



# Recommendations

## Augmented Reality Software Development Kits

### About this resource

Our redeveloped [Cambridge Nationals in IT \(J836\) qualification](#) for first teaching September 2022 and first certification Jan 2024 includes a Non-Examined Assessment (NEA) Unit R070 'Using augmented reality (AR) to present information'.

This new unit requires learners to design, create, test, and evaluate an **AR model prototype** for a defined target audience using a range of tools and techniques within an AR software development kit (SDK).

There is a range of AR software development kits (SDKs) currently available. Many of these SDKs are **free to use** and available for individuals as well as educational establishments. This includes both online and standalone software applications with limitations on their use.

The OCR Subject Advisor team have been trialing some of these SDKs using the sample NEA assignment '[Progressive African Elephant World](#)' and our feedback is tabled below. We hope this will help you in making appropriate decisions best suited to your school IT network as well as the skill set of you and your students.

We have looked at '**FREE/Basic**' versions of the AR SDKs and listed below those we feel are suitable for learners to meet the assessment requirements for Topic Area 3 (TA3) of the NEA task. The suggested SDKs should not act as a barrier to candidates securing Mark Band 3 for the

associated marking criteria where the appropriate levels of application have been shown.

We have also listed the SDKs that we have trialed but are unsuitable when used for the sample NEA assignment. There are other AR SDKs that we plan to test and will provide regular updates as this work continues.

Previously we shared a blog post on '[Teaching augmented reality in our redeveloped Cambridge National in IT](#)' prior to the DfE and Ofqual's accreditation and official inclusion of this qualification in the Performance Table list of qualifications for 2024. We have reviewed previously suggested AR SDKs within this blog post and have updated the list in the table below.

Since then, we have published another supporting blog for unit R070 on '[Augmented Reality FAQ](#)' that provides answers to many questions that you may encounter while planning to deliver and assess unit R070.

As with all software, new SDKs may become available in the future and some of the listed SDKs may change to a paid-for service or may become obsolete. To continue to support our centres we will regularly monitor and update the SDK information listed below.

We'd also appreciate any [feedback](#) you have on the AR SDKs we are suggesting, so we can use these to plan further support.

# Augmented Reality Software Development Kits (SDKs)

Suitable for use (tested/trialled by OCR)					
Name	Platform	Documentation	Cost	Type	Considerations
Adobe Aero	PC / iOS/ Android devices to create  Android or iOS device to test	<a href="#">Installation</a>  <a href="#">User Guide</a>  <a href="#">Troubleshooting and help</a>	Free	Standalone SDK  Aero Player (beta) Android app  Aero Desktop app (beta)  Aero mobile (iOS) app	<ul style="list-style-type: none"> <li>Requires users to have login account</li> <li>1 image target for a scene</li> <li>Beta version for Android and PC</li> <li>Full version for iOS and Mac – requires iOS 13.1 or later</li> <li>Preview AR model prototype on the desktop version which can be screen recorded for evidence</li> <li>The app can also be tested on an iOS device and a few Android devices</li> <li>Please check the <a href="#">system requirements</a></li> <li>Limit in the size of the scene for Beta version in MBs - currently 50MB</li> <li><a href="#">Device guide</a> – choose ‘download and install’ then ‘on what devices is Aero supported’ will provide you full details on the type of devices you could use with your students.</li> <li>Get started with Adobe Aero <a href="#">videos</a></li> <li><a href="#">Adobe Aero FAQ – common questions</a></li> </ul>
Assemblr World	PC, Mac,  Android and iOS mobile devices App to develop and test	<a href="#">Web AR</a>  <a href="#">User Guide</a>  <a href="#">Tutorials</a>	Free and paid	Web based / Cloud Platform  <a href="#">Assemblr Studio Web</a>  <a href="#">Assemblr Edu</a>  <a href="#">Assemblr Metaverse</a>	<ul style="list-style-type: none"> <li>Requires login to access online SDK</li> <li>Free account with 8 MB storage and only 1 marker</li> <li>No custom audio input for a free user account</li> <li>Custom audio input for paid accounts only</li> <li>Video embedded through YouTube links only</li> <li>Web AR allows for screen preview of model prototype</li> <li>Create QR / AR (custom) Markers</li> <li>YouTube Channel Tutorials</li> <li>Education package available by taking school plan</li> </ul>

