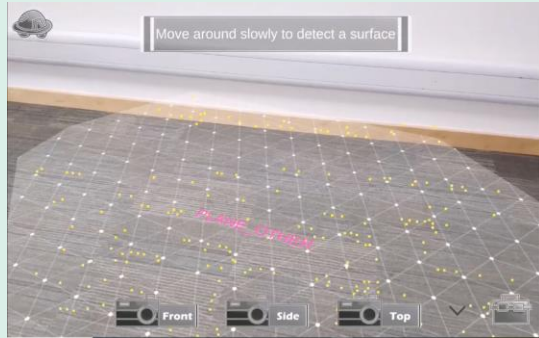
3D model of three-view drawings



Unity + Huawei AR Engine

Marker-based recognition

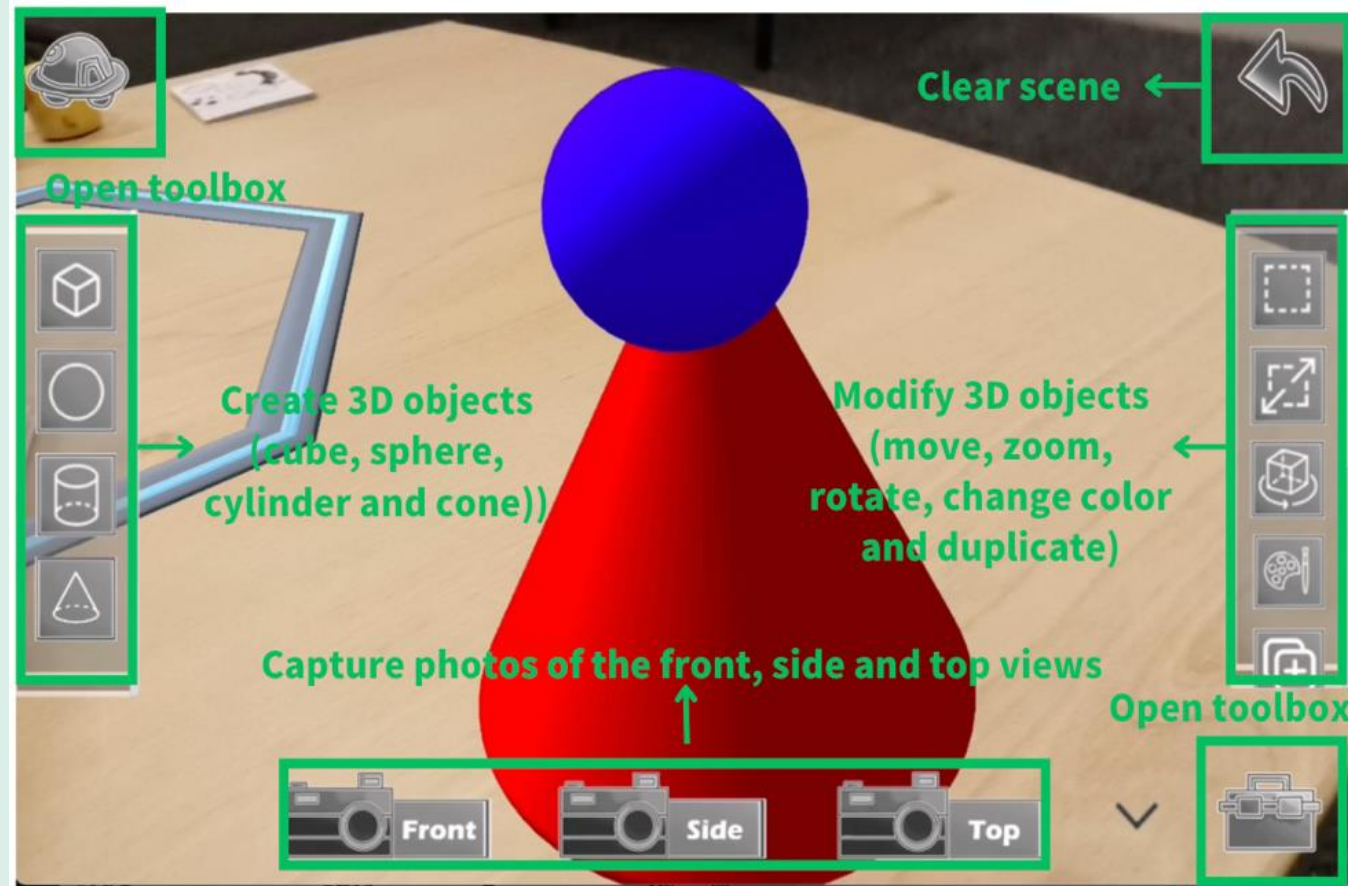
Plane-based recognition

