ESCAPE
FROM THE CLASSROOM

EDUCATIONAL ESCAPE ROOM WORKSHOP

BAUHAUS-UNIVERSITÄT WEIMAR (25/3/2022)

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WORKSHOP PURPOSE

- Introduce you to educational escape rooms

- Give you the tools you need to get started with educational escape rooms in your organisation

- Inspire you!

LEARNING OUTCOMES

After this workshop you should be able to:

- Answer the question "Why should I use educational escape rooms for my class?"

- Explain in what circumstances they are effective

- Use an design framework to create your own educational escape room

ABOUT ME

- Principal Lecturer in Digital Games Development at the University of Brighton

- Game-based learning researcher

- Chair of European Conference on Games-Based Learning (ECGBL2020, ECGBL2021) and European Conference on e-Learning (ECEL2022)

- 10+ years of experience in the creative industries

- Escape room enthusiast

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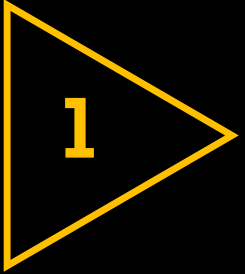
WHAT IS AN ESCAPE ROOM?

ESCAPE ROOM

An escape room is...

- A **live-action team** activity

- involving being **locked in a room**,

- **discovering clues** and

- **solving puzzles**

- within a **set period of time**

- in order to **escape** from a fictitious situation

BREAKOUT GAME

A breakout game is...

- A **live-action team** activity

- involving **discovering clues** and

- **solving puzzles**

- within a **set period of time**

- in order to **break into a locked box**

ESCAPE ROOM CORE LOOP

- **Core loop:** a series or chain of actions that is repeated over and over as the primary flow of your player's experience

- Escape game core loop

  - Find a challenge to overcome

  - Find a solution

  - Receive a reward for overcoming the challenge

EXAMPLE ESCAPE ROOM PUZZLE

Challenge

- A locked box requiring a three digit combination
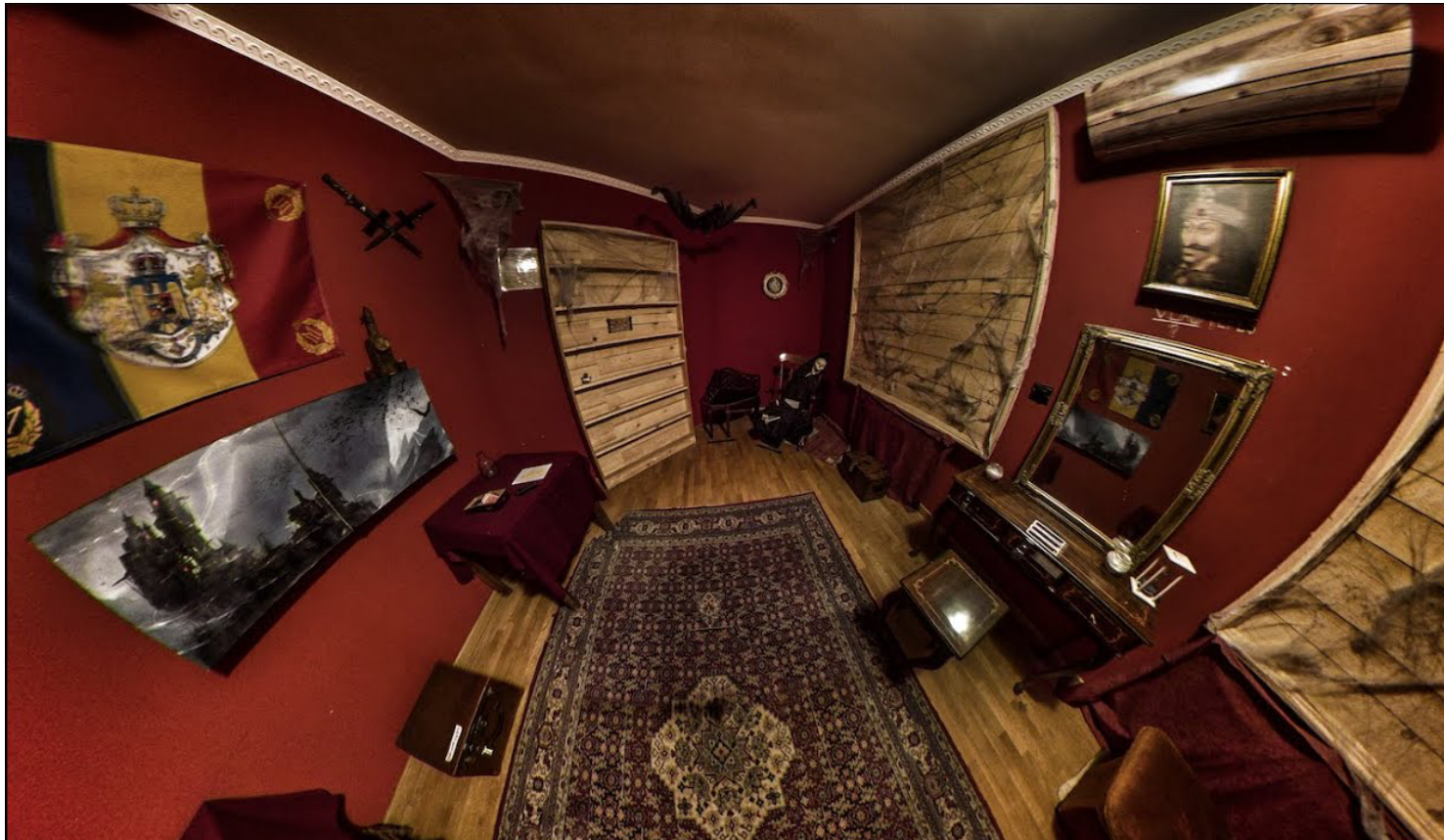
Solution

- Room has one moon, two suns, and four stars

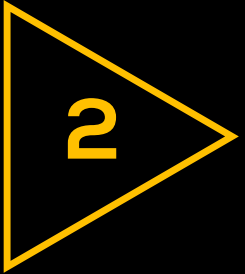- These symbols are on the box, giving us the solution 124

Reward

- Once the box is open, the reward is inside

- This could be a clue, another puzzle, a prize, etc.

WATCH

- Escape Rooms: Everything You Need To Know (2:43)

- https://www.youtube.com/watch?v=RMFwWT1vy5U

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ESCAPE ROOM TYPES

IN-PERSON ESCAPE ROOM

- Group of players
- Gamemaster
- Played at a physical location
- Goal is to escape
- Players may be able to gain access to hidden rooms

REMOTE AVATAR LIVESTREAM

- Group of remote players
- Live avatar with a head-mounted webcam
- Avatar is in a physical space or with a physical set of puzzle items
- Avatar acts as players' eyes and hands via video link
- Players use video conferencing software to communicate
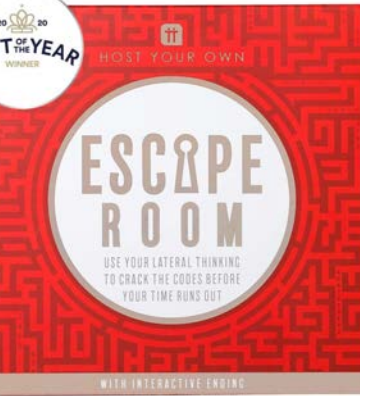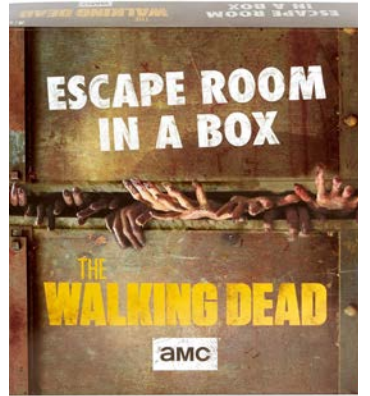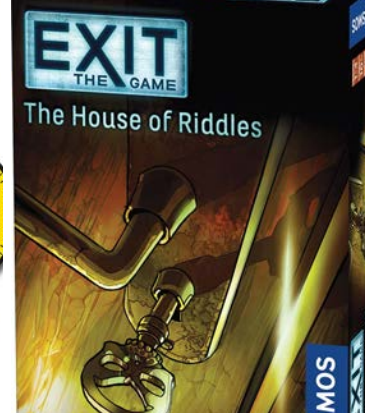- Goal is to make the avatar escape

ACTOR / AUDIO LED

- Group of remote players

- Live gamemaster

- Game played over a video link or audio call but without a physical environment

- Game is driven by:

  - Interactions with one or more actors and by online documents, or

  - Where the surroundings and puzzle items are verbally described or displayed with static images

TABLETOP GAME
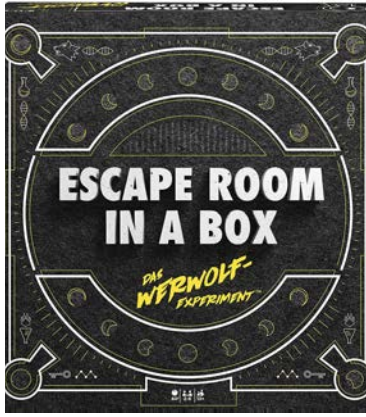
- Box of clues and puzzle items or puzzles provided via picture cards

- May have companion app

- Hints and solutions included in the box, available online, or accessed through the app

