COSC 442:
Mobile Educational Game Development

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Easy Exam Question

- In the following statement, what is the name of the variable?

  String playerName = “Terry Jones”;

Harder Exam Question

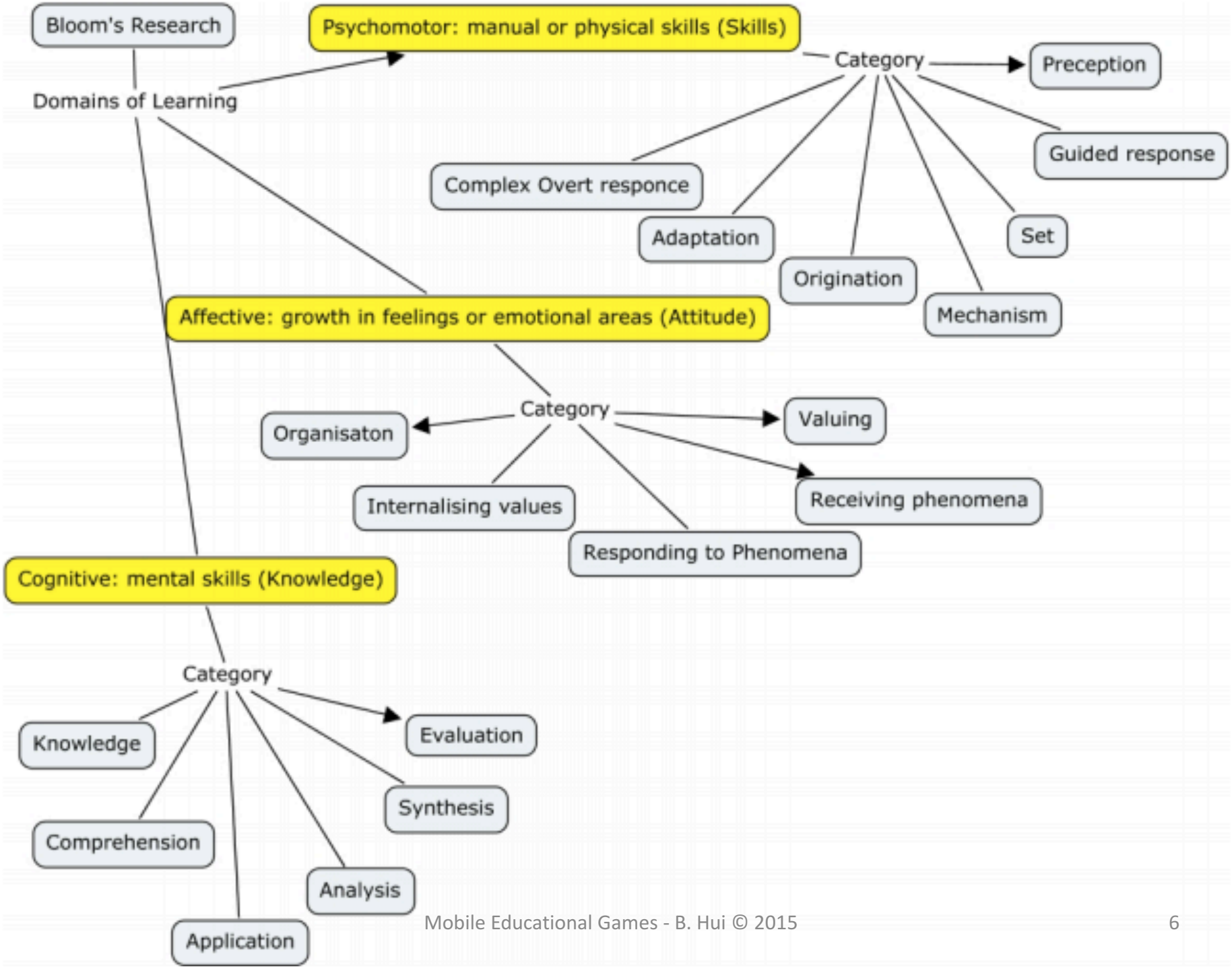
- Create a variable with the name “airplane” and instantiate it as the String value “ultralight”.

Even Harder Exam Question

- Come up with an exam question to test someone's knowledge on variables.

