ThoughtSTEM Language Learning Tactics

Version 7.0

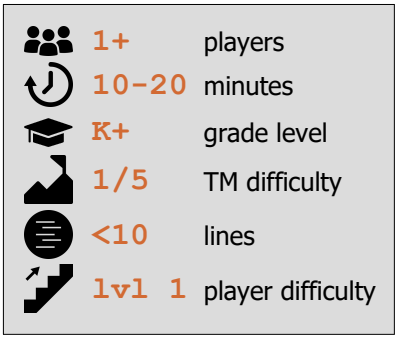
August 23, 2019

1 Disintegrating Code

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

SUPPLIES

- Chromebooks
- Whiteboard
- Markers
- Challenge Card
- Timer



ACTIONS

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

- **Call** in the coach when you and the rest of the players are ready for your kata challenge. Pass the challenge to earn your kata!

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

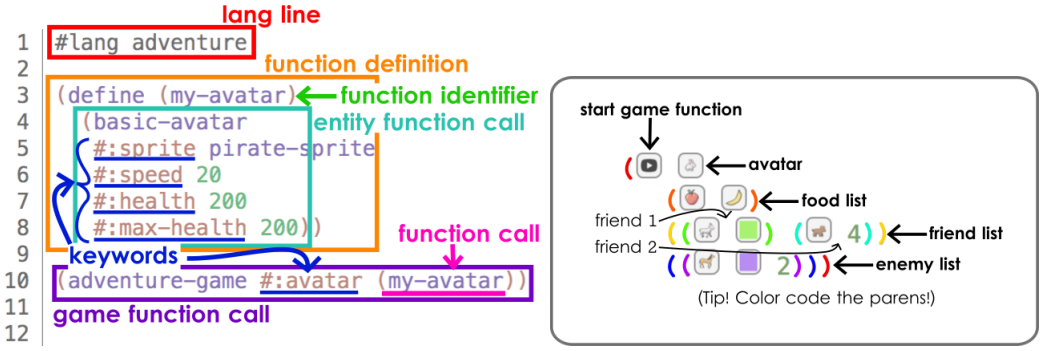
- Chromebooks
- Whiteboard
- Markers
- Challenge Card
- Timer

1+	players
10-15	minutes
K+	grade level
2/5	TM difficulty
<10	lines
lvl 1	player difficulty

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

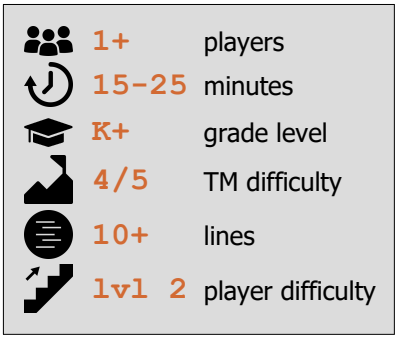
- **Call** in the coach when you and the rest of the players are ready for your kata challenge. Pass the challenge to earn your kata!

3 Reverse Engineering

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

SUPPLIES

- Master Chromebook
- Player Chromebooks
- 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

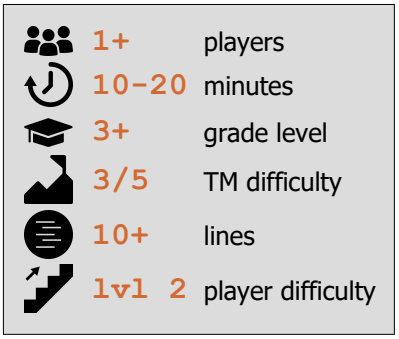
- **Call** in the coach when you and the rest of the players are ready for your kata challenge. Pass the challenge to earn your kata!

4 Building Up!

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

SUPPLIES

- Chromebooks
- Whiteboard
- Markers
- 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?"

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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]
4. **Write** more steps (until the resulting game would meet the stimulus) onto [the-whiteboard]

```
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]

KATA CHALLENGE

- **Call** in the coach when you and the rest of the players are ready for your kata challenge. Pass the challenge to earn your kata!