- May be available on a subscription basis, usually with a new game every 1-2 months
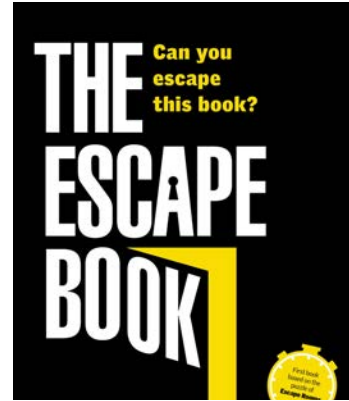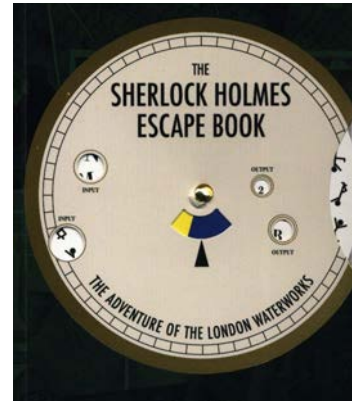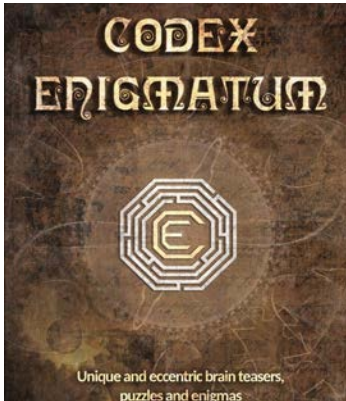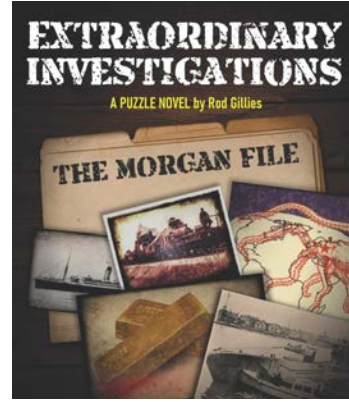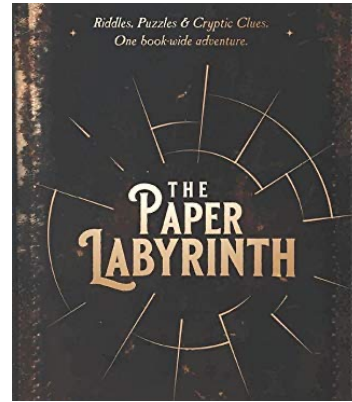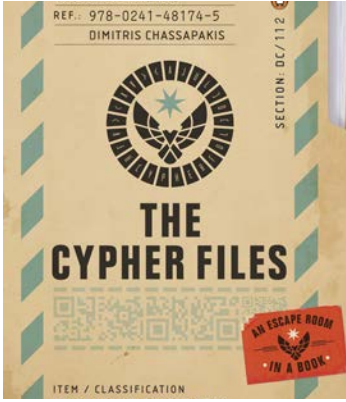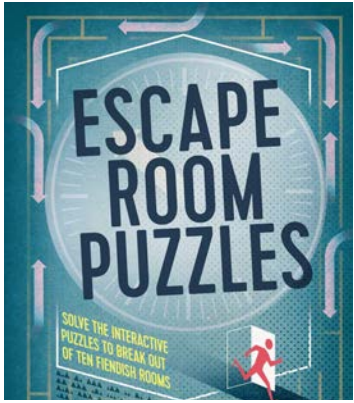
ESCAPE BOOK

- Puzzle books which aim to provide an escape room-style experience

- May have companion app

- All game components are included in the book

- Hints and solutions included in the book, available online, or accessed through the app
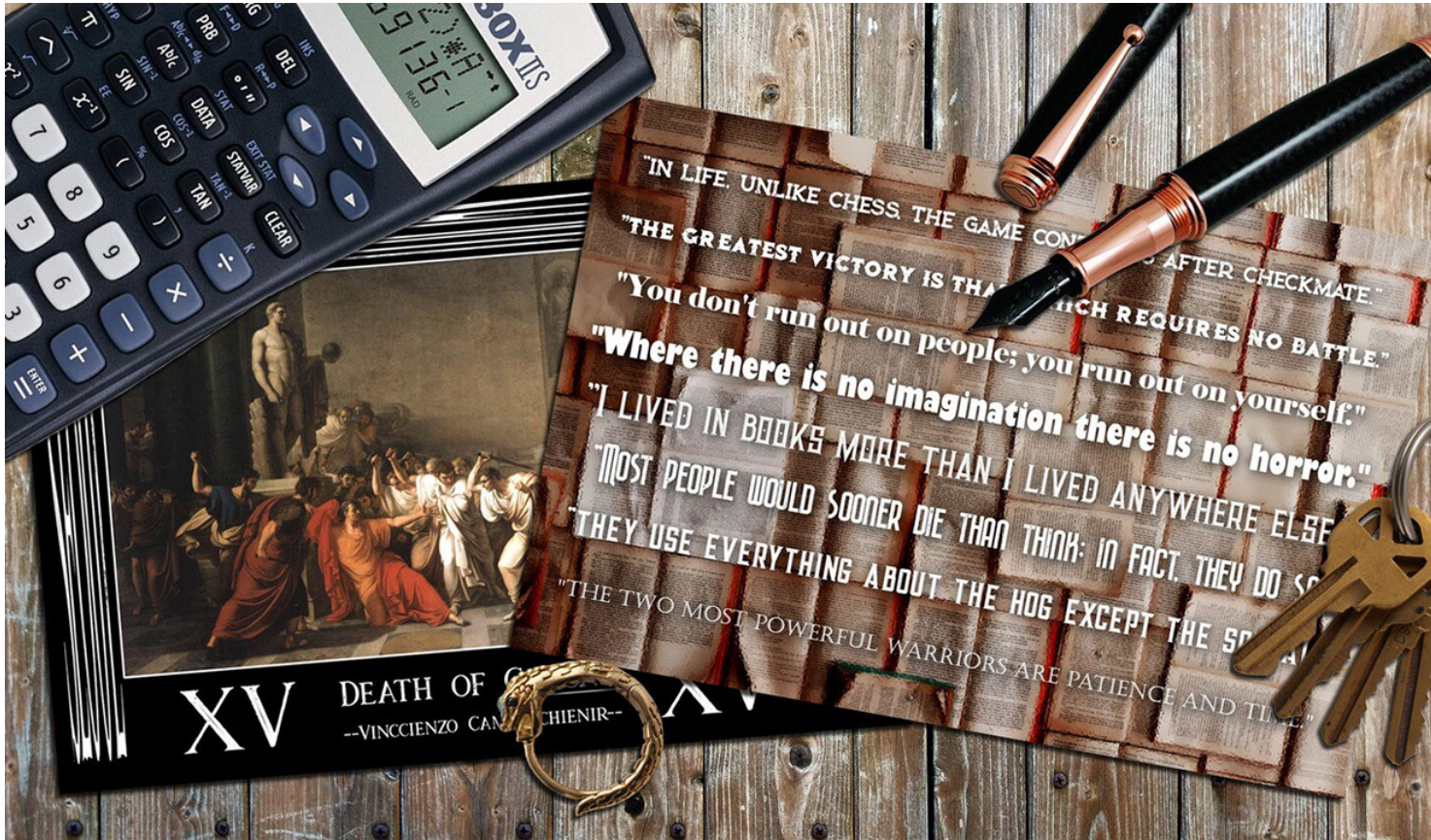
- All game components are included in the postcards

- Hints and solutions are available online

ESCAPE ROOM IN A POSTCARD

PRINT AND PLAY

- Usually provided as a PDF that you print

- All game components are included in the PDF

- May be intended for customisation

- May require one person to set up the game or act as gamemaster

- All game components are printed on the t-shirt

- Hints and solutions available online

ESCAPE ROOM ON A T-SHIRT

DIGITAL ESCAPE GAME

- Unhosted digital game

- May be delivered online or offline

- May involve any combination of computer-based puzzles and print-and-play components

DISCUSSION

Have you ever played an escape game? If so, what type of escape game was it? Please describe your experience.
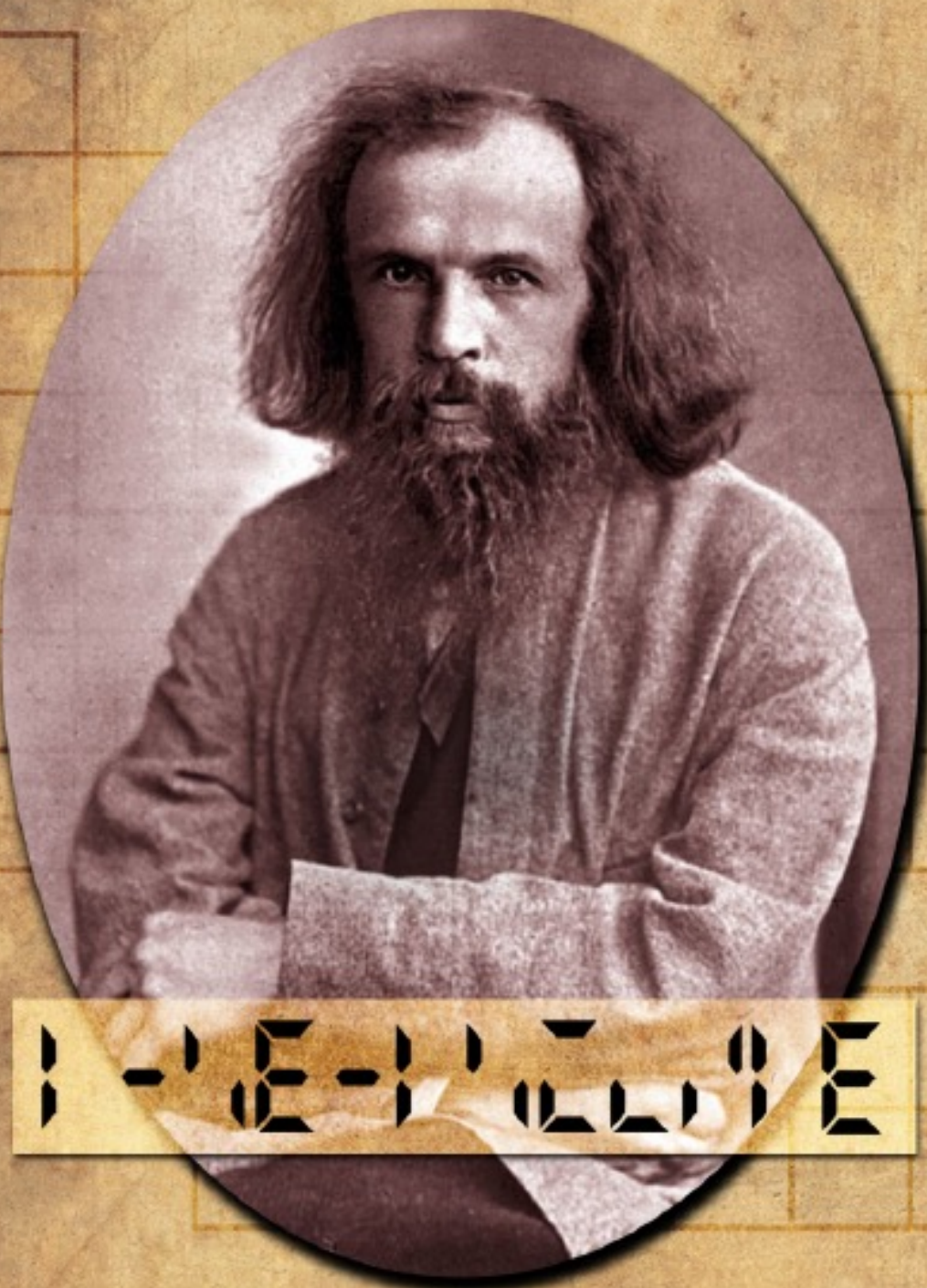
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PLAYTIME

"LOOK FOR PEACE AND CALM IN WORK: YOU WILL FIND IT NOWHERE ELSE."

