**Test Plan｜Interactive Prototype 1**

**Project Name: Star River Notes – Immersive Knowledge Map Space  
Test Duration: About 5 minutes per participant (including instructions)**

**1) Three-Sentence Pitch**

* **This is an XR/3D prototype that turns notes into a “3D universe,” allowing users to create, connect, and browse knowledge nodes in space.**
* **Users can create nodes and connect topics with simple gestures/mouse operations.**
* **The goal is to verify whether spatial organization is more helpful than 2D in understanding relationships, memorizing structures, and quick navigation.**

**2) Test Objectives and Hypotheses**

* **O1 Usability/Learnability: Whether participants can complete the core operation of “linking nodes” within 30 seconds on the first attempt.**
* **O2 Navigation and Understanding: In a given small topic map, whether participants can quickly find the target node and explain its relationship with two neighboring nodes.**
* **O3 Sense of Structure/Load: Whether spatial layout can reduce subjective load and enhance the sense of structural understanding.**

**3) Methodology**

* **Method: Task-based usability testing and short interviews**

**4) Prototype Description (Functions Under Test)**

* **Linking: Establish an edge between two nodes**
* **Navigation (right-drag/keyboard WASD/arrow keys): Pan and zoom in the graph**

**5) Participants and Sample Size**

* **Target Group: Classmates and tutors with backgrounds in interaction design/computing**
* **Sample Size: At least 5 people (6–10 people in class would be better)**

**6) Test Procedure (5 minutes/person)**

**Welcome and Instructions**

* **Obtain verbal consent; do not collect personal sensitive information**

**Familiarization (not scored)**

* **10–20 seconds demo: how to create nodes, link, enter focus mode, zoom and pan**
* **Participant tries once creating and once linking**

**Task Execution (timed)**

* **Task 1 (O1): Create a node named “Topic-A” and connect it with “Topic-B”**
  + **Record: completion time, number of errors, whether asked for help**
* **Task 2 (O2): In the given small map, find the “Goal-X” node, and describe its relationship with two neighboring nodes**
  + **Record: locating time, path steps, whether the relationship description is reasonable**

**Questionnaire (Subjective)**

* **SUS-Lite (2 questions: usability, confidence)**

**Post-interview (Qualitative)**

* **Key questions (choose 2–3):**
  + **Which action was the most intuitive/difficult? Why?**
  + **Compared to 2D, what was the most “useful” moment you experienced in 3D?**

**7) Success Criteria**

* **SC1 (O1): ≥80% of participants can complete “create + link” within 30 seconds, errors ≤1**
* **SC2 (O2): Average locating time ≤25 seconds; ≥80% can correctly describe 1 relationship**
* **SC3 (O3): Sense of understanding ≥5/7; NASA-TLX total score lower than 2D (median score decreases by at least 1 point)**