Part 4: Foundation Skills - INSTRUCTIONS FOR MICHAEL

**Follow these EXACT steps to complete Part 4**Time: 3-3.5 hours • Goal: 'I Can Make Real Things!'

|  |  |  |
| --- | --- | --- |
| MICHAEL: Do These Steps Exactly | JESSE: Your Support Tasks | ✓ Check When Done |
| **STEP 4.1: MUSIC STAGE SETUP**  **1. AutoCAD - Stage Design**  → New drawing → Rectangle: 5000x3000  → EXTRUDE → Height: 500 (platform)  → Draw stairs: LINE → 1000 width  → ARRAY → 5 steps @ 100 rise  → Add railings: PLINE → Height: 900  → Section view: SECTION → A-A  → Save as stage\_technical.dwg  **2. Substance - Metal Materials**  → New project → Metal preset  → Base Color: RGB(180, 180, 190)  → Metallic: 0.9  → Roughness: 0.3  → Add Rust generator → Curvature  → Rust amount: 0.2  → Export as metal\_stage/  **3. Maya - Musical Instruments**  → Model guitar:  → Cube → Scale body shape  → Cylinder → Neck (Scale X: 0.1, Y: 3)  → Curves → Strings (6 lines)  → Group all → Name: guitar\_geo  → Duplicate → Model drums, keyboard  → Save as instruments.ma | Stage templates Dimension standards Section automation | ☐ Stage modeled ☐ Metal textures ☐ Instruments done ☐ Technical drawings |
| **STEP 4.2: PERFORMANCE ANIMATION**  **4. Python - Crowd Beat Sync**  → Create beat sync script: import maya.cmds as cmds import math bpm = 120 fps = 24 beat\_interval = 60.0 / bpm for frame in range(1, 241):  time = frame / fps  beat = math.sin(time \* math.pi \* 2 / beat\_interval)  cmds.currentTime(frame)  cmds.setAttr('crowd\_ctrl.sway', beat \* 0.3)  cmds.setAttr('crowd\_ctrl.handsUp', 1 if beat > 0.8 else 0)  cmds.setKeyframe('crowd\_ctrl')  → Run → Crowd moves to beat!  **5. Facial - Singing**  → Import audio: song.wav  → Create viseme shapes: AA, EE, OH, MM, FF  → Graph Editor → Audio wave visible  → Key visemes to match lyrics:  → "Hello" = EE(5) L(8) OH(12)  → Loop through 30 second clip  **6. Hair - Performance Wind**  → Create Wind Field  → Magnitude: 10  → Direction: -1, 0.2, 0.5  → Turbulence: 2  → Connect to hairSystem  → Animate magnitude: 5-15 on beats | Beat detection tool Audio analysis Sync framework | ☐ Crowd synced ☐ Singing animated ☐ Wind dynamic ☐ Beat matched |
| **STEP 4.3: CONCERT EFFECTS**  **7. Cloth - Flowing Dress**  → Model dress from planes  → 3 layers: Base, Middle, Outer  → Each layer different nCloth preset:  → Base: Cotton, Middle: Silk, Outer: Chiffon  → Pin constraints at shoulders/waist  → Collide layers: On  → Cache 500 frames performance  **8. Crowds - Audience**  → Character → MASH → 50 instances  → Stadium node → Radial distribution  → Random node → Rotation Y: ±30°  → Animation: 3 idle variations  → Phone lights: Visibility node  → Keys: On during chorus  **9. Mocap - Dance Sequence**  → Mixamo: Download "Hip Hop Dance"  → Retarget to character  → Time Editor → Sync to music  → Layer: Add finger animation  → Polish: Fix penetrations  → Export dance\_performance.fbx | Audience behaviors Phone light control Stadium setup | ☐ Dress layers work ☐ 50 audience ☐ Dance synced ☐ Phone lights |
| **STEP 4.4: PRODUCTION RENDERING**  **10. Houdini - Pyrotechnics**  → Pyro shelf → Flames  → Source: Sphere at stage  → Fuel: 10, Temperature: 800  → Buoyancy: 12  → Timing: Frame 120 (chorus)  → Add sparks: Particles  → Export pyro\_show.bgeo sequence  **11. V-Ray - Concert Lighting**  → Create 6 spot lights  → Colors: RGB variations  → Cone angle: 30°  → Penumbra: 5°  → Animate: Rotate on beat  → Fog: Environment fog  → Density: 0.02  → Render all lighting passes  **12. Nuke - Concert Comp**  → Read all passes  → Merge: Screen for lights  → Glow node → Size: 20  → LensFlare at light positions  → ColorCorrect: Night look  → Film grain: 0.01  → Write: concert\_shot.mov  **13. Unity - Camera Cuts**  → Create 5 cameras  → Cam1: Wide, Cam2: Close  → Cam3: Audience POV  → Timeline → Add tracks  → Cut on beat (every 4 bars)  → Smooth transitions: 0.2s | Pyro timing system Light rig presets Camera cut tool Render management | ☐ Pyro at chorus ☐ Concert lighting ☐ Comp complete ☐ Cameras cutting |

# 🎉 PART 4 COMPLETE!

You've mastered Foundation Skills with all 13 tools!