--DMITRI MENDELEEV

FEB 24 2018

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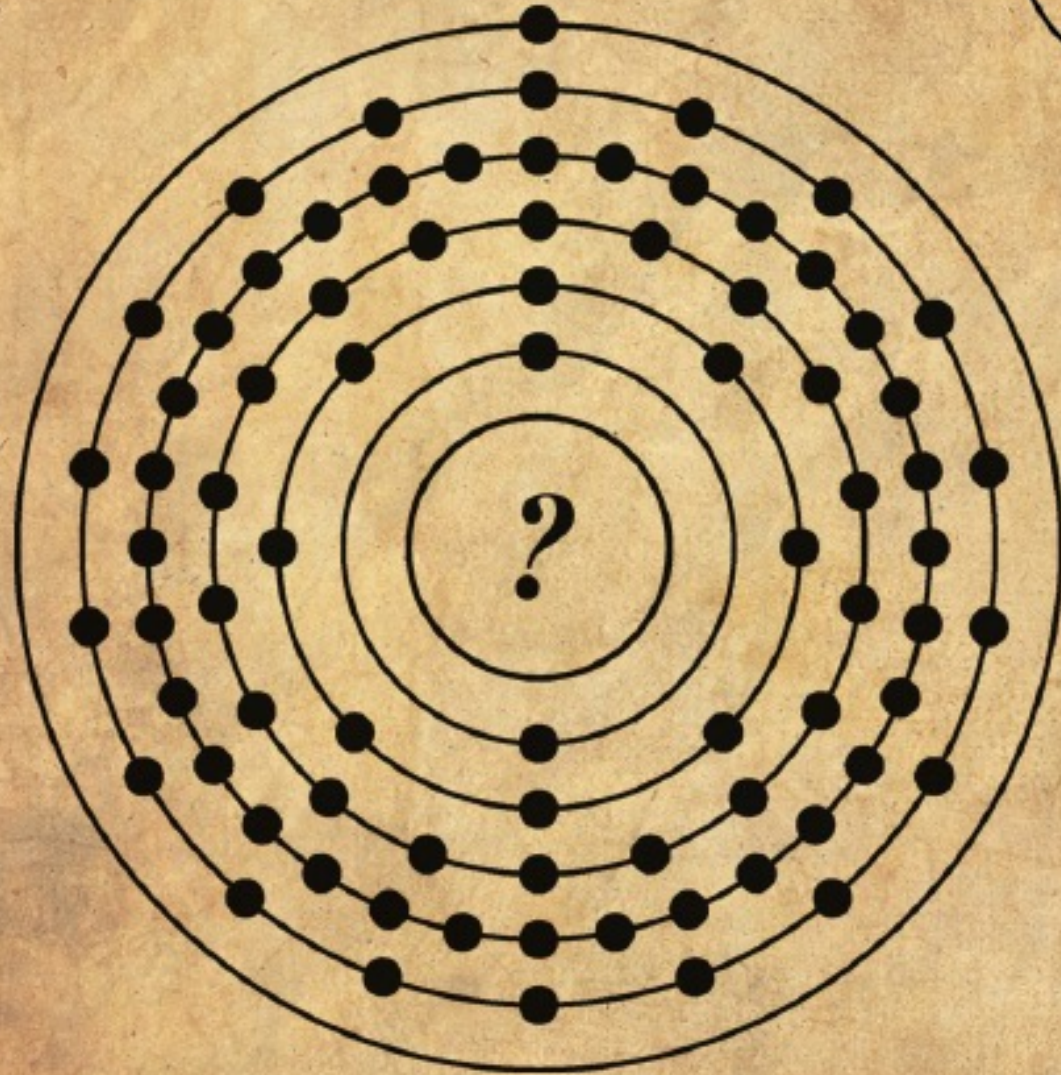
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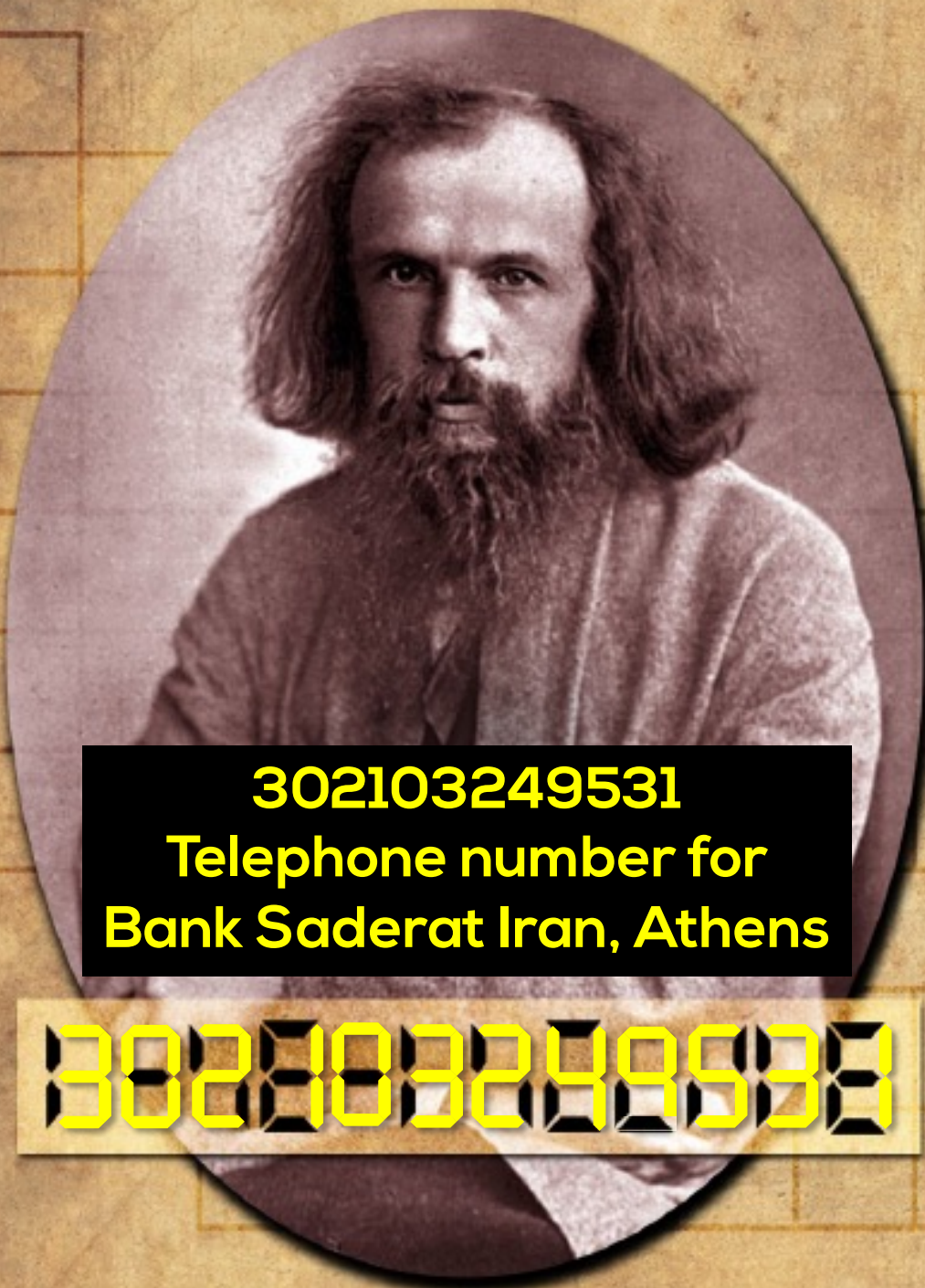
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"LOOK FOR PEACE
AND CALM IN WORK:
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--DMITRI MENDELEEV

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Periodic Table of Elements

Did you find the escape room in a postcard an educational and/or fun? Please describe your experience.

DISCUSSION

INTERMISSION

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WHY USE ESCAPE ROOMS FOR LEARNING?

COMPANY TRAINING DAY VS. ESCAPE ROOM TRAINING
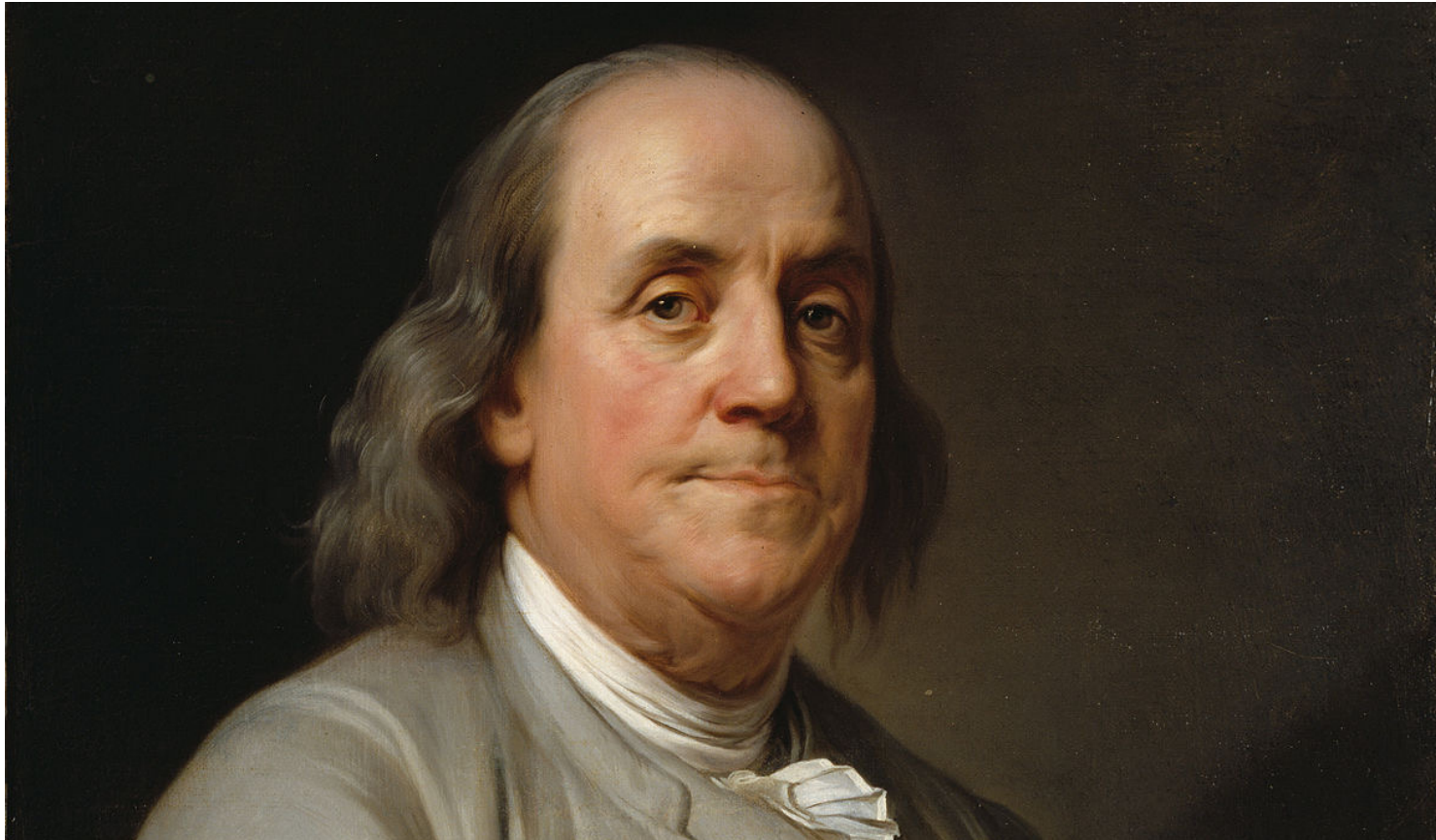
"Tell me and I forget, teach me and I may remember, **involve me** and I learn."