Bloom's Taxonomy (1956)

- Bloom developed a taxonomy of educational learning objectives
- Widely adopted as a tool to structure and understand our learning process
- Learning fit into one of following domains:
  - Cognitive – info processing, mental skills
  - Affective – attitudes and feelings
  - Psychomotor – physical skills


Bloom's Research
Domains of Learning
Psychomotor: manual or physical skills (Skills)
Category
Preception
Guided response
Set
Mechanism
Origination
Adaptation
Complex Overt responce
Affective: growth in feelings or emotional areas (Attitude)
Category
Valuing
Receiving phenomena
Responding to Phenomena
Internalising values
Organisaton
Cognitive: mental skills (Knowledge)
Category
Evaluation
Synthesis
Analysis
Application
Comprehension
Knowledge

The Cognitive Domain

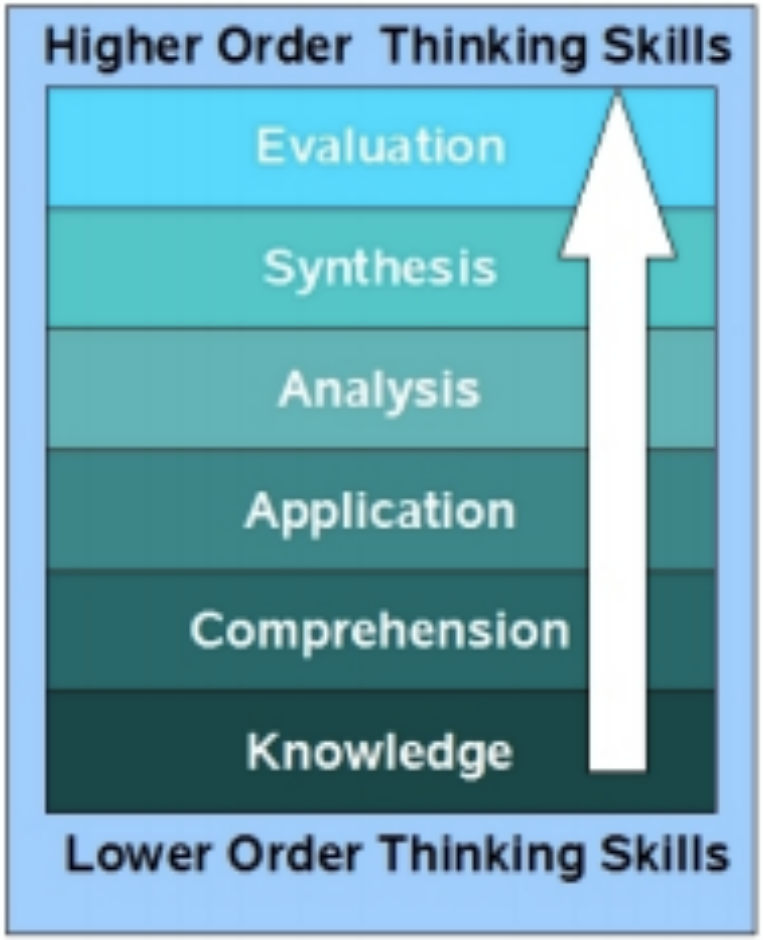
- Ranges from lower order thinking skills to higher order thinking skills
  - Knowledge
  - Comprehension
  - Application
  - Analysis
  - Synthesis
  - Evaluation
- Each is a prerequisite to the next level

Bloom's Revised Taxonomy (2001)

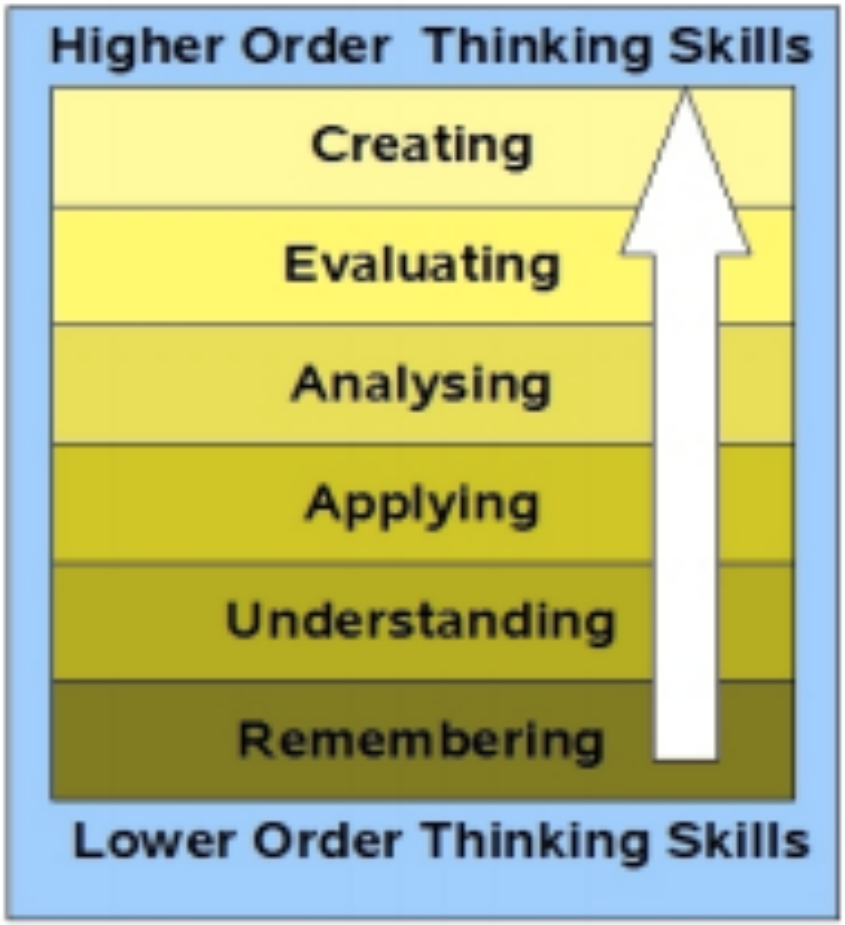
- Usage of verbs rather than nouns
- Rearrangement of the last two processes
  - Remembering
  - Understanding
  - Applying
  - Analyzing
  - Evaluating
  - Creating

