



STANDARD OPERATING PROCEDURE

Use and care of the Meta Quest 2 Headset

(for particular use with the ASTRO 3D VR program *Unlocking the Universe in 3D*)

1. Introduction

This SOP outlines how to safely operate, maintain, and navigate the Meta Quest 2 VR headset. The Meta Quest 2 is a versatile, wireless VR headset designed for immersive, interactive experiences.

2. Context

- These instructions are for the use of science teachers, technicians and secondary school students (who are under the direct supervision of a teacher).
- This SOP contains general guidelines only. Please consult the [Meta Quest 2 Safety Guide](#) for detailed user and safety information.

3. Safety notes

The Guardian Boundary

- The Guardian Boundary is a key safety feature of Meta VR devices. This feature allows the user to trace a safe space to interact with VR effects. When they are near the boundary, a colourful grid will warn them; when they move outside of this space, the cameras on their headset will activate, and they'll see the room around them in the Passthrough feature. The user will need to pay attention to these effects to prevent injuries from colliding with objects or others in the room.
- The Guardian Boundary offers two modes: Roomscale and Stationary. In classroom environments, it is recommended to use the Stationary boundary. This mode creates a smaller play area, suitable for standing or sitting, ensuring user safety. Before starting, ensure the area is free from obstacles. To set the floor level, lower the controller to the ground and press 'Confirm', then select 'Switch to Stationary Boundary'.
- Quest 2 will block the user's view of anything inside the Guardian Boundary, so it's essential to clear the immediate area beforehand. Ensure the floor is flat and free of objects that could cause tripping or collisions. Ensure the user has ample space away from furniture or walls, and that no one enters the boundary while the headset is in use.

Time in VR

- To prevent cybersickness, it is recommended that VR sessions last no longer than 15 minutes per activity.

4. Regulations, licences and permits

- N/A

5. Equipment

- Meta Quest 2 headset
- Elite adjustable head strap
- Left and right controllers
- Power cord

6. Operating procedures

The headset

- Before starting the device, ensure the headset is correctly fitted to the user's head. Adjust the Velcro strap and the circular wheel at the back of the strap until the fit feels right.



- Adjust the lenses by pushing them closer together or farther apart until the user can see the VR environment. Do NOT continue to use the headset if it fits poorly or the user's screen is blurry.
- Controller safety: The user should place their wrists through the straps each time they use the controllers to prevent dropping or accidentally throwing them while using the VR program.

Caring for the headset

- Protect headset lenses from direct sunlight.
- Keep devices away from liquids or rooms with very high humidity.
- Remove the batteries from the Touch controllers when they are out of use for an extended period.
- Carefully clean the headset and controllers regularly using a dry cloth to clean the outside of the headset and antibacterial wipes on the controllers, straps and foam liner. Apply a dry microfiber cloth to the lenses. Start in the centre of the lens and rub in small circles out to the edges.

7. Troubleshooting / Emergencies

See 'Troubleshoot headsets and accessories', Meta website <https://www.meta.com/en-gb/help/quest/articles/fix-a-problem/troubleshoot-headsets-and-accessories/> (Accessed 10 September 2024)

8. Waste disposal

N/A

9. Related material

- 'Safe Use of Immersive Technologies: Responsible Officer: Health, Safety and Wellbeing Manager Page 8 of 8 Virtual Reality (VR), Augmented Reality (AR), Mixed Reality (MR) Guidelines, v1.0', Monash University website https://www.monash.edu/_data/assets/pdf_file/0003/3082791/VR-guidelines.pdf (Accessed September 2024)
- 'Using the controllers in the *Unlocking the Universe in 3D* VR program'. Available in the teacher resource package.

References

'Meta Quest 2 health and safety', Meta website, <https://www.meta.com/au/quest/safety-center/quest-2/> (Accessed September 2024)



Risk Assessment

Risk Assessment name	Use of Meta Quest 2 virtual reality headset	Assessment type	General
Assessor name	Delese Brewster	Affected sites	Schools, education centres, visitor centres
Assisted by	Cristy Roberts	Number of pages	3
Assessment date	10 September 2024	Review period	Annually
Approved by	Delese Brewster	Review date	10 September 2025
Approved date	10 September 2024	Reference	RA001