## Suitable for use (tested/trialled by OCR)

Name	Platform	Documentation	Cost	Type	Considerations
Blippbuilder	PC /iOs/ Web browse/ Android Devices to create  PC and mobile app to test	<a href="#">Web Interface</a>  <a href="#">Getting Started</a>  <a href="#">User Guide</a>	Free and Paid	Web based /Cloud Platform  Microsoft Teams App  Onscreen preview  Mobile devices preview using QR code	<ul style="list-style-type: none"> <li>• Requires users to have login account</li> <li>• School email account for educational sign up</li> <li>• Online App</li> <li>• <a href="#">Microsoft Teams Blippbuilder App</a></li> <li>• <a href="#">Microsoft Teams FAQs</a></li> <li>• Create, test and explore your projects using Blippbuilder HUB</li> <li>• Test the prototype on your desktop PC using preview function and/or using QR code on mobile devices</li> <li>• Preview AR model prototype on the desktop version which can be screen recorded for evidence</li> <li>• Test on mobile devices using QR code generated</li> <li>• No need to publish your project as free version will allow you to create and test (preview)</li> <li>• <a href="#">Blippbuilder FAQ</a></li> </ul>
Lens Studio	PC (Windows and Mac) to create  PC and mobile to test	<a href="#">Installation</a>  <a href="#">User Guide</a>	Free	Standalone SDK  App to test if required	<ul style="list-style-type: none"> <li>• Requires users to have Lens Studio account and Lens name</li> <li>• Creates Snapchat Lenses</li> <li>• Can be tested on PC and/or on a mobile device</li> <li>• Preview panel built into the SDK</li> <li>• Screen recording could be used for evidence of AR model prototype</li> <li>• Size limited for submission is 8 MB with 2 MB limits for sharing your lens for a quicker download</li> </ul>

## Suitable for use (tested/trialled by OCR)

Name	Platform	Documentation	Cost	Type	Considerations
OpenSpace3D Editor	PC to create	<a href="#">Installation</a>	Free	Standalone SDK	<ul style="list-style-type: none"> <li>• Open-Source Software for free</li> <li>• Requires users to have login account</li> <li>• Download Editor version or Portable version to install</li> <li>• Antivirus software could block some installation files. Please disable your antivirus software and install OpenSpace3D.</li> <li>• OpenSpace3D Online Documentation</li> <li>• Tutorials with '<a href="#">introduction to OpenSpace3D</a>' eBook available to purchase (optional)</li> <li>• Tutorials on <a href="#">YouTube Channel</a></li> <li>• Some file types may need converting prior to its use within the software</li> <li>• A lot of tutorials on the YouTube channel</li> <li>• To preview prototype on the desktop, you can use built in on-screen 'play' function or use a marker and a portable/ built-in camera to trigger the prototype model</li> <li>• No need to publish your project</li> <li>• <a href="#">OpenSpace3D Forum</a> for request/ feedbacks</li> <li>• <a href="#">OpenSpace3D FAQ</a></li> </ul>
OPenSpace3D Portable	PC and Webcam to test	<a href="#">User Guide</a> e-Book <a href="#">User Guide Doc</a>			
Spark AR Studio	PC (Windows and Mac) to create  Mobile App and PC to test	<a href="#">Installation</a>  <a href="#">User Guide</a>	Free	Standalone SDK  App to test if required  Spark AR Player for Android, iOS and Oculus Quest	<ul style="list-style-type: none"> <li>• Requires users to have a Facebook account</li> <li>• To test the prototype, you can use a phone with Instagram or Facebook installed, an IOS or android phone, or a Windows PC with webcam</li> <li>• Can be tested on PC and/or on a mobile device</li> <li>• Check hardware required for rendering Spark AR Studio</li> <li>• You could share/create a demo video to showcase model prototype on the <a href="#">Spark AR hub</a></li> </ul>

## Suitable for use (tested/trialled by OCR)

Name	Platform	Documentation	Cost	Type	Considerations
Unity hub Unity Vuforia Plugin	PC, Mac and Linux	<a href="#">Unity installation</a>  <a href="#">Unity Manual</a>  <a href="#">Vuforia Engine Plugin (SDK)</a>  <a href="#">User Guide – Vuforia Engine Plugin</a>	Free	Standalone SDK	<ul style="list-style-type: none"> <li>• Requires users to have login account</li> <li>• Download and install Unity Hub and the latest version of Unity platform</li> <li>• Unity hub is used to manage multiple installations of the unity editor to create new projects and access your work</li> <li>• Download Vuforia Engine Plugin to connect with Unity platform</li> <li>• Can be difficult to set up for some</li> <li>• Unity requires high-end machines to run</li> <li>• Please check the <a href="#">system requirements</a></li> <li>• Requires scripting / additional packages to include button / interaction functionality.</li> <li>• File type considerations</li> <li>• View model prototype using inbuilt 'play mode' within the Unity</li> <li>• Generate a QR code / physical target as PDF to share</li> <li>• Video screen recording of working AR model prototype can be used for evidence</li> </ul>
XR PLUS	PC and/or Mac	<a href="#">Web AR</a>  <a href="#">User Guide</a>	Free	Web based/ Cloud Platform	<ul style="list-style-type: none"> <li>• Requires users to have login account</li> <li>• 1 image target for a project.</li> <li>• Triggers can generate multiple actions</li> <li>• Basic plan allows for max 5 projects free</li> <li>• Multimedia Assets can be texts, images, audios, videos, static and animated 3D models</li> <li>• Simulator within the Web AR available to preview and screen record.</li> <li>• Generate a QR code to share/publish</li> </ul>