A Comparison

Original



Revised



Examples

- Remembering
  - Recognizing
  - Listing
  - Describing
  - Identifying
  - Retrieving
  - Naming
  - Locating
  - Finding

Examples

- Understanding
  - Interpreting
  - Summarizing
  - Inferring
  - Paraphrasing
  - Classifying
  - Comparing
  - Explaining
  - Exemplifying

Examples

- Applying
  - Implementing
  - Carrying out
  - Using
  - Executing

Examples

- Analyzing
  - Comparing
  - Organizing
  - Deconstructing
  - Attributing
  - Outlining
  - Finding
  - Structuring
  - Integrating

Examples

- Evaluating
  - Checking
  - Hypothesizing
  - Critiquing
  - Experimenting
  - Judging
  - Testing
  - Detecting
  - Monitoring

Examples

- Creating
  - Designing
  - Constructing
  - Planning
  - Producing
  - Inventing
  - Devising
  - Making
  - Predicting

As a Learning Process

- Before we can **understand** the concept
  we have to remember it
- Before we can **apply** the concept
  we must be understand it
- Before we **analyze** it
  we must be able to apply it
- Before we can **evaluate** its impact
  we must have analyzed it
- Before we can **create**
  we must have remembered, understood, applied, analyzed, and evaluated

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Do you agree with these statements?

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Does every task involve all of these levels?

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Must we always start with remembering?

