Raspberry Pi Foundation

KS4 - Data Representations
Lessons 1 - 7

1. **Lesson 1**
   - **Concept**: Explain that computers use binary to represent all data and instructions.
   - **Skill**: Count in binary
   - **Links**: Direct prerequisite

2. **Lesson 2**
   - **Concept**: Explain how binary relates to two-state electrical signals.
   - **Skill**: Convert between binary and decimal numbers
   - **Links**: Scaffolding not direct prerequisite

3. **Lesson 3**
   - **Concept**: Explain the difference between base-2 and base-10 numbers.
   - **Skill**: Perform addition in binary on two binary numbers
   - **Links**: Direct prerequisite

4. **Lesson 4**
   - **Concept**: Explain how computers use binary to represent all data and instructions.
   - **Skill**: Perform subtraction in binary on three binary numbers
   - **Links**: Direct prerequisite

5. **Lesson 5**
   - **Concept**: Explain the difference between base-2 and base-10 numbers.
   - **Skill**: Perform binary shifts
   - **Links**: Direct prerequisite

6. **Lesson 6**
   - **Concept**: Explain how overflow errors can occur.
   - **Skill**: Explain how underflow occurs
   - **Links**: Direct prerequisite

7. **Lesson 7**
   - **Concept**: Explain how numbers are represented using hexadecimal.
   - **Skill**: Convert decimal numbers to and from hexadecimal numbers
   - **Links**: Direct prerequisite

**Key**:
- Concept
- Skill
- Links
- Direct prerequisite
- Scaffolding not direct prerequisite

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