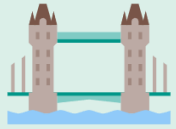


Guidance to move around and detect a plane

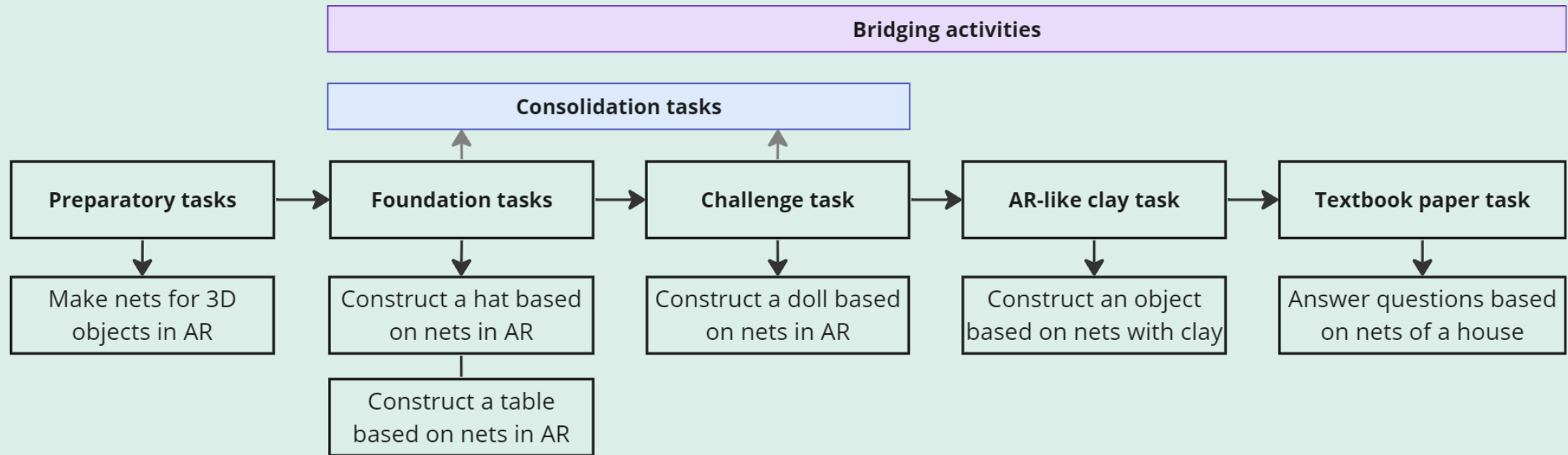


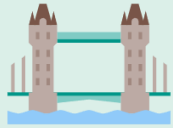
A working platform is generated





Activity design: Bridging activities





