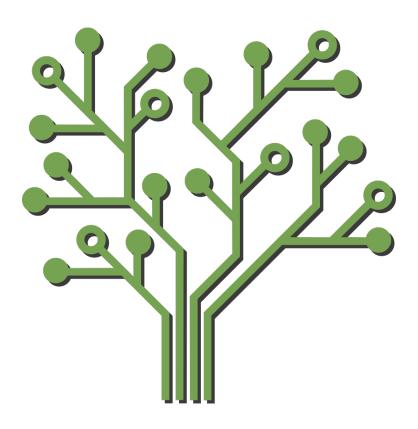
ThoughtSTEM Language Learning Tactics

Version 7.0

August 26, 2019



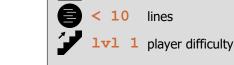
1 Disintegrating Code

Players write code from the whiteboard; each round more and more code disappears!

SUPPLIES

- Chromebooks (1 per player)
- Whiteboard
- Markers
- Challenge Card
- Timer

ACTIONS



K+

1/5

players

grade level

TM difficulty

10-20 minutes

Prep & Round 0

- 1. Write the stimulus of [the-challenge-card] onto [the-whiteboard]
- 2. Write the code of [the-challenge-card] onto [the-whiteboard]
- 3. **Set** [the-timer] for as many minutes as there are lines of code
- 4. Tell [the-players] to type up the code of [the-whiteboard] onto [the-chromebooks]

Round 1

- 1. **Erase** 2-4 identifiers from the code on [the-whiteboard]
- 2. **Tell** [the-players] to **erase** all code from [the-chromebooks]
- 3. Tell [the-players] to type up the code again, using their memory to fill in the blanks!

Repeat!

• **Repeat** 'Round 1', erasing more code each time until you are left with only symbols. Then erase those too!

KATA CHALLENGE

2 Code Anatomy

Label and define the different parts of the code, then use the labels as a guideline to rebuild the code as a team.

SUPPLIES

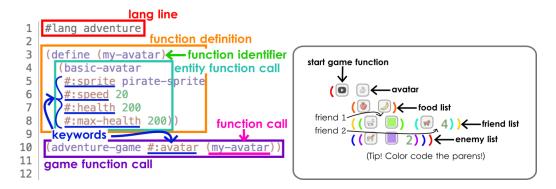
- Chromebooks (1 per player)
- Whiteboard
- Markers
- Challenge Card
- Timer

ACTIONS



Label And Define

- 1. Write the code of [the-challenge-card] onto [the-whiteboard]
- 2. Label and define the parts of the code with help from the players



Fill In The Blanks

- 1. **Erase** all code, leaving the labels, from [the-whiteboard]
- 2. Tell [the-players] to write the code back in, working together
- 3. Repeat this phase until players have succedded without help twice

Final Quiz

- 1. Erase all code again, leaving the labels, from [the-whiteboard]
- 2. **Set** [the-timer] for as many minutes as there are lines of code
- 3. **Tell** [the-players] to **type** up the code independently from memory
- 4. Repeat this phase if needed

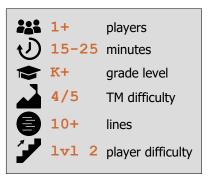
KATA CHALLENGE

3 Reverse Engineering

Starting with the finished game, players evaluate the elements of the game and how to code it.

SUPPLIES

- Master Chromebook (1 for the Tactics Master)
- Player Chromebooks (1 per player)
- Whiteboard
- Markers
- Challenge Card
- Timer



ACTIONS

Deconstruct The Game

- 1. Type up the code of [the-challenge-card] onto [the-master-chromebook]
- 2. Run the game and show it to the players, while hiding the code
- 3. **Tell** [the-players] to **write** a list of all the elements in the game onto [the-whiteboard]
- 4. Tell [the-players] to mark any elements they have forgotten or don't know how to code

Match Elements To Code

- 1. **Give** [the-challenge-card] to [the-players]
- 2. **Tell** [the-players] to **match** each element on their list to the code that creates that element and to also add any missing elements
- 3. Tell [the-players] to write any hints for the unknown elements onto [the-whiteboard]
- 4. **Take** back [the-challenge-card]

Round 1

- 1. **Set** [the-timer] for as many minutes as there are lines of code
- 2. **Tell** [the-players] to **type** the code using just the list with hints
- 3. **Erase** some hints from [the-whiteboard]
- 4. Tell [the-players] to erase all code from [the-player-chromebooks]

Repeat!

• Repeat 'Round 1' until no hints remain and the players succeed!

KATA CHALLENGE

4 Building Up!

Break down the process of building a more complex game into easy steps before coding it.

SUPPLIES

- Chromebooks (1 per player)
- Whiteboard/Paper
- Markers/Pen
- Challenge Card

ACTIONS



Define The Step By Step Process

- 1. **Read** aloud the stimulus of [the-challenge-card]
- 2. Lead a brainstorm about "What should be the very first element to code?"

```
Example:
Stimulus: "Code a game with an NPC who has a quest to fetch their lost spear.
Give the NPC new dialog after the quest is complete."
Step 1: Code a basic adventure game.
```

- 3. Write the first step onto [the-whiteboard/paper]
- 4. Write more steps (until the resulting game would meet the stimulus) onto [the-whiteboard/paper]

```
Example Continued:
Step 1: Code a basic adventure game.
Step 2: Add an avatar.
Step 3: Add an npc.
Step 4: Define a spear item.
Step 5: Give the NPC a fetch quest to find the spear.
```

Coding Step By Step

• **Tell** [the-players] to **type** up the code using the step-by-step process. Test after each step and then write their initials next to the step on [the-whiteboard/paper]

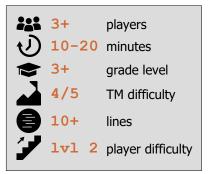
KATA CHALLENGE

5 Code Carousel

Players pair up and try to code a game, while rotating computers every 45 seconds!

SUPPLIES

- Chromebooks (1 per pair of players)
- Whiteboard/Paper
- Markers/Pen
- Challenge Cards (3 of them that do not contradict)



ACTIONS

Get Started

- 1. Write the stimuli of [the-challenge-cards] onto [the-whiteboard/paper]
- 2. Pair up all players. If there are an odd number of players, create a trio or a solo coder.

Round 1

- 1. Tell [the-players] to code a game that fits all three stimuli, working with their partner on one chromebook
- 2. **Set** [the-timer] for 45 seconds and start is as soon as the players start coding

Rotate And Round 2

- 1. **Stop** all players from coding as soon as the timer ends
- 2. Tell [the-players] to move to the chromebook to their right with their partner
- 3 Tell [the-players] to continue with the code on this new chromebook
- 4. Set [the-timer] for 45 seconds and start it as soon as the players start coding

Repeat!

- 1. Repeat 'Rotate And Round 2' until all chromebooks have a running game that fits the stimuli
- 2. **Encourage** players who have a completed game to add extra features until the round is over or the last step is achieved!

KATA CHALLENGE