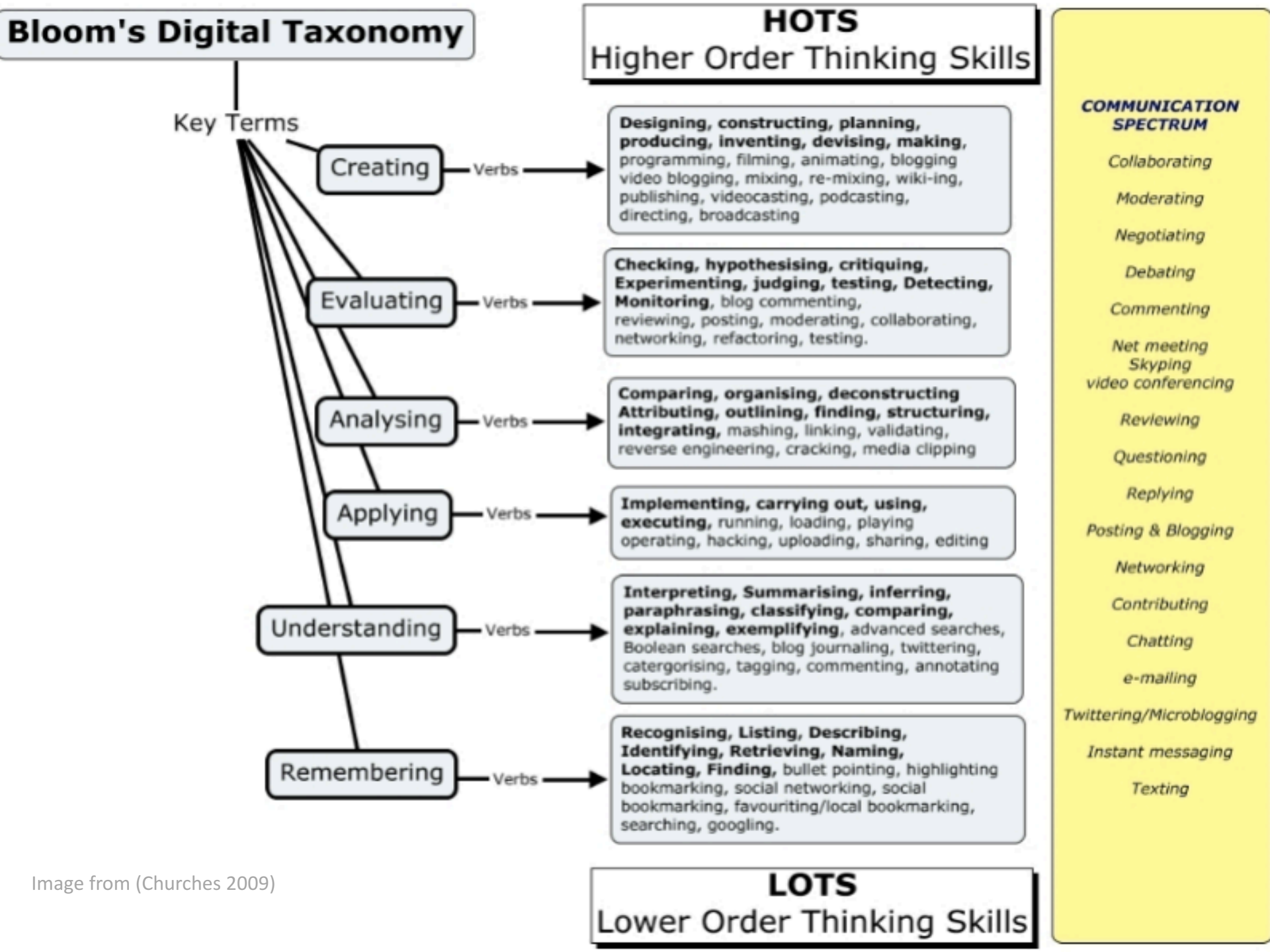


Image from (Churches 2009)

Changing Emphasis

- Historically focused on acquiring knowledge
  - Easily forgotten
  - Domain specific