Risk Assessment				
Hazards	Control Measures	Inherent Risk (See tables 1-3 below)		
		Likelihood	Consequence	Risk rating
Collision with obstructions or people, slips or trips	<ul style="list-style-type: none"> Adequate supervision provided to ensure users remain within the guardian boundaries. Cordon off larger area for VR use depending on the number of users in VR. VR Guardian switches on to provide a view of the real world if users step outside their boundary. Staff to ensure VR area is clear prior to any movement - 3m area per user is provided for VR headset users. Access to each VR area is restricted to one person. Users are required to use stationary boundary. First aider and first aid equipment procedure implemented. No food or drinking permitted in VR area. 	Possible	Insignificant	Low (4)
Poor design of environment	<ul style="list-style-type: none"> VR area should be adequately safe for the task being undertaken. Ensure a 3m zone is provided around each user when in VR. Keep a dedicated VR area clear of any obstructions. 	Possible	Insignificant	Low (4)
Malfunction of equipment	<ul style="list-style-type: none"> Responsible adult (e.g., teacher, school lab technician) to test each headset before use. 	Unlikely	Insignificant	Low (2)

Risk Assessment

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Hazards	Control Measures	Inherent Risk (See tables 1-3 below)		
		Likelihood	Consequence	Risk rating
Cybersickness – eyestrain, nausea, motion sickness, faints	<ul style="list-style-type: none"> A safety briefing is given at the start of every session emphasising that a user should remove the headset if they experience any discomfort. Ensure user is in VR no longer than 15 minutes. Appropriate first aid provided. Ensure room is well ventilated. Drinking water provided. 	Likely	Insignificant	Medium (7)
Pre-existing eye conditions/abnormalities	<ul style="list-style-type: none"> The VR experience may amplify symptoms if users have pre-existing eye conditions or abnormalities in vision. Any users (pupils, staff or parents) who have pre-existing eye conditions should consult with their eye doctor before using a VR headset. In schools, parental permission should be sought before commencing the VR program. 	Possible	Minor	Medium (9)
Epilepsy/risk of seizures	<ul style="list-style-type: none"> Users with epilepsy or individuals who are prone to seizures should consult with their doctor before using the VR headset. In schools, parental permission should be sought before commencing the VR program. 	Possible	Moderate	High (15)
Spread of infection	<ul style="list-style-type: none"> After each use each headset should be wiped down with antibacterial wipes. Users and staff should wash their hands before and after headset use. 	Unlikely	Minor	Medium (6)

Standard Operating Procedures
<ul style="list-style-type: none"> Always use headsets in accordance with manufacturer's instructions – Meta Quest 2 Safety Guide Refer to SOP provided by ASTRO 3D.

Table 1: Likelihood table

Ranking	Description	Probability or frequency of event happening
Almost certain	The hazard is expected to lead to an event in most circumstances	A daily to monthly occurrence
Likely	The hazard could lead to an event in most circumstances	Occurs once monthly to once yearly
Possible	The hazard has led to an event at some time	Occurs once between 1 to 5 years
Unlikely	The hazard could lead to an event at some time	Occurs once between 5 to 20 years
Rare	The hazard may lead to an event in exceptional circumstances	Occurs once between 20+ years

Table 2: Consequences table

Ranking	Injury, Illness or Disease	Plant, Equipment and materials	Environment
Catastrophic	Fatality / fatalities or permanent disability. Permanently unable to work	Destroyed or cannot be reused	Significant intervention required to remediate
Major	Requiring extensive medical treatment such as hospitalisation as in-patient	Damage requiring repairs/rebuild and possible recertification prior to reuse, lost use for one or more days	Intervention required to remediate
Moderate	Minor medical treatment injury, such as treated by a health professional, hospital outpatient.	Damage requiring a repair/service by a trade/technician	Short impact does not need major intervention
Minor	Injury needing significant first aid	Equipment able to be reset or gotten back into operation by the operator	Minor damage and can remediate easily
Insignificant	Very minor injury OR minor first aid (e.g., Band aid). Short-term discomfort	No damage	No damage

Table 3: Risk matrix

	Insignificant	Minor	Moderate	Major	Catastrophic
Almost certain	Medium (10)	High (14)	Extreme (21)	Extreme (22)	Extreme (25)
Likely	Medium (7)	High (13)	High (16)	Extreme (20)	Extreme (24)
Possible	Low (4)	Medium (9)	High (15)	High (18)	Extreme (23)
Unlikely	Low (2)	Medium (6)	Medium (8)	High (17)	High (19)
Rare	Low (1)	Low (3)	Low (4)	Medium (11)	Medium (12)