* Finite State Automata:

State diagram, state transfer, trigger

Game: pirate islands and treasure island

* Programming Languages:

Computer follow instructions from designers, even if it’s hard to understand or wrong.

Game: Follow instructions to draw exact images, with questions, without questions, behind wall

* Class Simulation of a Computer

Simple instruction set to achieve interesting things

Game: find the small bug in code, let computer to decide an array is Fibonacci.

* Harold the Robot

Express the meaning of computer following exact instruction

Game: student instruct a “robot” to finish a task( tower or else).

* Graph Coloring

4 color algorithm procedure and logical reasoning

Game: paint the country map with fewest colors with different colors bordering

* Dominating Sets

Maps, iterative goal seeking, relationships and puzzle solving.

Game: find the intersections for all nodes to come in the shortest routes, or fixed length.

* Steiner Trees

Shortest routes between dots, geometric reasoning, algorithm procedure

Game: find the shortest routes among many dots, no limitation.