  - Can just look things up
- Recent emphasis on HOTS
  - These skills stay with you once acquired

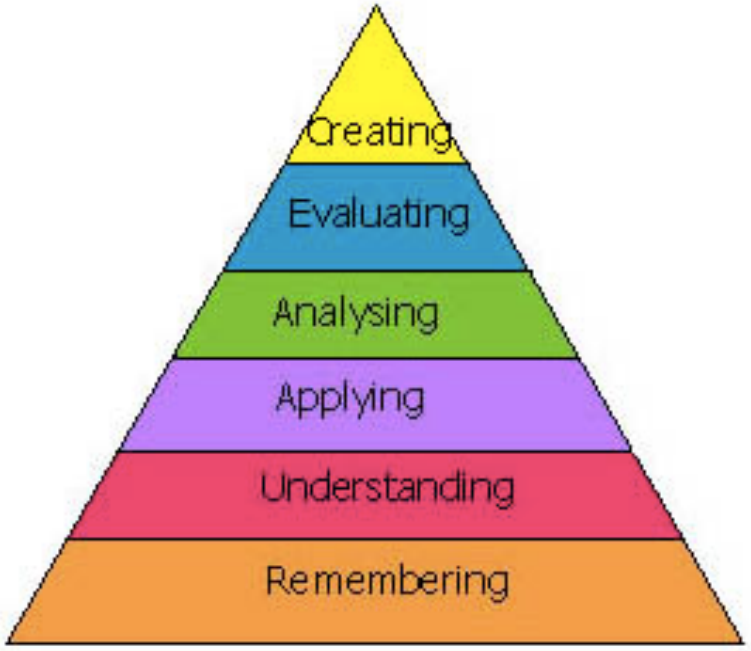
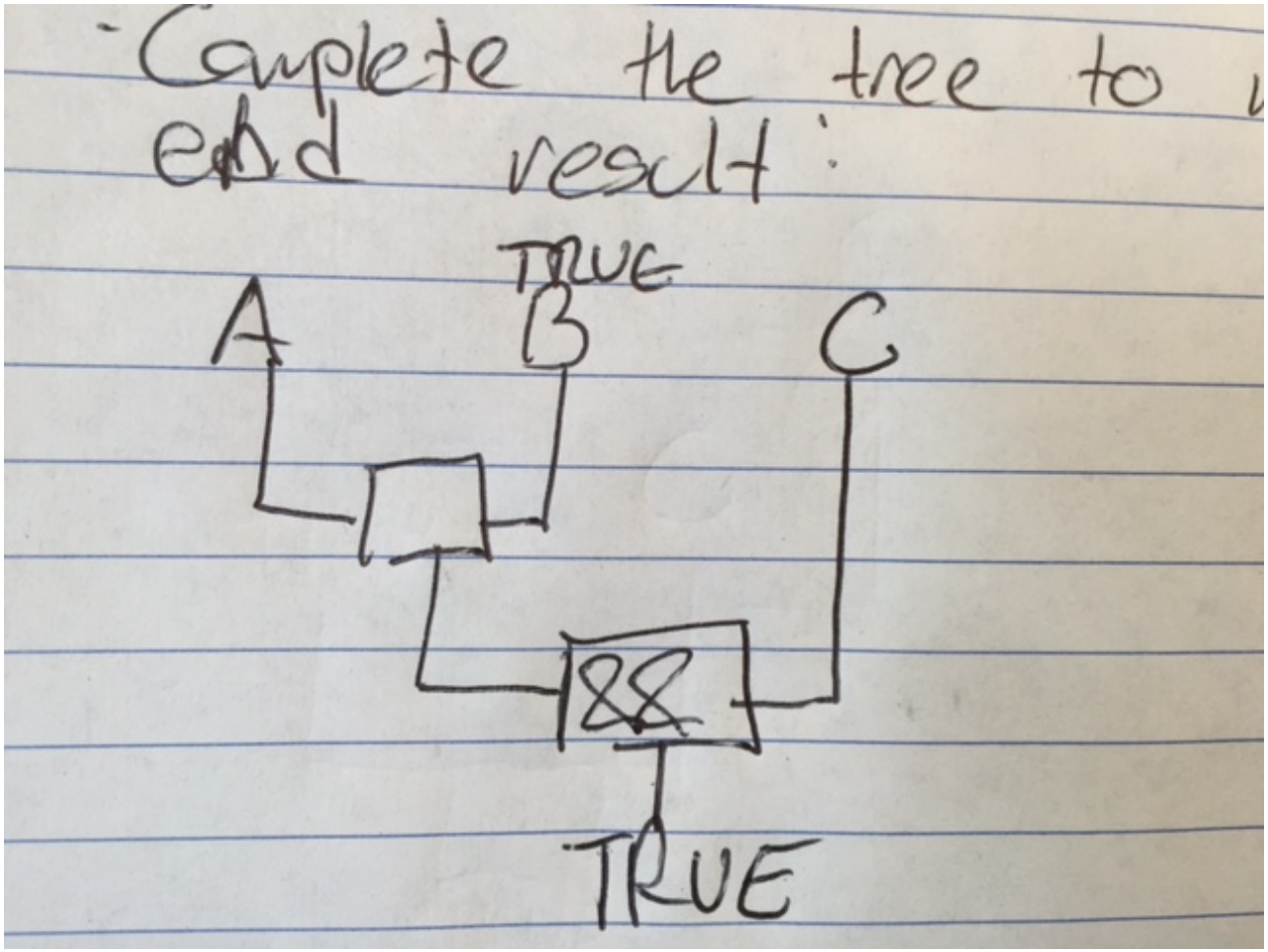