Bridging activities

Consolidation tasks

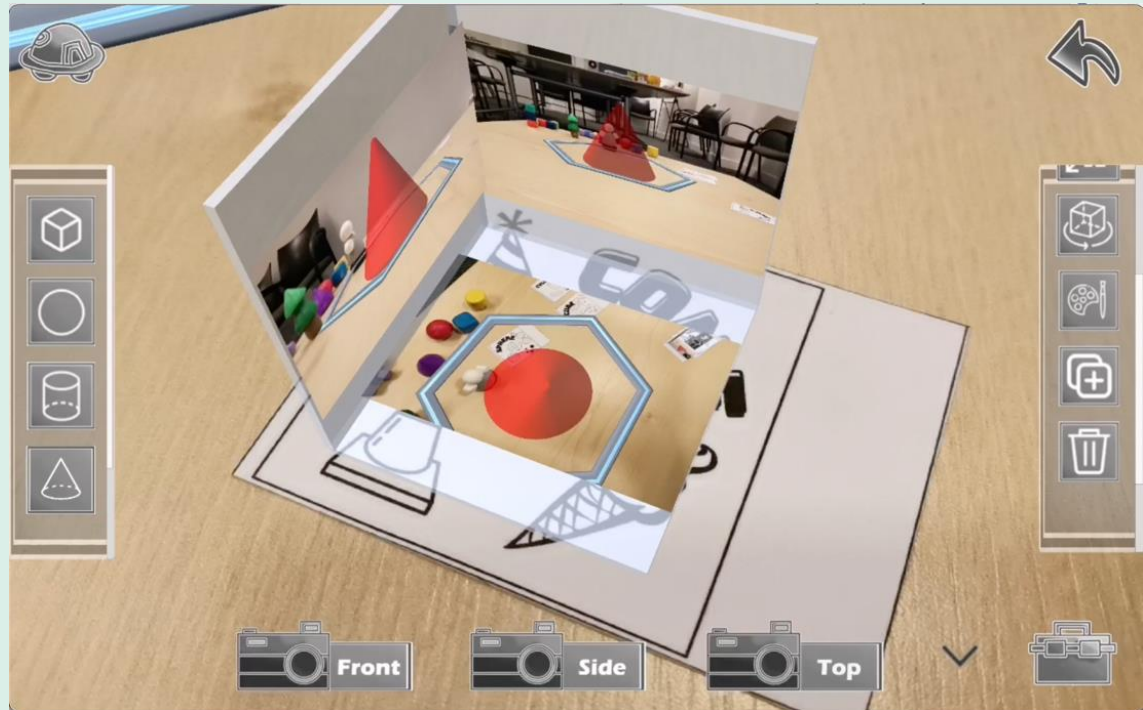
Preparatory tasks

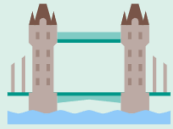
Foundation tasks

Challenge task

AR-like clay task

