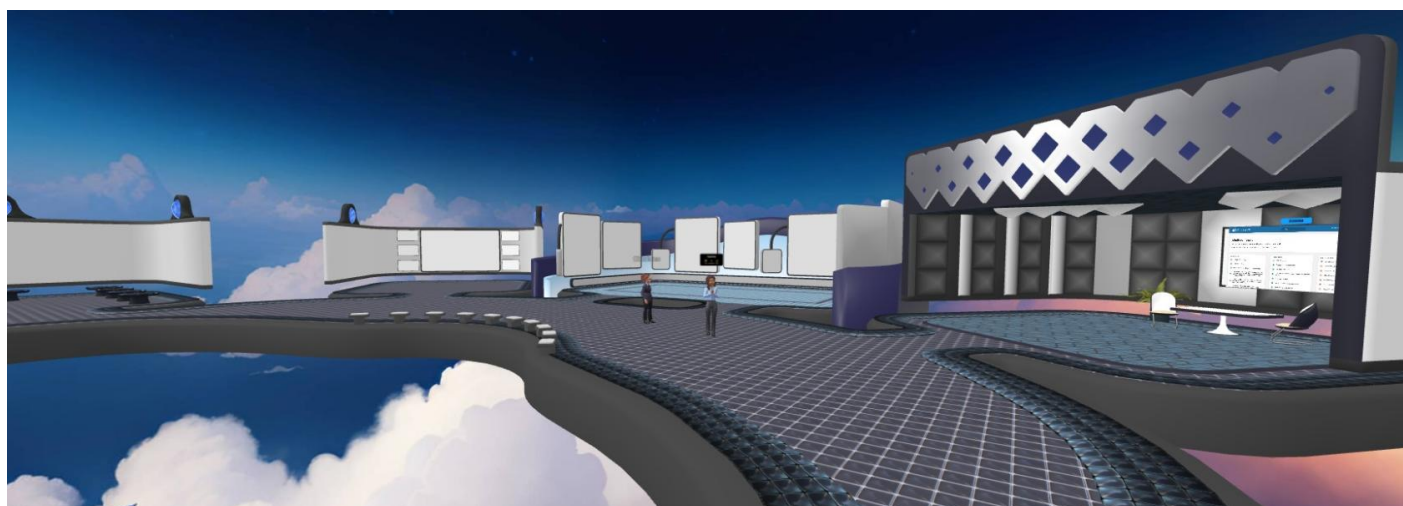


(5) Branch/House/Track #5: Science, Tech, Engineering, Arts, Math (STEAM)



The current House 5 frame includes a floating gallery and staging area for larger presentations or events (shown above). As of January 29, 2026, it has not been decorated or assigned to host regular activities.

BH-05 Science, Technology, Engineering & Mathematics (STEM)

Frame Type	Branch House	Status	OPEN
Track / Branch	STEM Education	Capacity	50 users
FrameVR URL	https://framevr.io/house5-stem		

Frame Purpose

The disciplinary home for immersive learning research and practice in STEM fields. STEM is the most heavily published domain in XR education research — this Frame surfaces and organises that evidence base while connecting it to the broader iLRN ecosystem.

Frame type context: Branch House — persistent disciplinary anchor. Note that current literature skews heavily toward STEM; this Frame curators should actively surface non-STEM connections and resist silo effects.

1 Ownership & Governance

Frame Lead / Owner	
Content Contributors	
Technical Steward	
Accessibility Reviewer	
Last Updated	

2 Learning Design Requirements — + UDL 3.0

: expert/novice distinction is acutely relevant in STEM: prior knowledge gaps between participants can be large. The Frame must support both introductory and advanced engagement without either overwhelming newcomers or boring domain experts.

UDL: XR offers powerful Representation options for abstract STEM concepts (molecular structures, mathematical spaces, physics simulations). The Frame should model this — not just talk about it. At least one board should demonstrate an immersive representation of a STEM concept.

	Universal Requirements (all frames)	Criterion / Pass Threshold
☐	Purpose statement posted in Frame at entry zone	Visible within 10 sec of entering
☐	Orientation cues for newcomers (what this space is, what to do)	Confirmed by blind test with volunteer
☐	Asynchronous contribution pathway available (forum, Codex, Discord link)	At least 1 async pathway; URL live
☐	Content accessible in text form via Codex (Representation — UDL)	Codex page live and linked in Frame
☐	No colour-only navigation cues — all zones/portals have text labels	Confirmed by reviewer
☐	Emotional tone is welcoming; language is jargon-free at entry	Confirmed by reviewer external to Frame team
	Frame-Specific Requirements	Criterion / Pass Threshold
☐	At least one board demonstrates an immersive/XR representation of a STEM concept (not just text description)	Content confirmed with branch contributor

☐	Non-STEM connections signposted (counter-silo measure)	At least 1 cross-branch link present
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3 Design & Build Checklist

	Layout & Purpose	Criterion / Pass Threshold
☐	Frame purpose defined in one sentence, posted at entry	Written purpose statement visible
☐	Environment size matches use case	Appropriate environment selected; not over/undersized
☐	Central meeting / focal area identifiable within 10-15 sec	Walk-through test by reviewer
	Navigation	Criterion / Pass Threshold
☐	Minimum 2 outgoing portal links to other Frames	≥ 2 portals; 0 dead ends
☐	Consistent portal visual language (campus-wide asset style)	Matches campus portal standard
☐	Navigation path from entry to any key area ≤ 15 seconds	Timed walk-through by reviewer
☐	All portal destinations confirmed live	Click-tested by reviewer
	Signage	Criterion / Pass Threshold
☐	All text legible on mobile screen at default eye level without zooming	Phone screen test
☐	No signage relies on colour alone	Label or icon accompanies all colour-coded elements
	Zone Setup (if zones are used)	Criterion / Pass Threshold
☐	'Restrict all assets to zones' enabled if zones are in use	Frame settings $\rightarrow$ restrict assets = ON
☐	Each zone has a named purpose	Zone names visible in Frame settings