Image from http://epltt.coe.uga.edu/

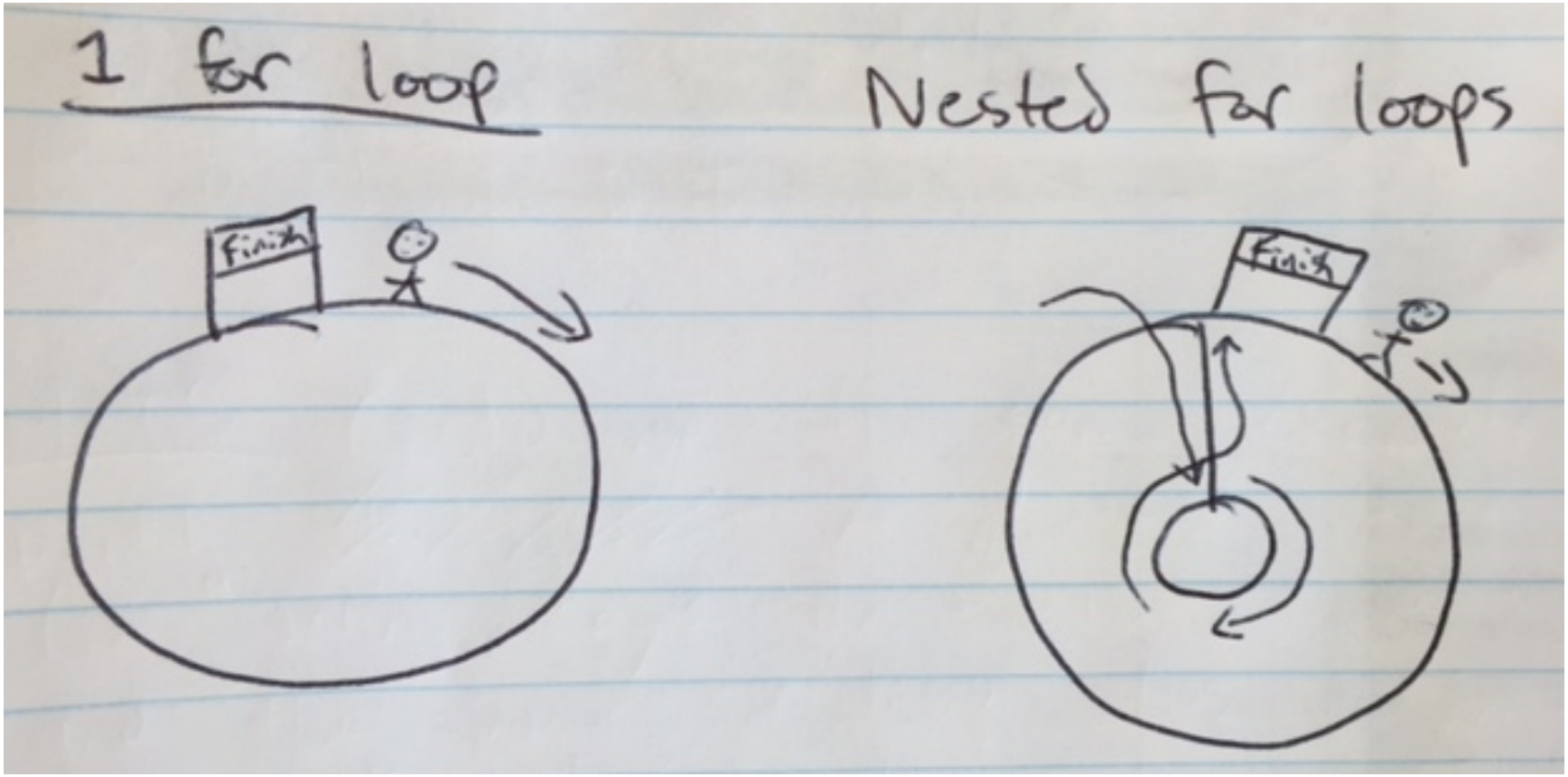
Design Activity

- What kind of game activities can we develop for the various levels of Bloom's taxonomy?
  - Target at least one LOTS and one HOTS