- Benjamin Franklin

WORDS OF WISDOM

EDUCATIONAL ESCAPE ROOM

An instructional method requiring learners to:

- participate in **collaborative or solo playful activities**

- explicitly designed **for domain knowledge acquisition** or **skill development**

- so that they can accomplish a specific **goal** (e.g., escape from a room or break into a box)

- by solving puzzles linked to unambiguous **learning objectives**

- in a **limited amount of time**

PURPOSES

- Use as a test or quiz
- Team building
- Library induction
- School competition
- School Fundraiser - great way to bring community members in
- Students design for teachers
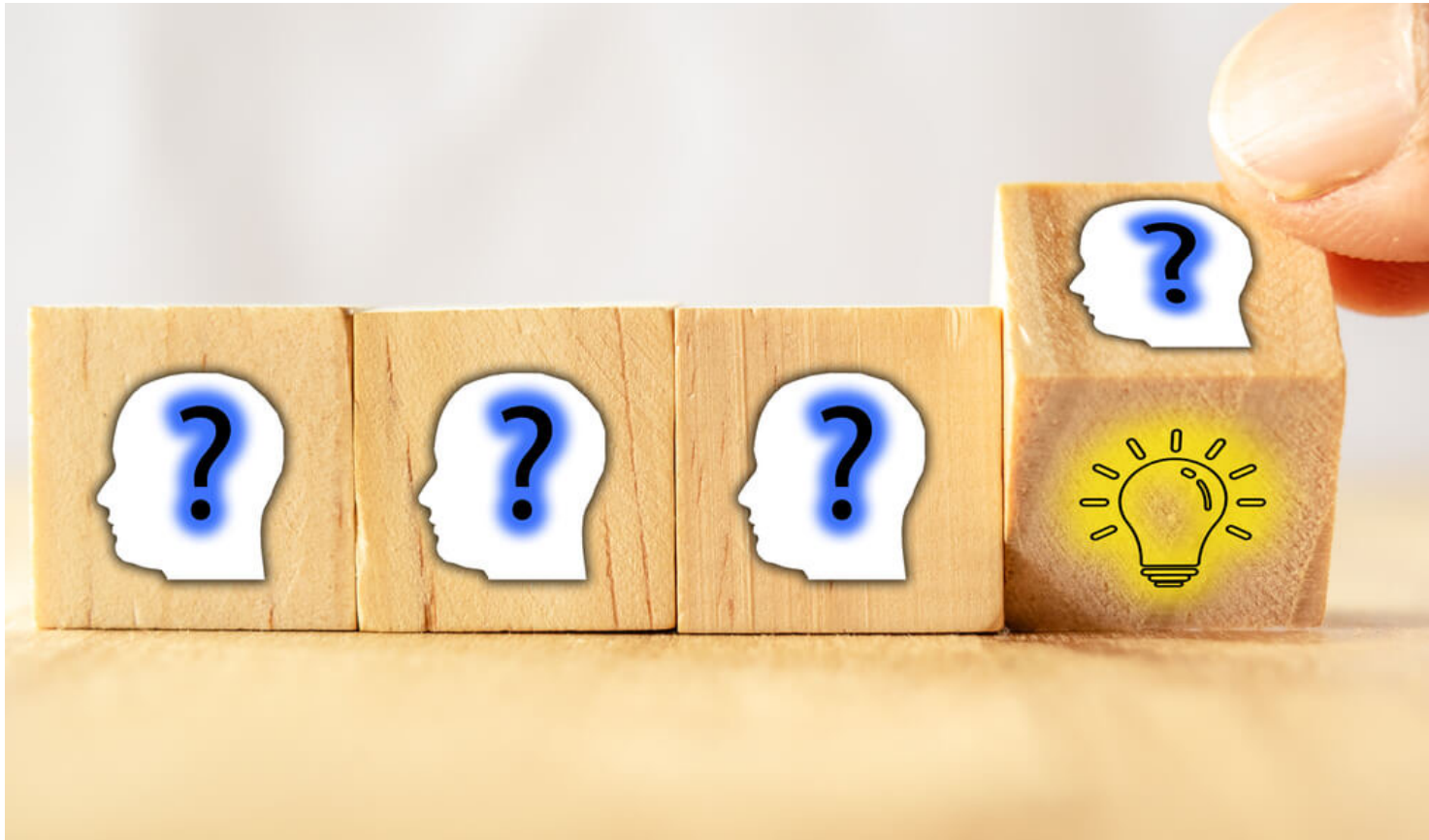
BENEFITS: INTRAPERSONAL SKILLS

- Perseverance (OK to fail)

- Creativity: involving the student in the creation creates big opportunities for this

- Work under time pressure

- Increased confidence in critical thinking and decision-making

- Problem-solving

- Attention to detail

BENEFITS: INTERPERSONAL SKILLS

- Communication

- Collaboration

- Improved ability to delegate tasks and work as a team

- Community building: learning about your own and other people's strengths

- Appreciate the diversity of thinking strategies encountered in any group of people

BENEFITS: ACADEMIC SKILLS

- Preview and review material

- Stronger emotional connection to curriculum material

- Higher rates of retention

- Competition can pique motivation

- Opportunity for feedback and practice

- Entrepreneurship: students could build a business around this

DISCUSSION

What skills do you think escape rooms can improve?

SUMMARY OF ESCAPE ROOM SKILLS

- Awareness
- Problem-solving
- Critical thinking
- Creativity
- Teamwork
- Delegation
- Communication
- Attention to detail

10 TOP SKILLS FOR HIGH-PAYING JOBS

1. Complex problem solving
2. Critical thinking
3. Creativity
4. People management
5. Coordinating with others
6. Emotional intelligence
7. Judgment and decision making
8. Service orientation
9. Negotiation
10. Cognitive Flexibility

Source: World Economic Forum

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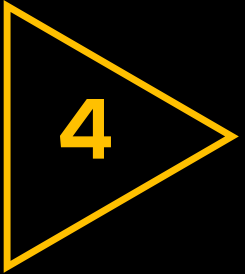
BEFORE YOU START DESIGNING AN EDUCATIONAL ESCAPE ROOM...

...ANSWER THESE QUESTIONS

- Why do you want to use an escape room?
- How will this benefit the learning experience?
- What are your objectives?
- What metrics will measure success?
- Who will participate in your gamified activity?
- What motivates them?
- What game elements will be effective?
- What will players do?
- Will you develop alone or involve students?

PLAYTIME

INTERMISSION

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HOW TO DESIGN AN EDUCATIONAL ESCAPE ROOM

WHERE TO START: ROOM2EDUC8 FRAMEWORK

GOALS	Learning Objectives	Constraints			
PARTICIPANTS	Role	Demographics	Skill level	Number	Motivation
CONTEXT	Game type	Environment	Theme	Narrative	Duration
PUZZLES	Puzzle design	Puzzle structure	Puzzle flow	Game assets	Hint system	Scoring system
BRIEFING	Introduction	Rules	Rewards	Duration	
DEBRIEFING	Outro	Feedback collection	Revision material	Group photo	Duration
EVALUATION	Pre/post test	Pre/post survey	Observation		
DOCUMENTATION	Game design document	Game master instructions	Setup/reset instructions		

S.M.A.R.T. GOALS: SPECIFIC

- What exactly will be accomplished?

- What are the learning objectives this room is going to support?

S.M.A.R.T. GOALS: MEASURABLE

- How can you quantify or qualify that the learning objectives have been met?

S.M.A.R.T. GOALS: ATTAINABLE

- Does the goal require the right amount of effort?

- Are the resources available?

- Do learners have the necessary skills?

- How many learning learning objectives are sufficient without overloading participants?

S.M.A.R.T. GOALS: RELEVANT

- Why is achieving this learning objective significant?

S.M.A.R.T. GOALS: TIME-FOCUSED

- How long will participants have to complete the tasks?

- What is the deadline or time restraint?

SAMPLE LEARNING OBJECTIVES

Students will be able to:

- Identify the atomic symbol, atomic number and the atomic weight of each element

- Build and protect their email password

- Know where to find the different artifacts, resources, and media in the library

- Plan a local trip using public transport

- Work cooperatively in a group environment

- Search for a hashtag on social media

What learning objectives would you use for an educational escape room aimed at raising cyber security awareness?

DISCUSSION

CONSTRAINTS

- Time
- Space
- Scale
- Budget
- Equipment
- Disabilities
- Language

PARTICIPANTS

Identify who the game is specifically for

- Demographics

- Educational needs

- Attitude towards subject matter & playing for learning

- Player types

- Disabilities

- Number of players

- Roles (Students as players / designers / observers)

GAME TYPE & ENVIRONMENT

Game type

- Escape room (physical/digital/remote)

- Breakout game

- Escape room in a box/book/postcard/t-shirt

Environment

- Classroom (either use your whole room or just a corner)

- Lab

- Library (great for larger escape rooms that you want to keep up for longer)

CONTEXT

- Gives life and character to an escape room

- Gives meaning to the activities that the players do

- Provides an authentic reason for escaping

- Links the puzzles together in a cohesive storyline

- Emotionally engages students with learning objectives and strengthens their comprehension and capacity to learn

THEME

A concept that sets a room's tone, look and feel

- Treasure hunt
- Prison break
- Sci-Fi
- Dystopian
- Mystery
- Horror
- Heist
- Historical
- Pirates

SETTING

The place and time where the game is set

- Lab

- Dungeon

- Museum

- Library

- Office

- Pyramid

STAKES

Like with any story, you first need to set the stakes:

- What is the goal?

- What is the obstacle?

- What are the consequences for failure?