4 Performance & Asset Budget — check via Frame Settings $\rightarrow$ Performance Rating or ?debug=true

FrameVR targets: ≤ 200 draw calls $\cdot \leq 130,000$ active faces $\cdot \leq 20$ materials. FPS target: 60 desktop, ≥ 40 minimum desktop, ≥ 30 iOS Safari.

	Performance Monitor Readings	Criterion / Pass Threshold
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☐	FPS $\geq$ 40 on desktop (Chrome/Edge)	Target 60; below 40 = must fix
☐	FPS $\geq$ 30 on iOS Safari mobile	Must pass before launch
☐	Draw call count $\leq$ 200	Babylon Inspector $\rightarrow$ Stats
☐	Active face/poly count $\leq$ 130,000	Babylon Inspector $\rightarrow$ Stats
☐	Material count $\leq$ 20	Babylon Inspector $\rightarrow$ Stats
☐	Performance Rating not flagged RED in Frame Settings	Yellow = caution; Red = block launch
	Asset Hygiene	Criterion / Pass Threshold
☐	All images compressed before import (squoosh.app)	No raw camera/screen captures
☐	No Sketchfab model imported without poly-count review	Flagged models resolved or documented
☐	Unused assets deleted (not just hidden)	Assets list contains only active assets  Check with the owner of the asset before deletion!!
	Media Settings	Criterion / Pass Threshold
☐	All videos set to NOT autoplay	Each video asset $\rightarrow$ autoplay = OFF
☐	Webcam/streaming screens disabled unless live event	Default OFF; enable only during live sessions
☐	No Smoke particle effects in use	High GPU cost; zero tolerance
☐	Animated objects minimised	Each loop adds ongoing GPU cost

FPS Desktop	
FPS iOS Safari	
Draw Calls	
Poly Count	
Materials	
Perf. Rating	

5 Content & Boards Checklist

	Codex & Community Links	Criterion / Pass Threshold
☐	Codex page URL embedded as board or link in Frame	BookStack page URL live and linked

☐	Forum / InVision Community thread linked	<i>Thread URL confirmed live</i>
	Content Boards	Criterion / Pass Threshold
☐	Image board(s) populated with track-relevant content	<i>At least 1 board with real content, not placeholder</i>
☐	Upcoming events board posted and dated	<i>Event title + date visible; past events removed</i>
☐	Showcase zone set up for presenter / author work	<i>Distinct area labelled Showcase or equivalent</i>
☐	Presenter / author content loaded or linked	<i>Confirmed with content owner</i>
	Conference-Specific Elements	Criterion / Pass Threshold
☐	Greek cultural / scavenger hunt artifact placed (if assigned)	<i>Confirm with George / Greek team</i>
☐	Quest clue placed correctly (if this Frame is a quest stop)	<i>Cross-check against quest master list</i>
☐	Tally.so submission form linked (if track accepts submissions)	<i>Tally form URL confirmed and tested</i>

6 Planned Activities & Events

Activity / Event	Date	Owner	Status

7 Connected Frames & Portals

Destination Frame	Portal Type	Notes
iLRN Central (HUB-03)	Return portal	Primary inbound route
Assessment & Evaluation (BH-02)	Branch-to-Branch	STEM assessment methods
Nature & Environmental Sciences (BH-08)	Branch-to-Branch	Science education overlap
State of XR (HUB-01)	Branch-to-Hub	Large events

8 Asset Inventory

Asset Name / Description	Poly Count	File Size	Owner

9 Accessibility Sign-Off — reviewer must complete this, not the Frame owner

	Wayfinding & Legibility	Criterion / Pass Threshold
☐	New user orients within 10 seconds without prior knowledge	<i>Blind test with volunteer</i>
☐	All text boards legible on mobile at default eye level	<i>Phone screen test</i>
☐	No element identified by colour or spatial position alone	<i>Confirmed with audio OFF</i>
	Inclusivity	Criterion / Pass Threshold
☐	No flashing or strobing effects	<i>Zero tolerance — photosensitivity risk</i>
☐	Critical content accessible from a stationary avatar position	<i>No movement required to read key boards</i>
☐	Language on all boards is plain and welcoming to newcomers	<i>Reviewed by someone outside Frame team</i>
	Device & Bandwidth	Criterion / Pass Threshold
☐	Fully usable on Chrome / Edge desktop	<i>Full navigation completed without crash</i>
☐	Usable on iOS Safari mobile	<i>Full navigation completed without crash or major lag</i>
☐	Loads within 30 sec on Slow 3G (Chrome DevTools → Network → Slow 3G)	<i>Slow 3G test completed and passed</i>
	Sign-Off	Criterion / Pass Threshold
☐	Reviewer name and date recorded below	<i>Required before Frame status = Ready</i>

Reviewed By	
Review Date	

Outcome	
Follow-Up Items	

10 Codex Integration (BookStack)

Codex Book / Chapter	
Codex Page URL	
Last Synced	
Outstanding Codex Tasks	

11 Additional Notes & Open Questions