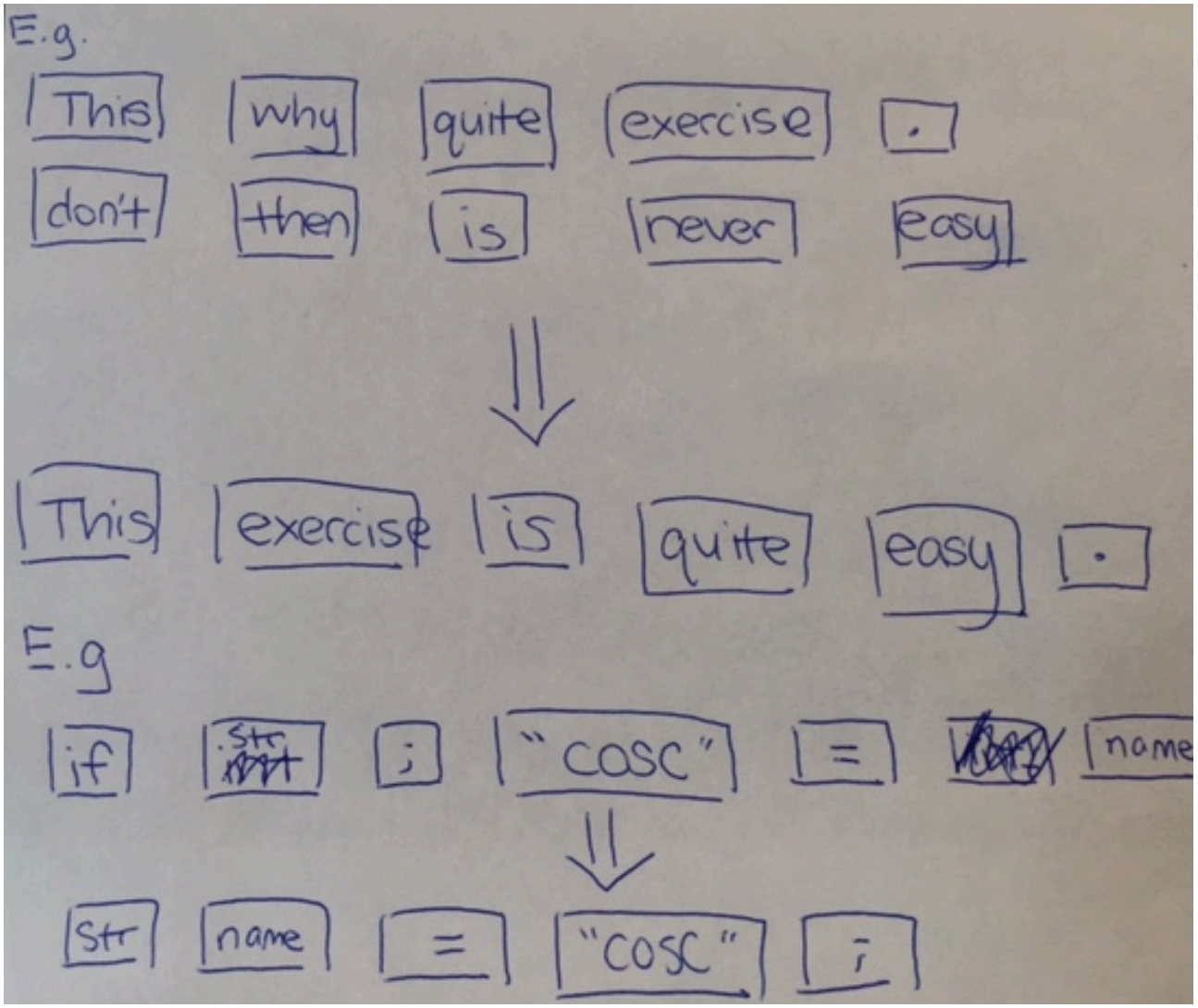
Boolean Logic: Fill in the blank



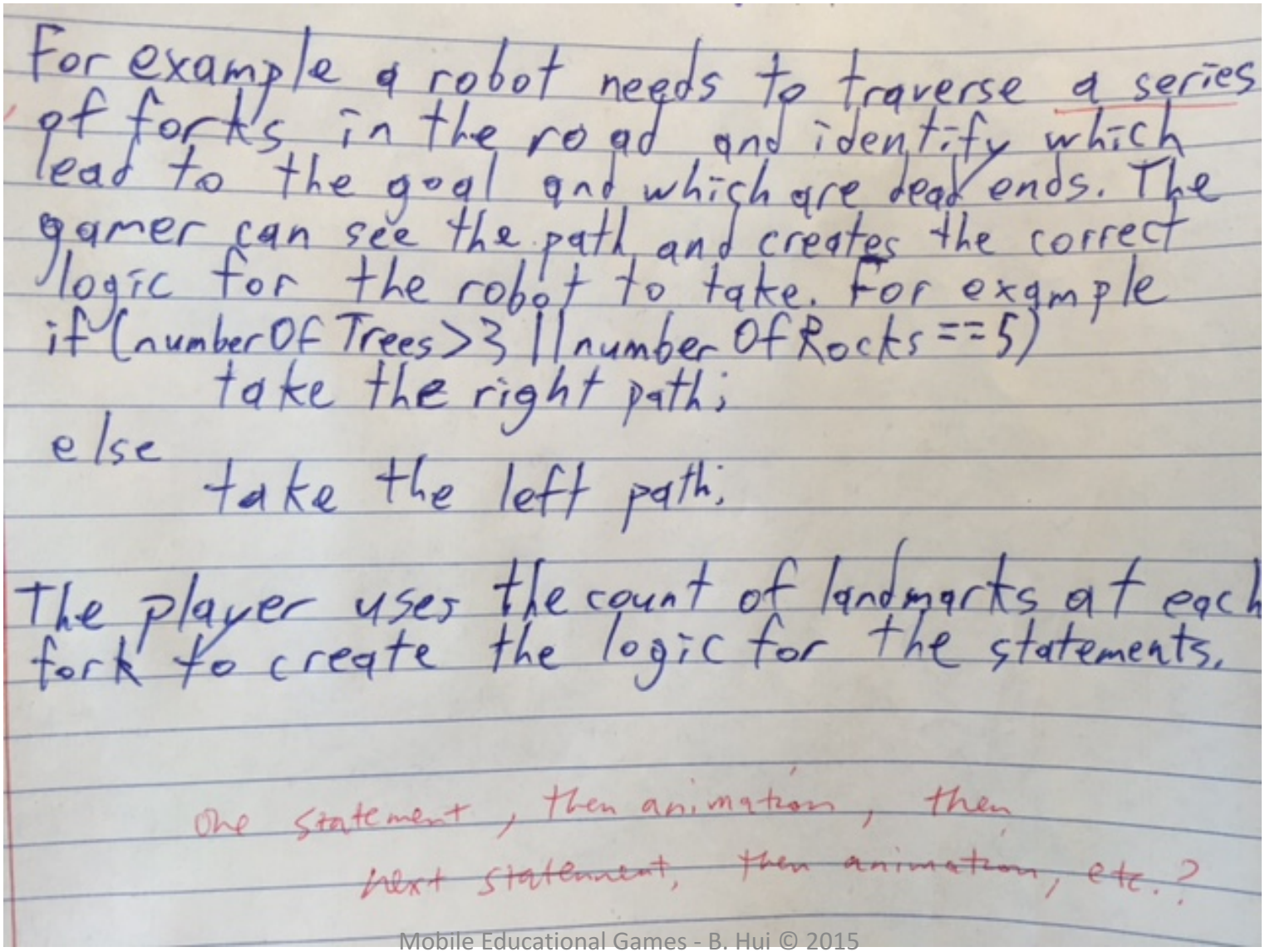
Loops: Fill in the blank, Mix/match to evaluation