Textbook paper task





Bridging activities

Consolidation tasks

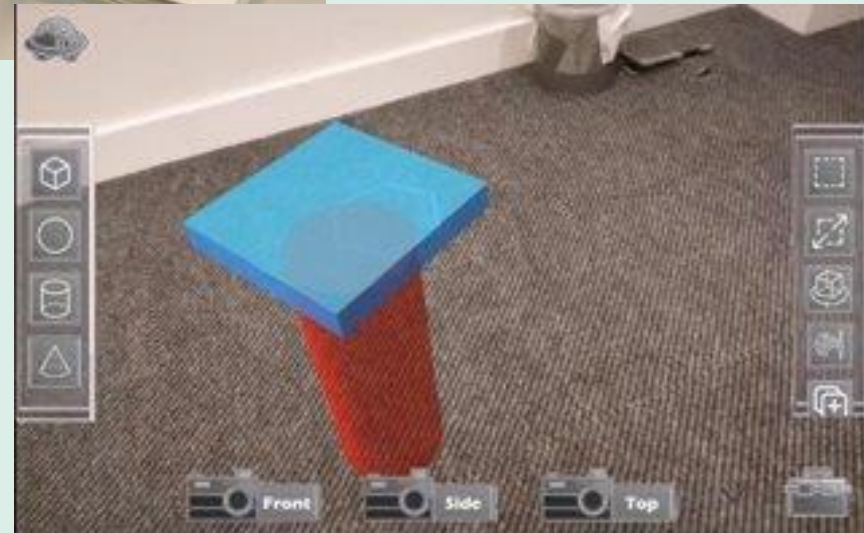
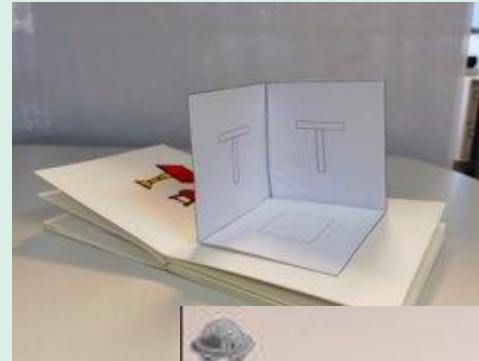
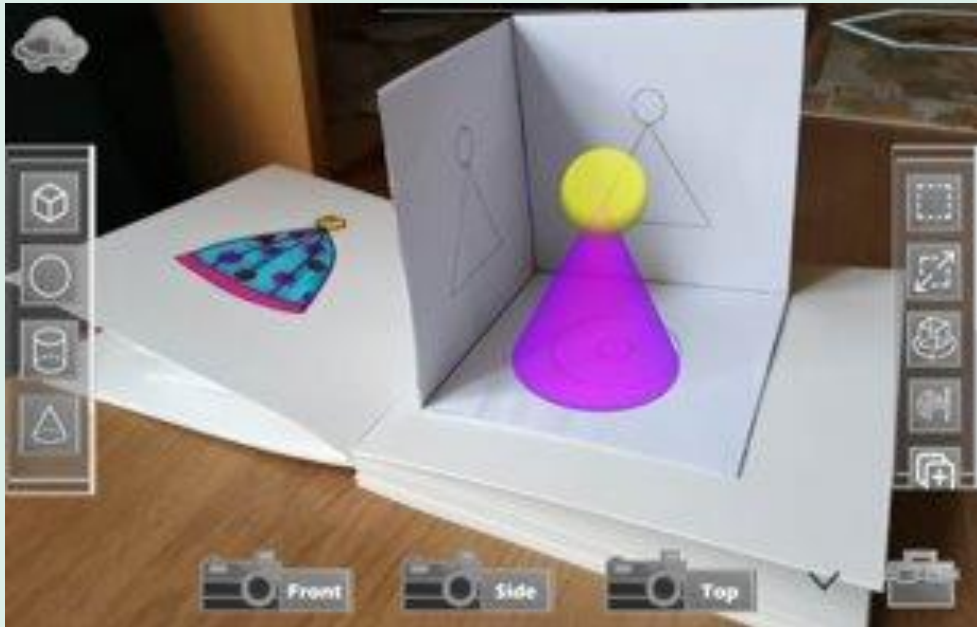
Preparatory tasks