- What are the rewards?
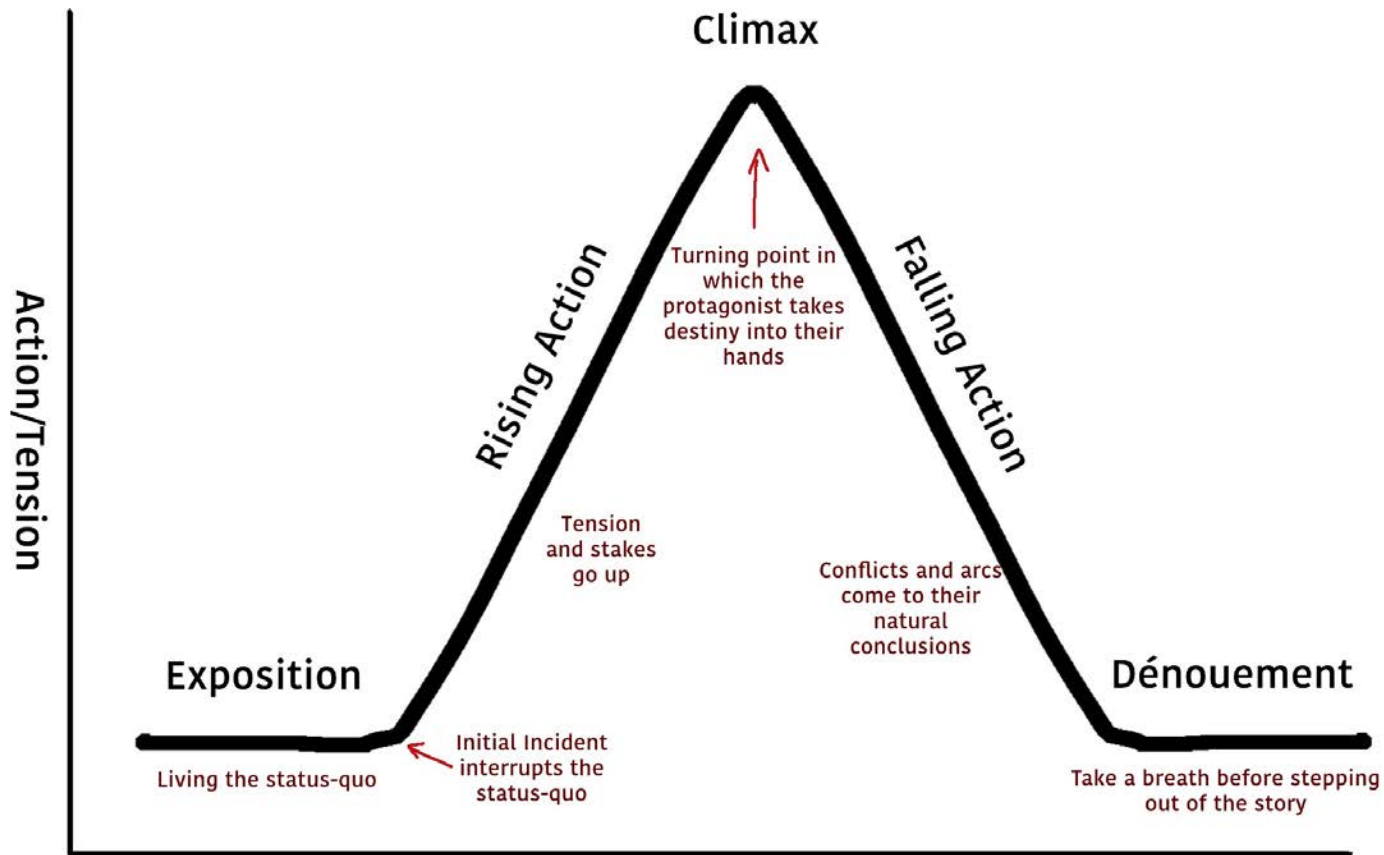
NARRATIVE

- What occurs as you play and unfolds slowly and in subtle ways

- Elevates players' imaginations

- Brings them into the scenario that you have created

- Three Act structure

  - Beginning

  - Middle

  - End

- Freytag's Pyramid defines sections of dramatic action, separated by key events
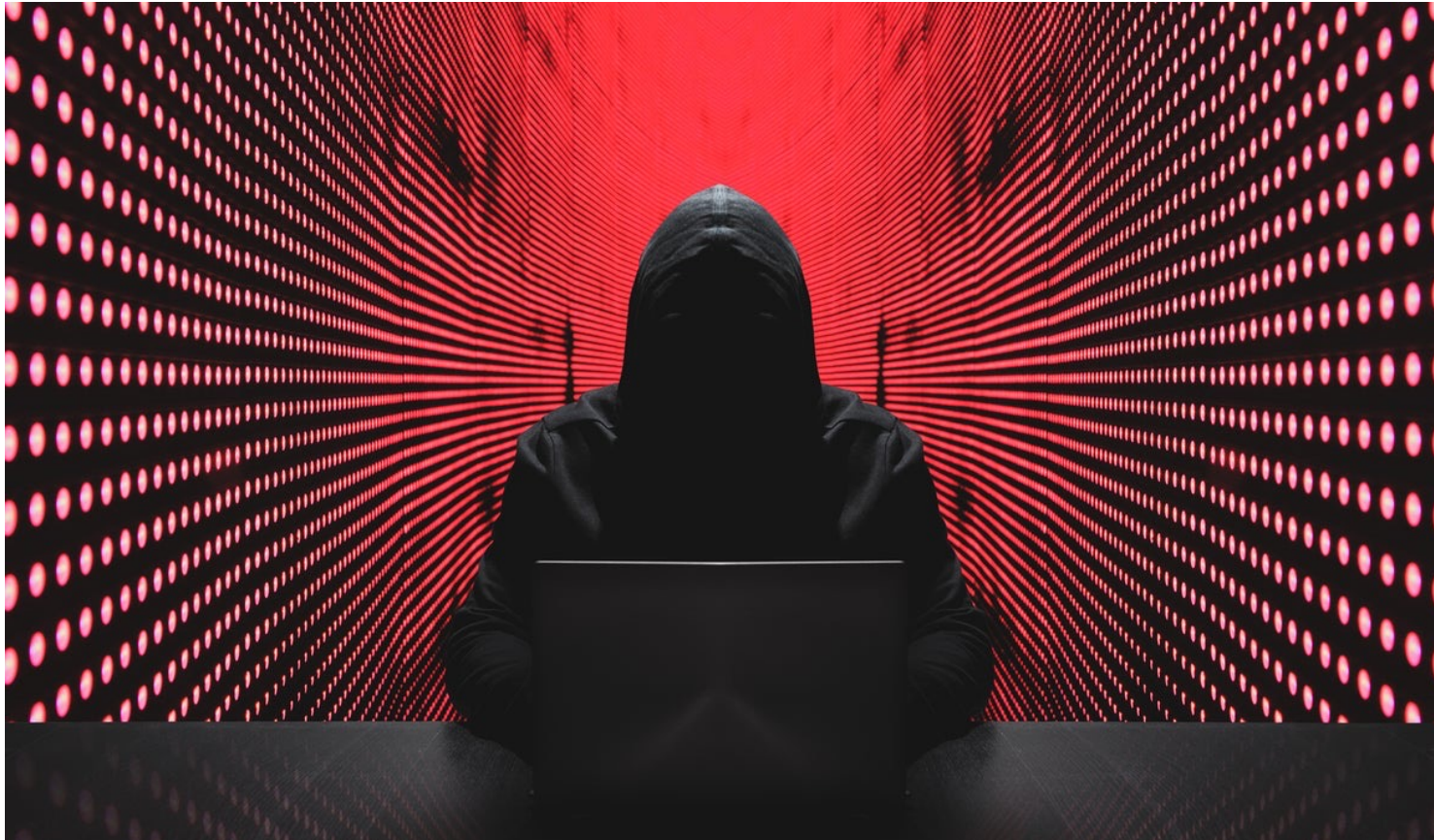
SAMPLE SCENARIOS

- Someone pretending to apply for a job that will search the desk of the R&D director of a competitor company to steal the design and technical details of a new product

- A hacker forcing people to steal classified documents and to do bank payments within their own company by threatening them to reveal private sensitive information

STORY FORMAT

- Standalone (like a full movie)

- Episodic (framed as an episode in a series)

- Subscription-based with a continuous narrative arc

GAME DURATION

- Most escape rooms last 60 minutes
  - Allow for a sufficient number of puzzles to be used
  - Offer ample time for students to work as a team
  - Fit into one hour of instruction
- Two-hour sessions allow for briefing and debriefing sessions
- Shorter games require less development time
- Longer games can use more meaningful challenges that require more time and effort to be solved

ACTIVITY (10 MINUTES)

Write a short escape room brief

Read the provided sample escape room brief and then follow a similar approach to write a short brief for an educational escape room aimed at raising cybersecurity awareness training.

The game should offer players the opportunity to learn about appropriate methods for protecting sensitive information on computer systems.

Your brief should provide information about

- The back story of the game

- The scene

- The players' mission
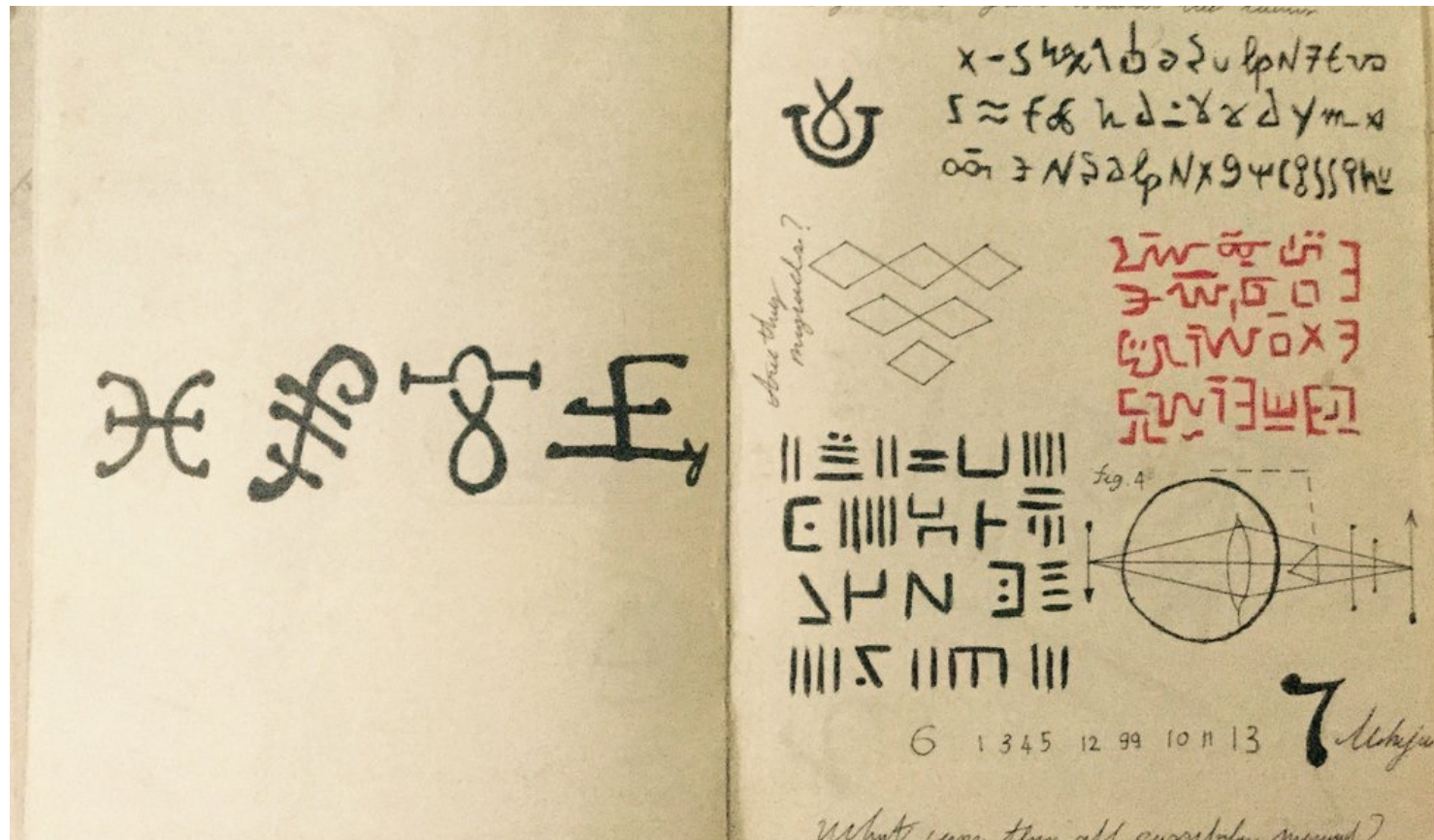
PUZZLE TYPES

Cognitive puzzles

- Make use of the players' thinking skills and logic

- Players must deduce, correlate, or decipher clues to arrive at an answer

- Pattern recognition

- Spatial (using maps, coordinates, overlays)

