

Intention Tunnel Learning Curriculum

Progressive Exercises for CPUX Beginners

Target Audience: New programmers familiar with React terminology

Format: Step-by-step written tutorials (10-15 min each)

Approach: Different simple examples with visible continuity

Method: Start from blank, build understanding through templates

Learning Path Overview

Level 1: PULSE BASICS



Level 2: FIELD AS SHARED STATE



Level 3: INTENTIONS AS CHANNELS



Level 4: OBJECTS AS REFLECTORS



Level 5: DESIGN NODES AS PROCESSORS



Level 6: COMPLETE CPUX FLOWS

Exercise Series

LEVEL 1: Understanding Pulses (3 exercises)

Exercise 1.1: What is a Pulse?

- **Example:** A light switch
- **Learn:** Pulse structure (prompt, responses, trivalence)
- **Time:** 10 minutes

Exercise 1.2: Pulses Change Over Time

- **Example:** A traffic light
- **Learn:** How pulse responses change
- **Time:** 10 minutes

Exercise 1.3: Pulses in React

- **Example:** A simple counter
- **Learn:** Display pulse value in React component
- **Time:** 15 minutes

Continuity Thread: "Pulses are data containers that can change"

LEVEL 2: Field as Shared State (3 exercises)

Exercise 2.1: What is the Field?

- **Example:** A whiteboard everyone can see
- **Learn:** Field holds multiple pulses
- **Time:** 10 minutes

Exercise 2.2: Multiple Components, One Field

- **Example:** Two displays showing same temperature
- **Learn:** Multiple components subscribe to same pulse
- **Time:** 15 minutes

Exercise 2.3: Field Updates Notify Everyone

- **Example:** Chat room message counter
- **Learn:** When Field changes, all subscribers update
- **Time:** 15 minutes

Continuity Thread: "Field is a shared space where pulses live"

LEVEL 3: Intentions as Communication Channels (4 exercises)

Exercise 3.1: What is an Intention?

- **Example:** Pressing a doorbell
- **Learn:** Intentions carry signals between entities
- **Time:** 10 minutes

Exercise 3.2: Emitting Intentions from Components

- **Example:** Order button in restaurant
- **Learn:** Component → emit → Field
- **Time:** 15 minutes

Exercise 3.3: Intentions Carry Data

- **Example:** Choosing a dish with name and price
- **Learn:** Signal = bundle of pulses
- **Time:** 15 minutes

Exercise 3.4: Different Intentions, Different Purposes

- **Example:** "Add to cart" vs "Remove from cart"
- **Learn:** Intention IDs indicate purpose
- **Time:** 10 minutes

Continuity Thread: "Intentions are labeled messages with data"

LEVEL 4: Objects as Pure Reflectors (4 exercises)

Exercise 4.1: What is an Object?

- **Example:** A mirror
- **Learn:** Objects receive and reflect intentions
- **Time:** 10 minutes

Exercise 4.2: Objects Check Before Reflecting

- **Example:** Door with lock (gatekeeper)
- **Learn:** Gatekeeper = entry condition
- **Time:** 15 minutes

Exercise 4.3: Objects Transform Pulses

- **Example:** Converting currency
- **Learn:** PnR operations (copy, map)

- **Time:** 15 minutes

Exercise 4.4: Objects Don't Compute, They Transform

- **Example:** Copying vs calculating
- **Learn:** Pure reflection (no business logic)
- **Time:** 15 minutes

Continuity Thread: "Objects reshape data without computing"

LEVEL 5: Design Nodes as Processors (4 exercises)

Exercise 5.1: What is a Design Node?

- **Example:** A kitchen
- **Learn:** DNs contain business logic
- **Time:** 10 minutes

Exercise 5.2: DN Gatekeeper (When to Execute)

- **Example:** Recipe requires ingredients
- **Learn:** syncTest checks readiness
- **Time:** 15 minutes

Exercise 5.3: Flowin → Perform → Flowout

- **Example:** Making a sandwich
- **Learn:** DN execution pattern
- **Time:** 15 minutes

Exercise 5.4: DNs are Testable Black Boxes

- **Example:** Testing a calculator
- **Learn:** Pure perform() function
- **Time:** 15 minutes

Continuity Thread: "DNs contain the real work (business logic)"

LEVEL 6: Complete CPUX Flows (3 exercises)

Exercise 6.1: Component → Object → DN

- **Example:** Complete restaurant order flow
- **Learn:** Full Intention Tunnel chain
- **Time:** 20 minutes

Exercise 6.2: Multiple Intentions in Sequence

- **Example:** Add item, update total, show confirmation
- **Learn:** Intention chains
- **Time:** 20 minutes

Exercise 6.3: Building Your First Complete App

- **Example:** Simple todo app (minimal)
- **Learn:** All concepts together
- **Time:** 30 minutes

Continuity Thread: "Everything connects through the Field"

Teaching Strategy

Progressive Complexity

1. **Level 1-2:** No CPUX infrastructure, just concepts
2. **Level 3:** Introduce IntentionTunnelProvider (simple version)
3. **Level 4:** Add Objects (show reflection)
4. **Level 5:** Add DNs (show processing)
5. **Level 6:** Complete apps

Template Strategy

Each exercise provides:

- **Blank Starting Point:** "Start here" file
- **Template with Comments:** Guided structure

- **Complete Solution:** Reference implementation
- **What You Learned:** Summary box

Visual Continuity

Each exercise includes:

- **Concept Map:** Shows where this fits in bigger picture
 - **Flow Diagram:** Visual representation of data flow
 - **Before/After:** What changes in this exercise
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Exercise Template Structure

Each exercise follows this format:

markdown

Exercise X.Y: [Title]

🎯 What You'll Learn

- [Concept 1]
- [Concept 2]

🌐 Real-World Example

[Simple analogy]

🗺️ Where We Are

[Concept map showing progress]

🛠️ Starting Point

[Blank template or minimal setup]

📝 Step-by-Step Instructions

1. [Step 1 with code snippet]
 2. [Step 2 with code snippet]
- ...

✅ Check Your Understanding

- [] [Checkpoint 1]
- [] [Checkpoint 2]

🎁 Complete Solution

[Full working code]

💡 Key Takeaways

- [Concept summary]

➡️ Next Exercise

[Preview of next topic]

🚀 Next Steps

I will now create:

1. **Complete Exercise 1.1** (full detail)
2. **Template for others** (you can review structure)
3. **Supporting materials** (concept maps, diagrams)

Shall I proceed with creating Exercise 1.1: "What is a Pulse?"?