META-META Club

WORKBOOK · MODULE 2 OF 3

First build

XR & AI Foundations. Metameta Night week 1: your first WebXR scene.

Open courses | 4 lessons | ~2 h | 4-question practice quiz | Notes pages

IN THIS MODULE

First build

Metameta Night week 1: your first WebXR scene.

#	LESSON	TYPE	TIME	DONE
2.1	Demo: the stack, with a Virtual is Real walkthrough	LIVE	25 min	☐
2.2	Build-along: your first WebXR scene	LAB	55 min	☐
2.3	Critique: first scenes	LIVE	25 min	☐
2.4	Ship it: post your first scene	PROJECT	15 min	☐

How to use this workbook

- Work through each lesson on metametaclub.com/learn, or listen to its narration, then use the page here to take notes.
- Tick the steps as you go, and write your answers under **Check yourself** before you look anything up.
- Do the practice quiz at the end, then mark it with the answer key on the last pages.
- Keep every **Ship it** piece. Together they become what you show.

Before you start

What do you already know about this, and what do you want to be able to make by the end?

LESSON 2.1 · LIVE · 25 MIN

Demo: the stack, with a Virtual is Real walkthrough

Watch one real project and name every layer of the stack inside it. By the end you can point at a piece of XR work and say what each part does, and where AI helped.

Key points

How the demo runs

Mathew Munyao or a bench guest opens a Virtual is Real piece, such as the Villa walkthrough or Matatu Ride, and takes it apart live. Client work is shown only where the client allows it.

The layers to listen for

- **Content.** The 3D models, textures, sound and text. Some were modelled by hand, some started as an AI draft and were cleaned up by a person.
- **Engine.** The code that draws the scene many times a second. In the browser that is WebGL with Three.js. In a headset app it is often Unity.
- **Platform.** Where the piece runs: a browser tab, a phone, a Quest 3 headset.
- **Input.** Mouse and keyboard, touch, controllers, hands.
- **Delivery.** How people get to it: a link, a store, a file.

A browser piece wins on delivery. Anyone with a link can open it.

Where AI fits

Listen for three kinds of AI help:

1. **Making assets.** Image, texture and 3D generators give a first draft.
2. **Writing code.** A coding agent writes or fixes scene code from a plain-language request.
3. **Driving tools.** An agent operates Blender or Unity for you over a command line or MCP.

The person still decides what good looks like. Tools change.

Steps checklist

- [ ] Open a notes file before the demo starts.
- [ ] Make five headings: content, engine, platform, input, delivery.
- [ ] Fill each one as the demo goes. One line is enough.
- [ ] Mark every moment AI was used with "AI:" and note who made the final call.
- [ ] Write one question to ask in the critique block.

SHIP IT

Post your five-layer notes, plus your one question, in the session thread. Short is fine.

☐ Shipped. Link or file: _____

Check yourself

1. Can you name the engine and the platform of the piece you just saw?

2. Can you say one thing AI did in the build, and one thing a person decided?

3. Could you explain why a browser link is easier to share than a headset app?

LESSON 2.2 · LAB · 55 MIN

Build-along: your first WebXR scene

Build a small 3D scene in one HTML file. It runs in any modern browser, and on a Quest 3 it opens in VR with one button.

Key points

The idea

Three.js draws 3D in the browser with WebGL. WebXR is the browser API that hands that drawing to a headset.

Why setAnimationLoop

In VR the headset sets the frame rate. `setAnimationLoop` lets Three.js follow it.

Steps checklist

- [ ] Make a folder called `first-xr` and a file inside it called `index.html`.
- [ ] Paste the starter below and save.
- [ ] Serve the folder locally. From the folder, run `python3 -m http.server 8000` (or `npx serve .`), then open `http://localhost:8000`.
- [ ] You should see a pink cube spinning above a dark floor. On a desktop without a headset, the button says VR is not supported. That is fine.
- [ ] Change the cube colour, size and position. Add a second shape.
- [ ] To try it in a headset, put the folder on any HTTPS static host and open the link in the Quest browser. WebXR only runs on HTTPS or localhost.

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This lesson has code samples. They are printed in full in the lab handout (xr-ai-foundations-lab-2-2.pdf) and in the lesson on metametaclub.com/learn.
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SHIP IT

A scene with at least two shapes, your own colours, and one thing that moves. Screenshot it, or record five seconds.

- [ ] Shipped. Link or file: _____

Check yourself

1. What does `renderer.xr.enabled = true` change?

2. Why does the page need HTTPS or localhost to enter VR?

3. Where is the viewer standing, and how high are their eyes?

LESSON 2.3 · LIVE · 25 MIN

Critique: first scenes

Show your first WebXR scene, or watch others show theirs, and give feedback that goes past "it runs". On the Metameta Club Discord, volunteers share their screen or post a link in the session thread. On the replay, critique your own scene with the same questions.