- Numbers (counting, equations, basic math puzzles)

- Text (crosswords, acrostic poems, missing-letter puzzles)

- Riddles
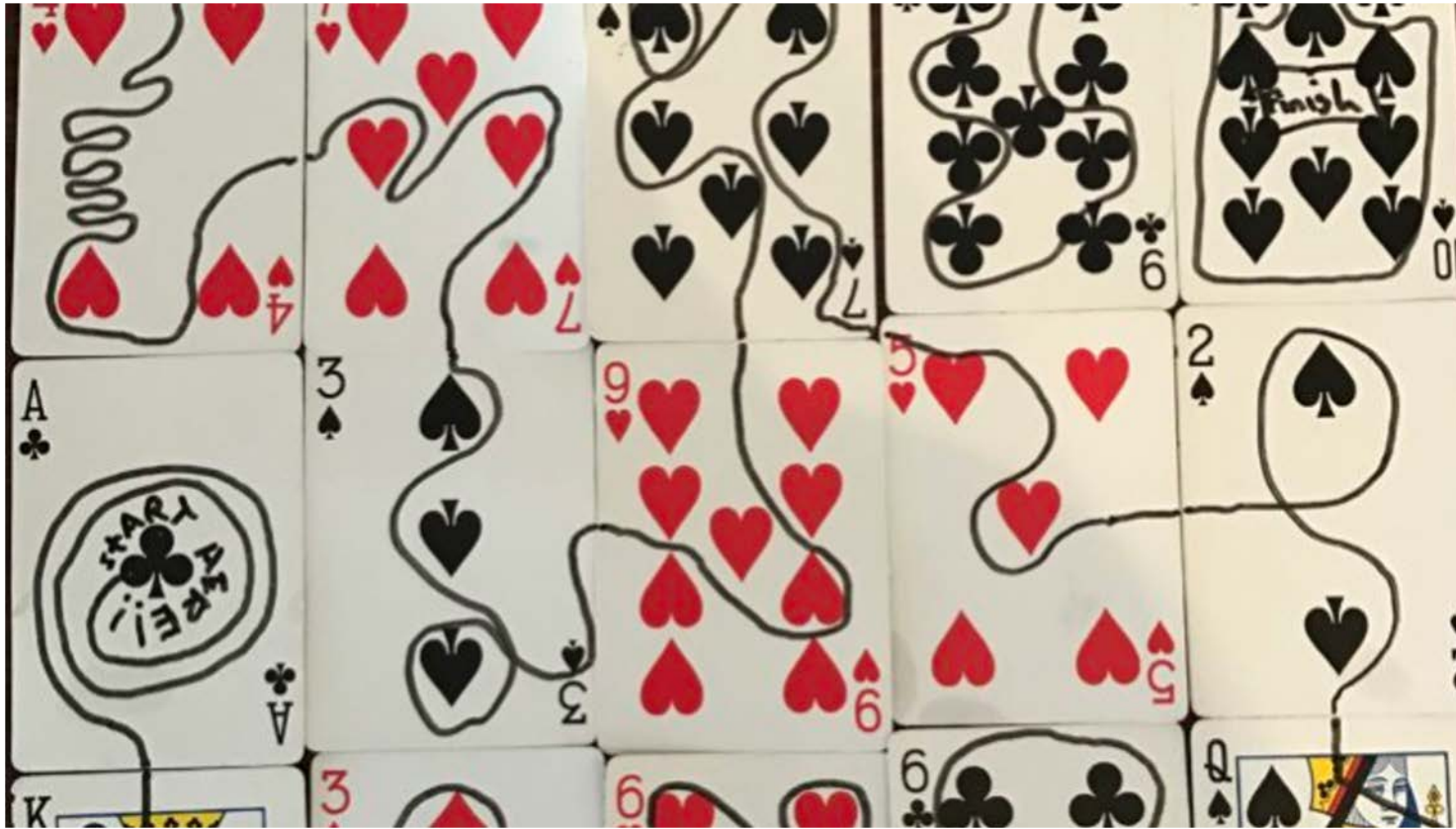
PUZZLE TYPES (CONT'D)

Physical puzzles (tasks)

- Require the manipulation of artefacts to overcome a challenge

- Undoing knots, moving objects, magnets, mirrors, jigsaw puzzles

- Mazes / secret passages

- Hidden objects

- Locks

Sensory puzzles

- Puzzles that engaged multiple senses can be very interesting

- Light (black light clues)

- Sound (repeating audio patterns, musical notes)

PUZZLE TYPES (CONT'D)

Requiring multiple minds/bodies

- Puzzles that require multiple people to take part are often the most memorable

- Puzzles that can be solved with one person leave little space for interaction and are often boring

Content specific

- Great opportunities to test knowledge

- Wrapping in academic content into puzzles makes the content and the puzzle more exciting

PUZZLE TYPES (CONT'D)

Encrypted / password-protected

- Ciphers (Morse code, Caesar, Pigpen, Book, Vigenère)

- Password-protected documents / websites

Technology puzzles

- QR codes

- Augmented/Virtual Reality

Meta puzzle

- A puzzle that unites several puzzles that lead into it

- Usually, the last puzzle in the game in which the final code or solution is derived from the solutions of previous puzzles

PUZZLE TYPES TO AVOID

- Puzzles that rely heavily on:
  - Language
  - Culture
  - Specific knowledge (unless used to test knowledge)
- Puzzles without one definite solution
- Puzzles with ambiguities – don't make players guess
- Technology that may be finicky
- Red herrings

PUZZLE DESIGN PRINCIPLES

Puzzles should:

- Be fair

- Have one answer

- Be clearly linked to clues

- Take up to 5 minutes to complete

- Give a sense of progress

- Have feedback

- Give more access or information

MORE PUZZLE DESIGN PRINCIPLES

Puzzles should:

- Fit in with the story and setting

- Advance the story of the room

- Appeal to a wide range of player skill levels

- Make the goal easily understood

- Make it easy to get started

- Increase difficulty gradually to keep the tension high

- Use a variety of challenges

- Provide hints

THIS PUZZLE SUCKS!

PUZZLE STRUCTURE

- The structure of an escape room dictates the flow of the experience

- Structure links the puzzles together sequentially so that participants can ultimately win the game

- **Linear** – Arranged in or extending along a straight or nearly straight line

- **Non-linear / open path** – Not denoting, involving, or arranged in a straight line

- **Multilinear** – Having, consisting of, or involving many lines; linear in several respects (e.g., path-based, pyramid)

PUZZLE STRUCTURE EXAMPLES

OPEN

LINEAR

PATH-BASED

PYRAMID

META PUZZLE

META PUZZLE

META PUZZLE

META PUZZLE

PARTIAL SOLUTION

PARTIAL SOLUTION

PARTIAL SOLUTION
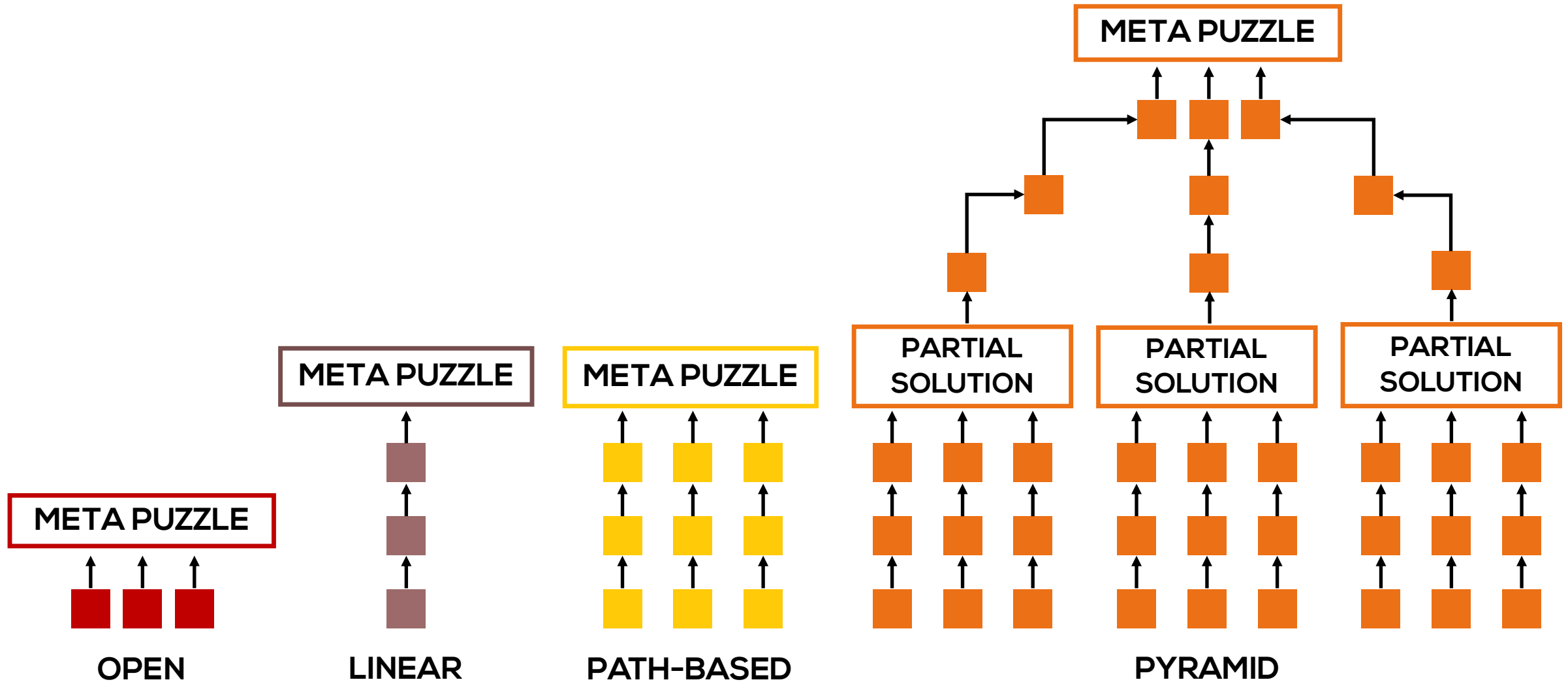
LINEAR GAME PROS

- Puzzles must be done in a particular order

- Easier for escape room owners to design

- Easier for players to make connections and recognise the next step

- Linear games can be timed and paced

- Linear games have a shared experience for each step

- Multiple people can work together by contributing ideas to help tackle a puzzle

