Breakout! Of Boring Programming
- **What is a Breakout?**
  - Who knows what an escape room is? Show of hands
    - Video 1
  - Escape room
    - locked room with clues and puzzles that, when solved, help you discover a password, code, or key that will unlock the door and let you out.
  - How about a breakout?
    - Video 2
  - The difference is a matter of trying to get out vs trying to get in
  - Breakout
    - Immersive learning games platform
    - A series of codes, clues, and puzzles that when solved will allow you to unlock a series of locks on a box that contains a prize
- **How it works.**
  - Focusing on Breakouts – because they're inexpensive, mobile, and easy to change and reuse.
    - There is an opening narrative, setting up the story and the puzzle or problem to be solved
    - Students are allowed to look for clues, artifacts, and tools
    - As puzzles are solved, locks should be able to be unlocked
    - Hints may be given if participants get stuck
    - Once all the locks are removed, participants can open the box for a prize
- **Give it a try**
- **Tips for success**
  - Team work!
  - (STOP! Collaborate and listen!)
  - The better you communicate and collaborate, the more successful you will be
  - If you solve a puzzle make sure the rest of the team knows
  - Come together to review what you know before
- **Why we do it.**
  - Constructivism
    - People learn best from actively engaging with what they're learning. Think about learning how a motor works – yes, you might theoretically understand how a motor works by looking at a diagram, but you're really going to know how it works if you have to take it apart and put it back together again.
    - People learn best when they construct knowledge based on experience, when they apply what they learn, and when they have the chance to test and revise personally generated hypotheses
    - Active learning
  - Breakouts make you develop the 4 Cs

- ■ Critical thinking – the mental process of actively and skillfully conceptualizing, applying, analyzing, synthesizing and evaluating information to reach an answer or conclusion.
        - ■ Collaboration – your teammate might have answers that you don't and you need to…
        - ■ Communicate those things to each other.
        - ■ Creativity – many of the puzzles in a breakout require lateral thinking
            - ● Solving of problems by an indirect and creative approach, typically through viewing the problem in a new and unusual light.
    - ○ Ownership
        - ■ Nothing more satisfying than being able to do something yourself, right? Look at all these smiling faces. These are the faces of people who have taken ownership of and responsibility for their learning and education, rather than passively waiting for others to provide help or directions.
    - ○ Adaptability
        - ■ This can be used for any group, any age, any level, any subject. There are different BreakoutEDU groups for teachers of different levels. I've used it with my teen groups and at outreach events.
- ● How to do it.
    - ○ Register for game access on Breakoutedu.com
    - ○ Check out the games – both featured and in the sandbox
    - ○ Purchase or concoct your own kit
        - ■ Box, hasp, directional lock, number lock, word lock, black light pen, UV flashlight, key lock, three digit lock box, hint cards, USB drive
        - ■ $125 for the official kit
        - ■ Mine <$100
    - ○ Set up a game and practice
        - ■ Gotta get your locks set, your clues created, and everything staged
    - ○ Go for it.
- ● Do it right
    - ○ Set the tone for the game
        - ■ Object is to solve the puzzles in order to open the box, NOT to get into the box by any means possible
    - ○ Use a lock parking lot
        - ■ https://www.breakoutedu.com/locktips/
    - ○ Keep a poker face
        - ■ Don't give away free hints or suggestions
    - ○ Leave time for a debrief
    - ○ Avoid prizes
        - ■ Best games have a story that leaves the players satisfied by playing. Relying on physical prizes in the box can reduce engagement in future games

- - - I have always used prizes in my box. Little things like snacks and what not. It hasn't reduced their engagement
- Design your own
  - Story! Story! Story!
    - Best games have a strong narrative – Why is there a locked box? Why do they need to open it?
  - Use your environment
    - Get kids up and moving around. Encourage them to look closely, examine details, and think outside the box
    - Attack of the Locks - the droid was thrown out like a piece of trash - key is under the trash can
  - Puzzles that require critical thinking and fit the narrative
    - Puzzles should support the story and control the pace, avoid puzzles where the solution is a simple date or number hidden with text. Make your players think critically and make connections between clues and puzzles
    - No puzzles for puzzle's sake – make them make sense and fit into the narrative of the story or setting
    - Variety of puzzle types
      - Attention to detail, critical thinking, teamwork, close reading, lateral thinking
  - Don't overdo the red herrings
    - Red herring: something, especially a clue, that is or is intended to be misleading or distracting.
    - Don't want to discourage your learners
  - Meaningful reflection activities
    - Having your players reflect on their experience, making observations on their teamwork and problem solving strategies, what they could do differently
- Cultivating Grit
  - Breakouts provide learners with many opportunities to fail forward. Every unsuccessful attempt to open a lock forces the player to try again.
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