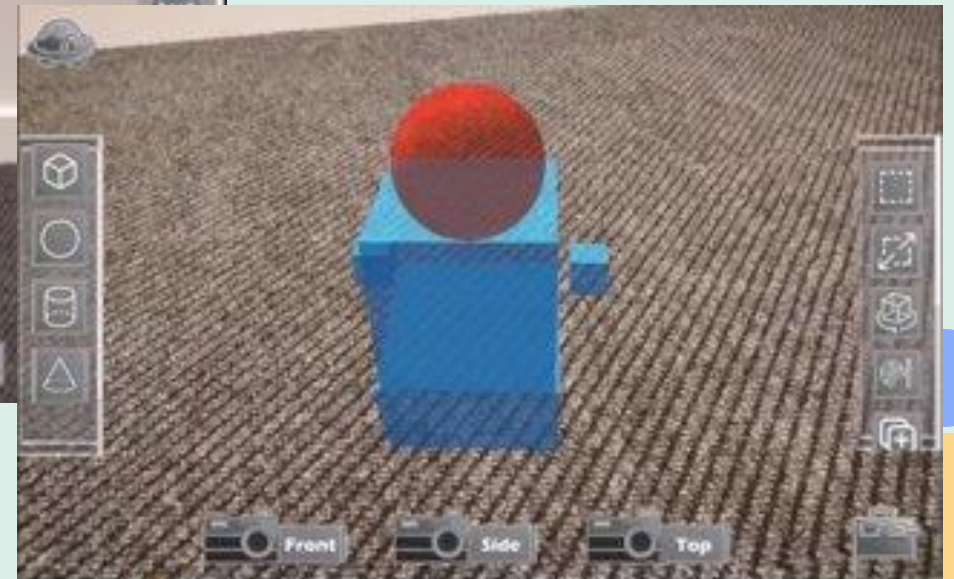
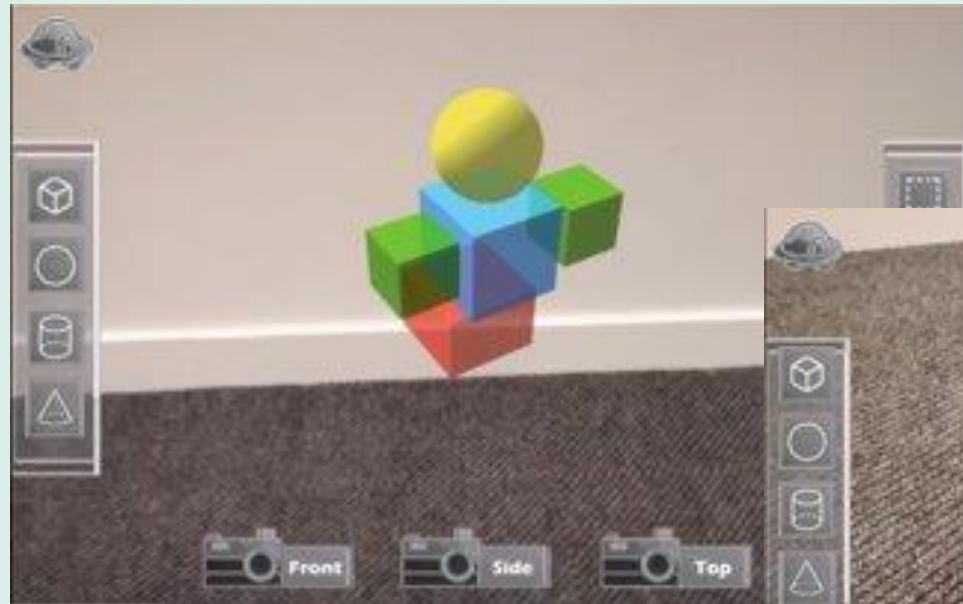
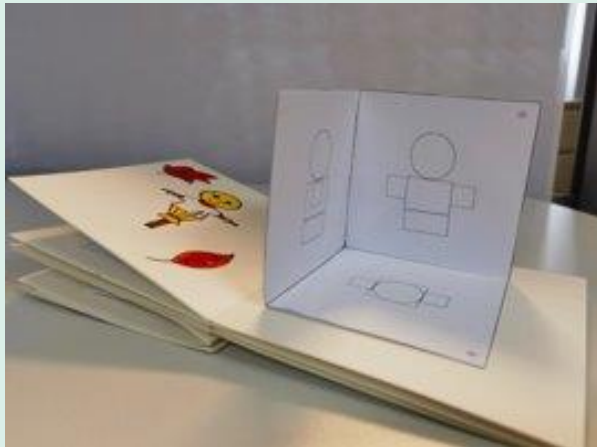
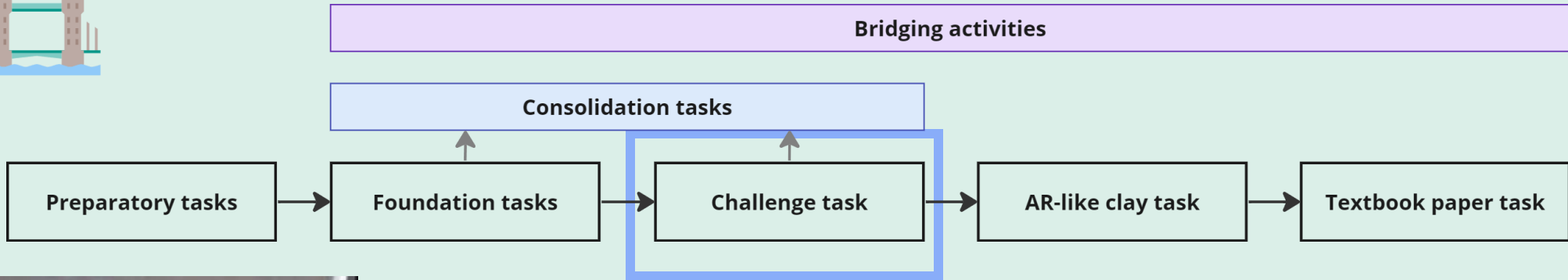
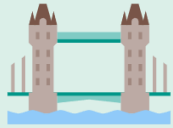
Foundation tasks