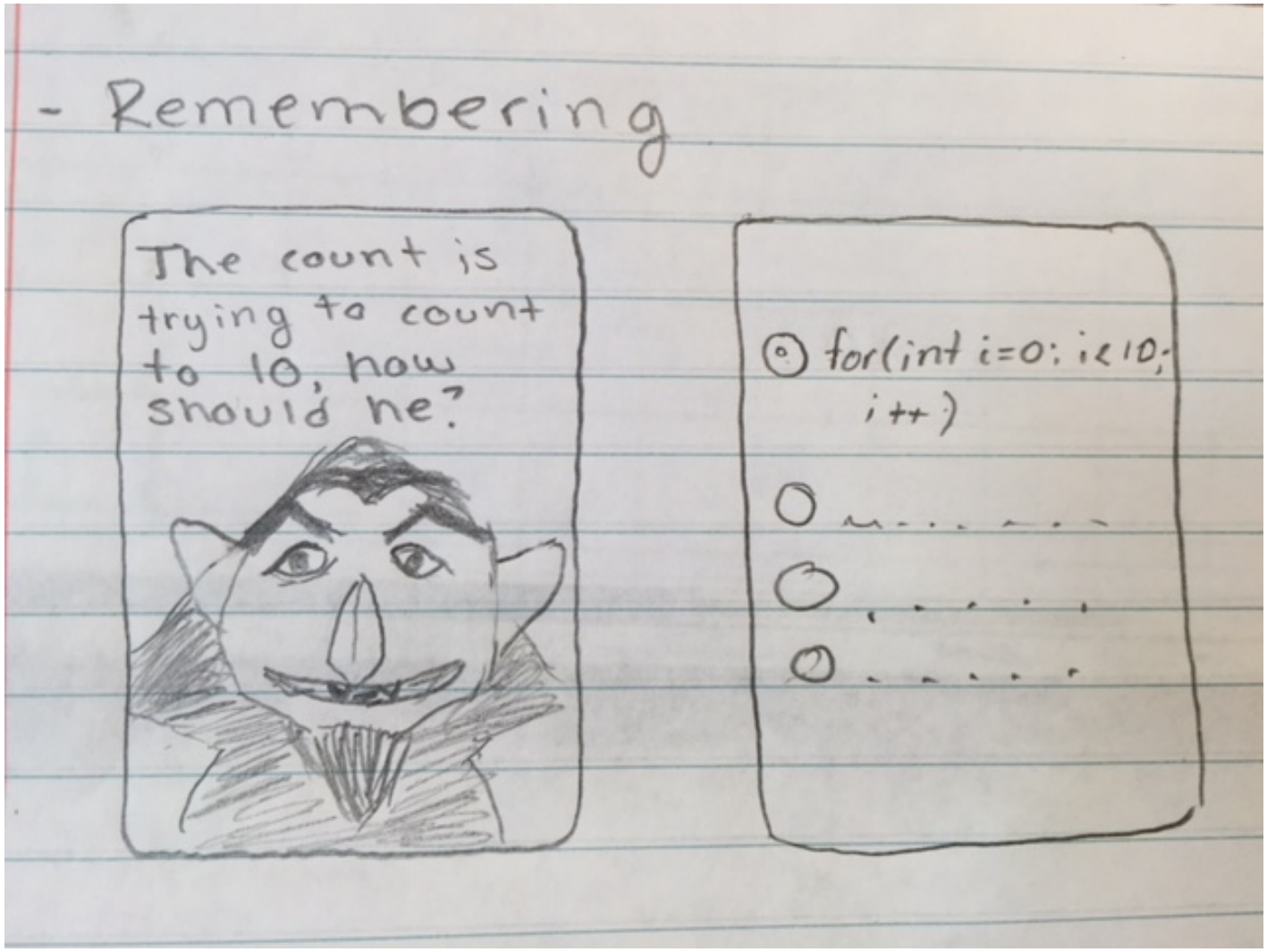
Syntax: Building a statement



Conditionals: Code completion



Loop: multiple choice format



Loop: Fill in the blank