LINEAR GAME CONS

- If the puzzle can be worked on by only one person, that leaves the rest of the team doing nothing

- Dominant player take all the glory of solving most of the puzzles

- Others are left out of the experience and adrenaline rush of solving something

- Game comes to a complete stand still if progress isn't made, causing time to tick away which can lead to frustration

- Limited replay value

NON-LINEAR GAME PROS

- Can offer multiple puzzles that allow each individual's skill to shine

- Requires contribution from everyone

- Divide and conquer means that there is little standing around watching one get all the glory

- When a group tries and fails at solving something, they can switch with others in the room to get fresh minds working towards the solution

- Great for more competitive and experienced teams and players or big groups where you need to keep everyone busy

- Increased replay value

NON-LINEAR GAME CONS

- Harder for escape room owners to design due to complexity

- Requires more planning and communication from players

- Can be solved faster

- Divide the group and players miss out on some of the steps that others complete

WHICH IS A BETTER CHOICE?

- Consider:
  - How much time you have to construct a complex game and storyline
  - How much space you have where you are building it
  - What is the game's duration
  - How many people will be playing your game at once
  - How many puzzles you want
  - What kind of supplies you can get
- Linear games are excellent for building teamwork amongst 2-4 people
- Non-linear games are great for more competitive and experienced players or big groups where you need to keep everyone busy
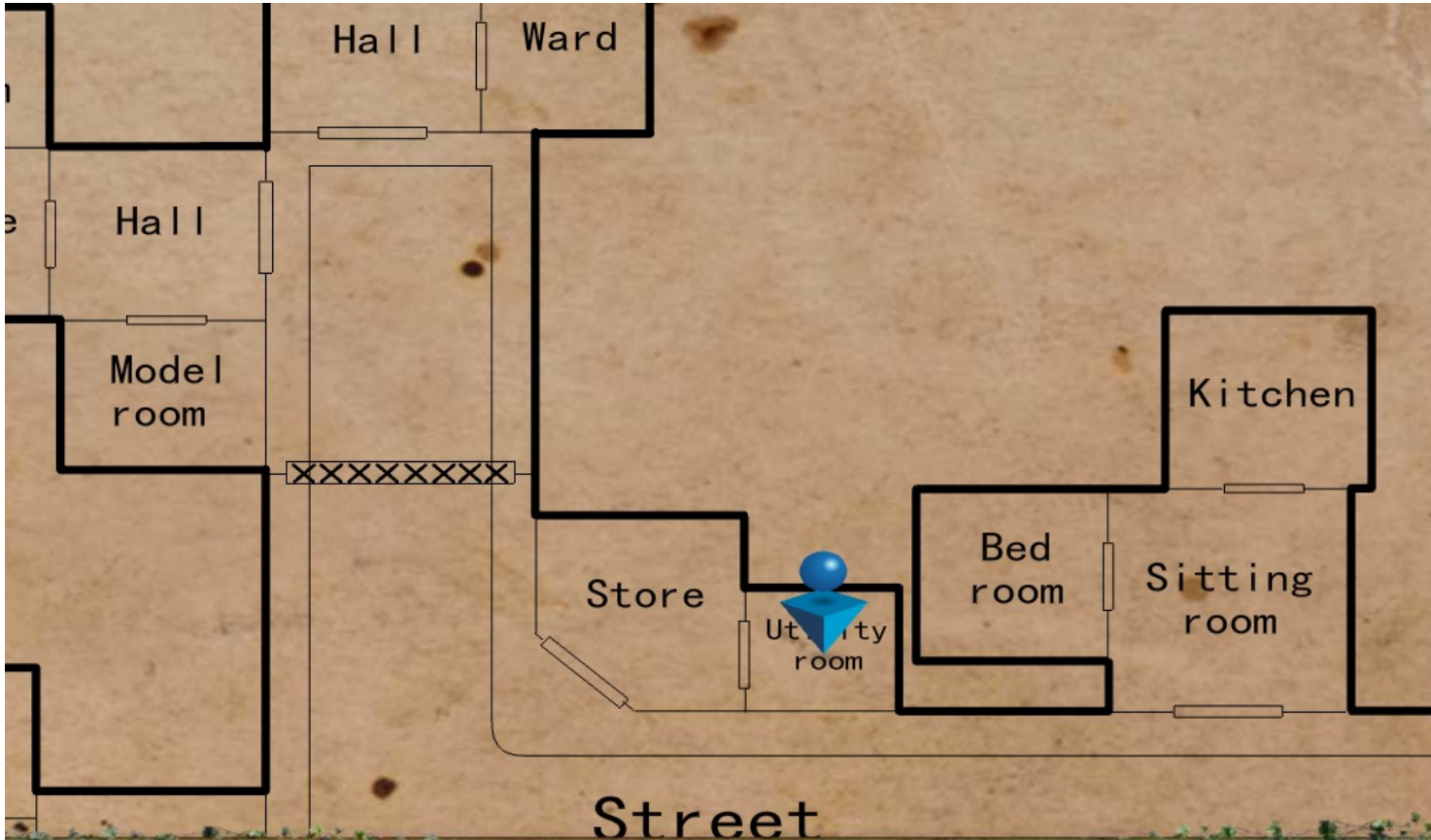
PUZZLE FLOW

- Draw a room map

- Provide details of each individual puzzle and its location in the room

- Show the flow of the room (i.e., the order in which puzzles must be completed)

- Useful for:

  - Checking for consistency in the room design

  - Sharing the design with others

  - Resetting the room

GAME ASSETS

- The assets to be manipulated in order to solve the puzzles (crosswords, riddles, sudokus, hidden clues, etc.)

- Game tech (website, app, projector, UV lights, fog machine, loudspeaker, camera, monitor, etc.)

- Stopwatch
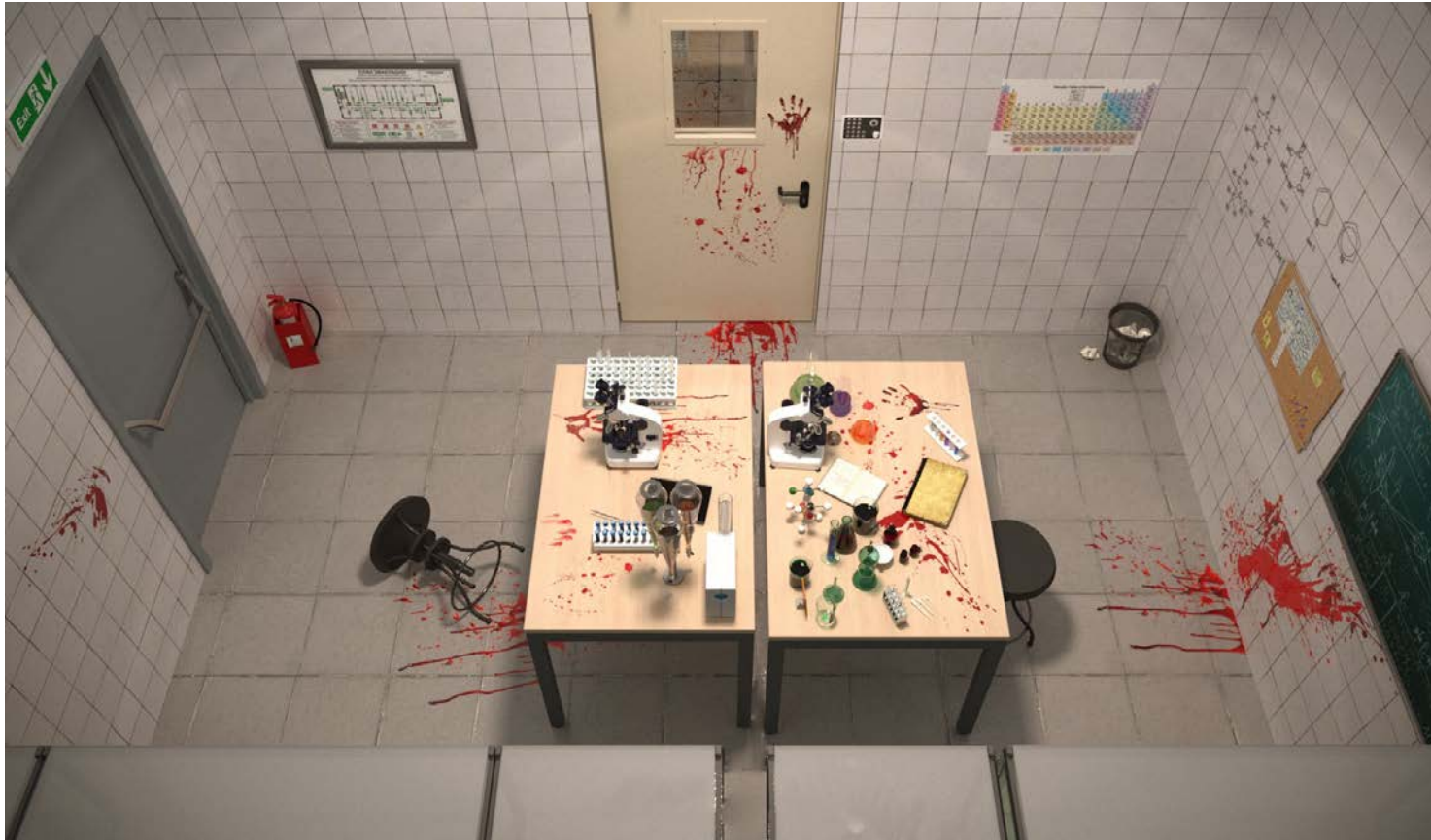
MORE GAME ASSETS

- Lock boxes, containers, vials, envelopes, etc.

- Locks or other blocking elements (padlocks, maglocks, combination / directional locks, multi-lock hasps, chains)

- Narrative elements (video, audio, printed documents, etc.)

- Soundtrack and props that embody the theme or setting

- Game master and/or actors

GAME ASSET TIPS

- Produce assets that can be reused and/or are cheap to replace

- Produce refill pack with replacements for elements that are used during gameplay (spares)

- Design puzzle assets that allow for easy localisation

- Use a variety of props so that players are challenged in different ways as they move through the escape room

- Don't forget the soundtrack

ASK WHY

- Look at each element of the player experience of an escape room and ask, "**Why is this here?**"

- Each puzzle, task, and item in the escape room should be there for a reason that is consistent with the overall concepts behind the design of the room

- Anything else should be cut

INTERMISSION

ACTIVITY (20 MINUTES)

Design an escape room puzzle

Read the provided activity brief and design one activities for a 10-minute escape game that could be played online to support cybersecurity awareness training.