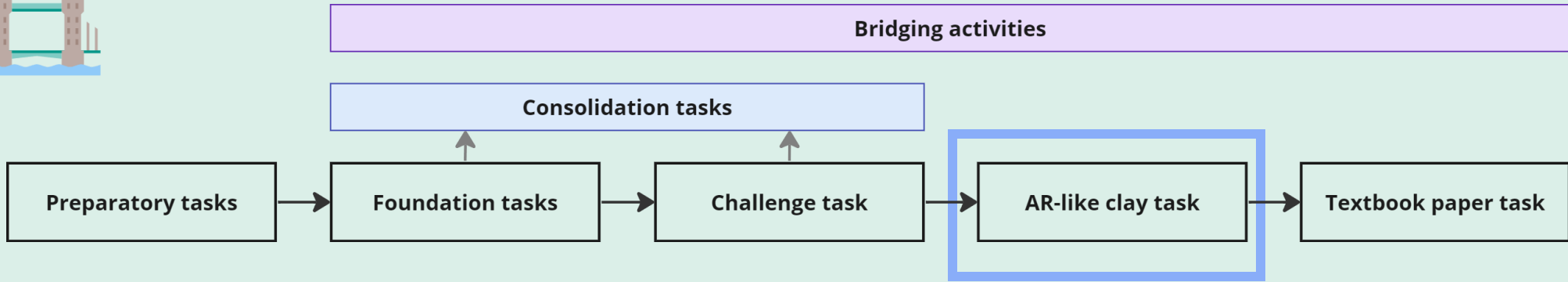
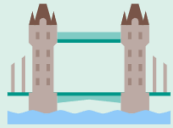
Challenge task

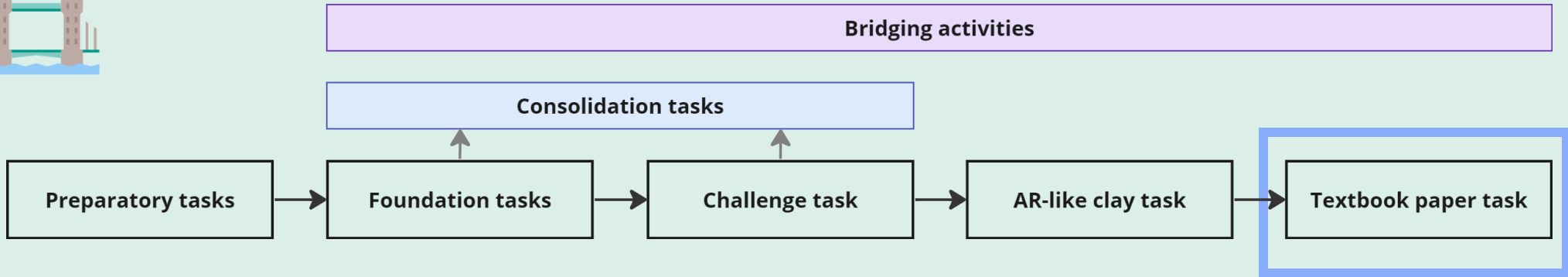
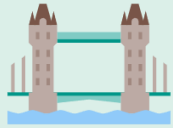
AR-like clay task

Textbook paper task



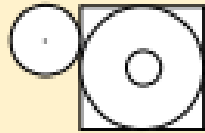




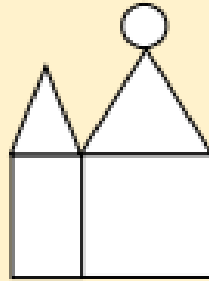


5. Can you build the house by looking at the top, front and side views?

Top view



Front view



Side view