## Suitable for use (tested/trialled by OCR)

Name	Platform	Documentation	Cost	Type	Considerations
ZapWorks Studio	PC, Mac and Web AR	<a href="#">Installation</a>	Free	Standalone	<ul style="list-style-type: none"> <li>• Requires users to have login account</li> <li>• Basic plan allows for max 5 projects free with limited days of use</li> <li>• Education plan available (e.g. 2 educator and 15 students license for £300 per year). Contact them for a deal.</li> <li>• ZapWorks Studio is a standalone, no-code AR SDK</li> <li>• ZapWorks Designer is a browser base, no-code AR SDK</li> <li>• Universal AR range includes <a href="#">Unity Plugin</a> available for Unity platform</li> <li>• Universal AR for Unity <a href="#">update</a> is available if you plan to use Unity platform</li> <li>• Create a QR code to share</li> <li>• To test/preview WebAR model prototype, you can use ZapWorks in the browser and PC with a webcam, without having to download any apps</li> <li>• Alternatively, you could use a QR code and Zappar App on iOS and Android devices to instantly view and publish your model prototype</li> <li>• Screen recording of working AR model prototype can be used for evidence</li> <li>• WebAR developed AR model prototype</li> </ul>
ZapWorks Designer	PC, Mac and mobile App to test	<a href="#">Studio User Guide</a>		WebAR app (Cloud/Browser based)	
Zappar		<a href="#">online application</a>			
		<a href="#">Designer User Guide</a>			

## Currently testing/trialling

Name	Platform	Documentation	Cost	Type	Considerations
Arloopa Studio	PC, Mac  Android and iOS mobile devices App to test	<a href="#">Web AR</a>	Free and paid	Cloud-based  Mobile devices <a href="#">App</a> visualiser	<ul style="list-style-type: none"> <li>7 days free trial with login</li> <li>Education plan package - £300 per year for 100AR and 100GB storage or contact for a deal</li> <li>Limitations on the type of assets</li> </ul>
Apple AR Creation Tools  Xcode  RealityKit Composer	iOS devices	<a href="#">Installation</a>  <a href="#">User Guide</a>  <a href="#">Installation</a> <a href="#">User Guide</a>	Free	Standalone	<ul style="list-style-type: none"> <li>Requires Apple login ID to download SDK</li> <li>Download Xcode 13 (beta) and Reality Converter (beta)</li> <li>Requires iOS 15.0 or later</li> <li>SDK download is available from Mac and iPad/iPhone App store</li> <li>Resources and documentation available</li> </ul>
ARCore XR Plugin (Unity)	Android and iOS mobile phone	<a href="#">Installation</a> (AR Foundation for Unity)  <a href="#">SDK download</a>  <a href="#">Package Manager</a>  <a href="#">User Guide</a>	Free	Mobile devices with Android and iOS application  Google ARCore	<ul style="list-style-type: none"> <li>Google platform for building AR experience</li> <li>Android 7.0 or later</li> <li>Cloud Anchors iOS 11.0 or later</li> <li>Unity AR plugin (AR Foundation)</li> </ul>
Metaverse Studio	PC, Mac  Android and iOS mobile devices app to test	<a href="#">Web AR</a>  <a href="#">User Guide</a>	Free	Cloud-based application	<ul style="list-style-type: none"> <li>Create individual account</li> <li>Web application with tutorials</li> <li><a href="#">Teacher's presentation slide</a> for introducing metaverse</li> <li>Easy to create AR model prototype</li> <li>A range of assets allowed for developing an AR model prototype</li> <li>Create QR code to test with mobile app</li> </ul>

## Tested and found unsuitable

Name	Platform	Documentation	Cost	Type	Considerations
DroidAR	Android mobile devices location based AR platform	<a href="#">Installation</a>  <a href="#">GitHub download</a>	Free	Standalone	<ul style="list-style-type: none"> <li>• Free to use <a href="#">licence</a></li> <li>• Framework for Android 1.6 and above mobile devices</li> <li>• Requires Java and C/C++ coding</li> <li>• Location based and marker based AR</li> <li>• Use of GitHub repository</li> <li>• YouTube <a href="#">Tutorial</a></li> <li>• DroidAR <a href="#">FAQ</a></li> <li>• <a href="#">Support through GitHub</a></li> <li>• <a href="#">Blogs</a> to update</li> </ul> <p>Framework uses the GPS sensor, magnetometer, accelerometer and the gyroscope</p>



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