Key points

How critique works here

Critique is about the work, not the person. Say what you see, why it matters, and one thing to try.

A useful line has three parts: "I notice... It makes me feel...

The week 1 rubric

Score each from 1 to 3. Talk about the lowest score first.

1. **Scale.** Does the cube feel like it is half a metre? Is the floor at your feet? In VR, wrong scale is the first thing people feel.
2. **Placement.** Is the main object where the eye lands? At about eye height and a metre or two away is a good default.
3. **Colour and light.** Can you tell the shapes apart? Is there contrast between object, floor and background?
4. **Motion.** Does the movement feel calm or does it make you uneasy? Slow and steady is kinder in a headset.
5. **Intent.** Can the builder say in one sentence what the scene is for?

Taste notes

Fewer things, placed well, beat many things placed anywhere. A dark floor with one bright object already has a focal point.

Steps checklist

- [ ] Post your link or screenshot in the session thread.
- [ ] When your turn comes, say your one-sentence intent first.
- [ ] Listen to two pieces of feedback. Write them down.
- [ ] Give feedback on one other person's piece, using the rubric.
- [ ] Pick one change you will make before you ship.

SHIP IT

Write your one change in the thread, then make it. Before and after screenshots are a great post.

- [ ] Shipped. Link or file: _____

Check yourself

1. Can you name the rubric line where your scene is weakest?

2. Did you give someone a "Try..." they can act on in ten minutes?

3. Do you know why scale matters more in a headset than on a screen?

LESSON 2.4 · PROJECT · 15 MIN

Ship it: post your first scene

Post your first WebXR scene so other people can see it. A small piece, shipped, beats a big piece still on your laptop.

Key points

Why ship every week

Shipping builds a habit and a portfolio at the same time. Each Metameta Night ends with something you can show.

What counts as shipped

Any of these:

- A live HTTPS link to your scene.
- A 5–15 second screen recording.
- A screenshot plus a short note.

A link is best, because people can open it on a phone or a headset.

Post checklist

- Title: a name for the scene, not "test".
- One line on what it is for.
- The link, or the clip.
- What you changed after critique.
- Credits: tools you used, and any assets that are not yours, with their source and licence.

A note on assets

If you used a model, texture or sound you did not make, say where it came from and check its licence lets you share it. If an AI tool made part of it, say which part.

Steps checklist

- [ ] Make your scene folder public. Any static host works: put `index.html` in a repo with static hosting turned on, or use a static host that takes a folder upload.
- [ ] Open the link on your phone. Check it loads and the shapes are where you expect.
- [ ] If you have a Quest 3 or 3S, open the link in its browser and press "Enter VR".
- [ ] Record a short clip of the scene moving.
- [ ] Post in the Metameta Nights gallery channel on the Metameta Club Discord.

SHIP IT

Your post in the gallery, with the checklist done.

- [ ] Shipped. Link or file: _____

Check yourself

1. Does your link open on a phone without errors?

2. Did you credit every asset you didn't make?

3. Could a stranger tell what your scene is from your one line?

PRACTICE QUIZ

Check your module

Circle one answer for each question. The answer key is on the next page.

1. Why does the starter use renderer.setAnimationLoop instead of requestAnimationFrame?

(A) It renders at a higher resolution
(B) It follows the headset's frame timing once you enter VR
(C) It is required for shadows to work
(D) It loads the page faster

2. Your scene works on localhost but the Quest browser won't offer Enter VR from a plain http:// link. Why?

(A) Quest 3 does not support WebXR
(B) The scene has too many polygons
(C) WebXR only runs in a secure context: HTTPS or localhost
(D) VRButton only works on desktop

3. In the five-layer view of a build, which layer is Three.js?

(A) Content
(B) Engine
(C) Delivery
(D) Input

4. Which is the most useful critique line?

(A) Nice work, looks cool
(B) It runs, so it's done
(C) I notice the cube sits at knee height, so I look down; try raising it to about 1.5 m
(D) You should have used Unity

ANSWER KEY

Answers and why

1 · B It follows the headset's frame timing once you enter VR

In a WebXR session the headset drives the frame rate. setAnimationLoop hands the loop to the XR session; a plain requestAnimationFrame loop stops in VR.

2 · C WebXR only runs in a secure context: HTTPS or localhost

WebXR is restricted to secure contexts. Host the folder over HTTPS and the button works.

3 · B Engine

Three.js is the engine: the code that draws the scene every frame with WebGL.

4 · C I notice the cube sits at knee height, so I look down; try raising it to about 1.5 m

Good critique names what you see, why it matters and one thing to try.

NOTES

Build log and notes

SESSION	WHAT I MADE OR LEARNED	NEXT STEP