META-META Club

WORKBOOK · MODULE 1 OF 3

The innovation stack

XR & AI Foundations. XR (VR, AR, MR) and AI (models, agents, gen tools), explained plainly.

Open courses | 3 lessons | 65 min | 4-question practice quiz | Notes pages

IN THIS MODULE

The innovation stack

XR (VR, AR, MR) and AI (models, agents, gen tools), explained plainly.

#	LESSON	TYPE	TIME	DONE
1.1	VR, AR and MR: what each one does	READ	20 min	☐
1.2	Virtual worlds and devices	READ	20 min	☐
1.3	AI: models, agents and gen tools	READ	25 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 1.1 · READ · 20 MIN

VR, AR and MR: what each one does

Learn the difference between virtual, augmented and mixed reality, and pick the right one for a job. XR is the umbrella word for all three.

Key points

Virtual reality (VR)

VR replaces the world around you. You wear a headset and everything you see is made.

Augmented reality (AR)

AR adds digital things on top of the real world. Most AR today runs on a phone: you point the camera and a model sits on the table.

Mixed reality (MR)

MR blends the two. A headset like Quest 3 shows the real room through its cameras (passthrough) and lets digital objects sit in it, hide behind real furniture and respond to your hands.

A simple way to choose

Ask three questions:

1. **Does the real place matter?** Yes: AR or MR. No: VR is an option.
2. **What device does the audience have?** Phones everywhere: AR or a browser link. Headsets in a room you control: VR or MR.
3. **How long will they stay?** A minute: AR on a phone. Twenty minutes: a seated or standing headset session.

Steps checklist

- [ ] Pick three projects you have seen or want to build.
- [ ] For each, answer the three questions above.
- [ ] Write down VR, AR or MR, plus one sentence on why.
- [ ] For one of them, write what you lose if you pick a different one.

SHIP IT

A short table: project, choice, reason. Keep it. You will use it again in the build-along.

- [ ] Shipped. Link or file: _____

Check yourself

1. A furniture shop wants buyers to see a chair in their own home. Which one, and why?

2. What does passthrough let a Quest 3 do that a VR-only headset can't?

3. Name one cost the audience pays for VR that they don't pay for phone AR.

LESSON 1.2 · READ · 20 MIN

Virtual worlds and devices

Get a clear picture of the devices people use to enter virtual worlds, and what each one means for what you build.

Key points

Four doors into a world

The browser. A link opens a 3D world in a tab on a laptop or phone. No install.

The phone. Phones run browser worlds and phone AR. They have touch screens, cameras and motion sensors.

The PC. A desktop or laptop with a good graphics card can run big scenes and high-end tools like Blender and Unity. It is where most building happens, even when the result runs somewhere else.

Virtual worlds

A virtual world is a shared 3D place people visit, often together, often as avatars. Some run in a browser, some as apps.

What this means for you

- **Design for the weakest device you care about.** If phones matter, test on a mid-range phone early.
- **Frame rate is comfort.** In a headset, a dropped frame is felt in the stomach. Keep it smooth before you make it pretty.
- **Input changes the design.** Touch, mouse, controllers and hands each need different buttons and distances.

Steps checklist

- [ ] List the devices you can test on today.
- [ ] Open a browser 3D scene, such as Matatu Ride, on each one.
- [ ] For each, note: did it load, was it smooth, how did you move?
- [ ] Write which device you will build for first, and why.

SHIP IT

A three-line device plan: build on, test on, ship to.

- [ ] Shipped. Link or file: _____

Check yourself

1. Why can a scene that runs well on a PC struggle on a Quest 3?

2. What is the widest door into a world, and why?

3. Name one design change you'd make for hand input versus a mouse.

LESSON 1.3 · READ · 25 MIN

AI: models, agents and gen tools

Learn the three kinds of AI you will meet in XR work, what each is good at, and where a person still has to decide.

Key points

Models

A model is a trained system that turns an input into an output. A language model turns text into text.

Gen tools

A gen tool is a model wrapped in an app for one job: make a texture, remove a background, draft a 3D asset, generate a sound. Gen tools are where most creatives start.

Agents

An agent is a model that can take actions. You give it a goal, and it plans steps, uses tools, checks results and tries again.

Where each fits in an XR build

- **Concept:** an image model for mood boards and quick variations.
- **Assets:** gen tools for draft meshes and textures, cleaned up in Blender.
- **Code:** a coding agent for scene code, loaders, small fixes.
- **Production:** an agent driving Blender or Unity for repetitive work.

Where the person decides

AI does not know what your client needs, what your audience will feel, or whose work it learned from. You decide the brief, the taste and the rights.

1. Is the output good enough, by my standard, not the tool's?
2. Do I have the right to use the inputs I gave it?
3. Will I credit it honestly?

Steps checklist

- [ ] Pick one small XR idea.
- [ ] Write down each stage: concept, assets, code, production.
- [ ] For each stage, write which kind of AI could help, or "none".
- [ ] For each AI step, write the one decision you will keep for yourself.

SHIP IT

A one-page plan: idea, stages, AI help per stage, and your decisions.

- [ ] Shipped. Link or file: _____

Check yourself

1. What makes an agent different from a gen tool?

2. What is MCP for, in one sentence?

3. Name one thing in an XR build that should stay a human decision.

PRACTICE QUIZ

Check your module

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

1. A museum wants visitors to see a lost building standing on its real, empty site. Which fits best?

(A) VR
(B) AR or MR
(C) A 2D video
(D) None of these

2. Why test a browser world on a mid-range phone early?

(A) Phones have more powerful graphics than PCs
(B) If phones matter to your audience, they are often the weakest device you must support
(C) WebXR only works on phones
(D) Phones don't need HTTPS

3. What makes an AI agent different from a gen tool?

(A) Agents only make images
(B) Agents plan and take actions with tools, then check the results
(C) Agents don't use models
(D) Gen tools can't run in a browser

4. Which decision should stay with a person, not the model?

(A) Whether the output meets your standard and you have the right to use its inputs
(B) Which pixel colour to render next
(C) How fast the GPU runs
(D) The file format the tool exports

ANSWER KEY

Answers and why

1 · B AR or MR

The real place matters here, so you add the building on top of the real site with AR (phone) or MR (headset passthrough).

2 · B If phones matter to your audience, they are often the weakest device you must support

Design for the weakest device you care about. A scene smooth on a PC may stutter on a phone or a standalone headset.

3 · B Agents plan and take actions with tools, then check the results

A gen tool does one job on request. An agent works toward a goal by planning steps and using tools such as Blender or a code editor.

4 · A Whether the output meets your standard and you have the right to use its inputs

Taste and rights are human calls: is it good enough, and are you allowed to use and share what went in.

NOTES

Build log and notes

SESSION	WHAT I MADE OR LEARNED	NEXT STEP