You must produce the following:

- Learning Objectives

- Roles taken by players

- Location of the game

- Theme & story

- Description of each puzzle (name, type, difficulty, hints, answer)

- Series of actions that will allow the players to reach the main goals.

HINT SYSTEM

- Provide help to players when they are stuck or frustrated

- How will the players communicate with the Game Master?

- Companion website or app

- Envelopes

  - Hints

  - Solutions

- Red acetate glasses to read secret messages

- Projector to display hints on a wall or on an object

- Time penalty for using hints

SCORING SYSTEM

You can award a final score based on:

- the time needed to escape from the room

- if you were able to escape

- number of hints or clues used to solve the puzzles

GAME MASTER

- Briefs and debriefs the players

- Ensures that players have a good experience

- Explains how escape room works

- Provides reminders and updates to the group as they play the game

- Mediates player disputes as they arise

- Answers players questions thoroughly

- Resets rooms after completion

BRIEFING

- Prologue – setting the scenario

- 5-10 minutes

- Informs players about:

  - Rules

  - Backstory

  - Scene

  - Mission

- Gets players excited
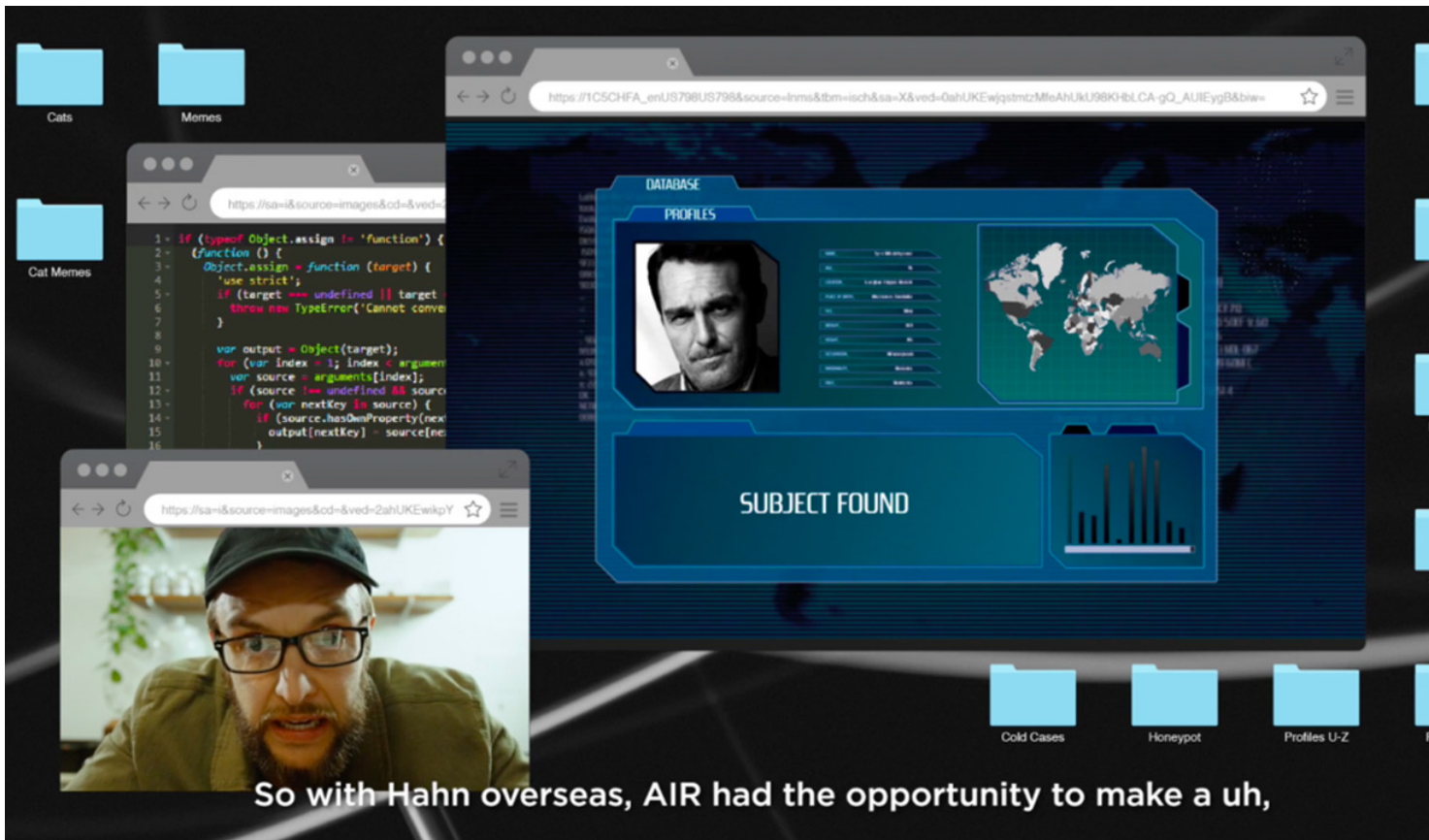
BRIEFING TYPES

- Pre-written script
  - Read out
  - Provided to players to read

- Video intro
  - Provides a richer experience
  - Sets the tone of the room

DEBRIEFING

- 5-15 minutes

- Video outro

- Takes players from where they are emotionally and mentally back into the "real world"

- Players are made aware of the learning that occurred during the gameplay

- Players reflect on their experiences in the game

- Opportunity to reinforce the learning activity (e.g., provide revision booklet about covered learning objectives)

- Group photo

GROUP PHOTO

- A group photo is arguably the only shareable thing about an escape room

- Acts as both souvenir for the player and marketing tool

- Most players consider them an important part of the overall experience

- Give players props that fit your room's theme

- Optimise your escape room photos for Facebook and Instagram

SAMPLE DEBRIEFING QUESTIONS

Describe…

- what you enjoyed about the game

- your favourite puzzle from the game

- a time when you felt particularly proud of yourself or your team during the game

- something new that you learned during the game

- how one of the puzzles in the game was solved

- one change that you would like to make to the game

- how this game relates to what you are learning

- how your group utilised everyone's strength

- a moment when your team became frustrated. How can you avoid that next time?

EVALUATION

- Did the room meet its goals, objectives, and learning outcomes?

- What aspects of the room contributed to or detracted from this?

- How can the learning experience be improved?

EVALUATION METHODS

- Pre- / post- / delayed-post test
- Pre-post survey
- Interviews
- Focus groups
- Observation (in situ / video surveillance)
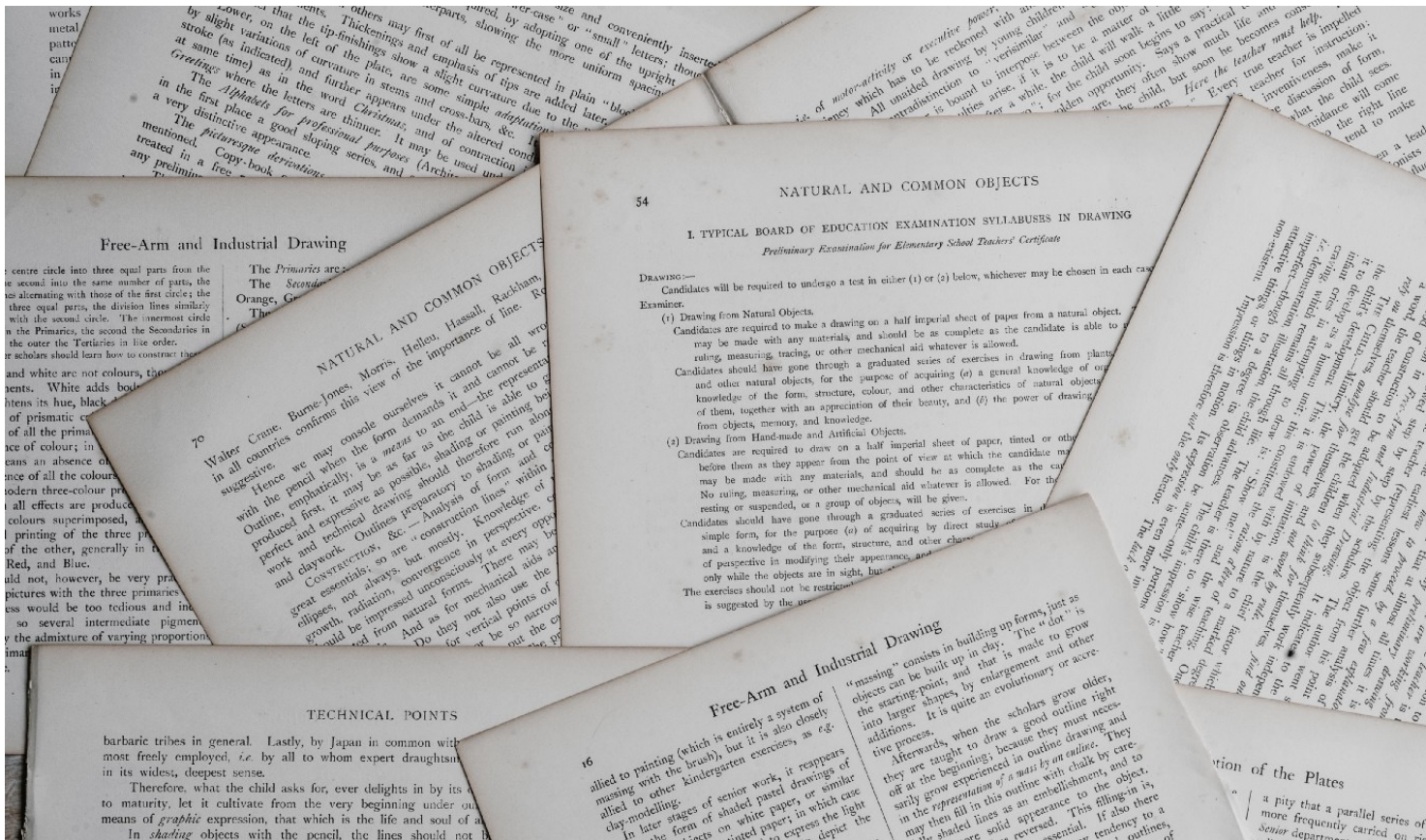
DOCUMENTATION

- **Game design document**
  - Information needed to build the game
  - Helps to refine scope and production needs

- **Game master instructions**
  - Information required to run the game

- **Setup and repack instructions**
  - Instructions about setting up / resetting the game

CHALLENGES

- Puzzles covering the learning objectives

- Balanced puzzle difficulty

- Integrating puzzles and narrative

- Room elements that won't be destroyed easily

- Room elements that can be easily reset

- Getting the timing right

- Playtesting
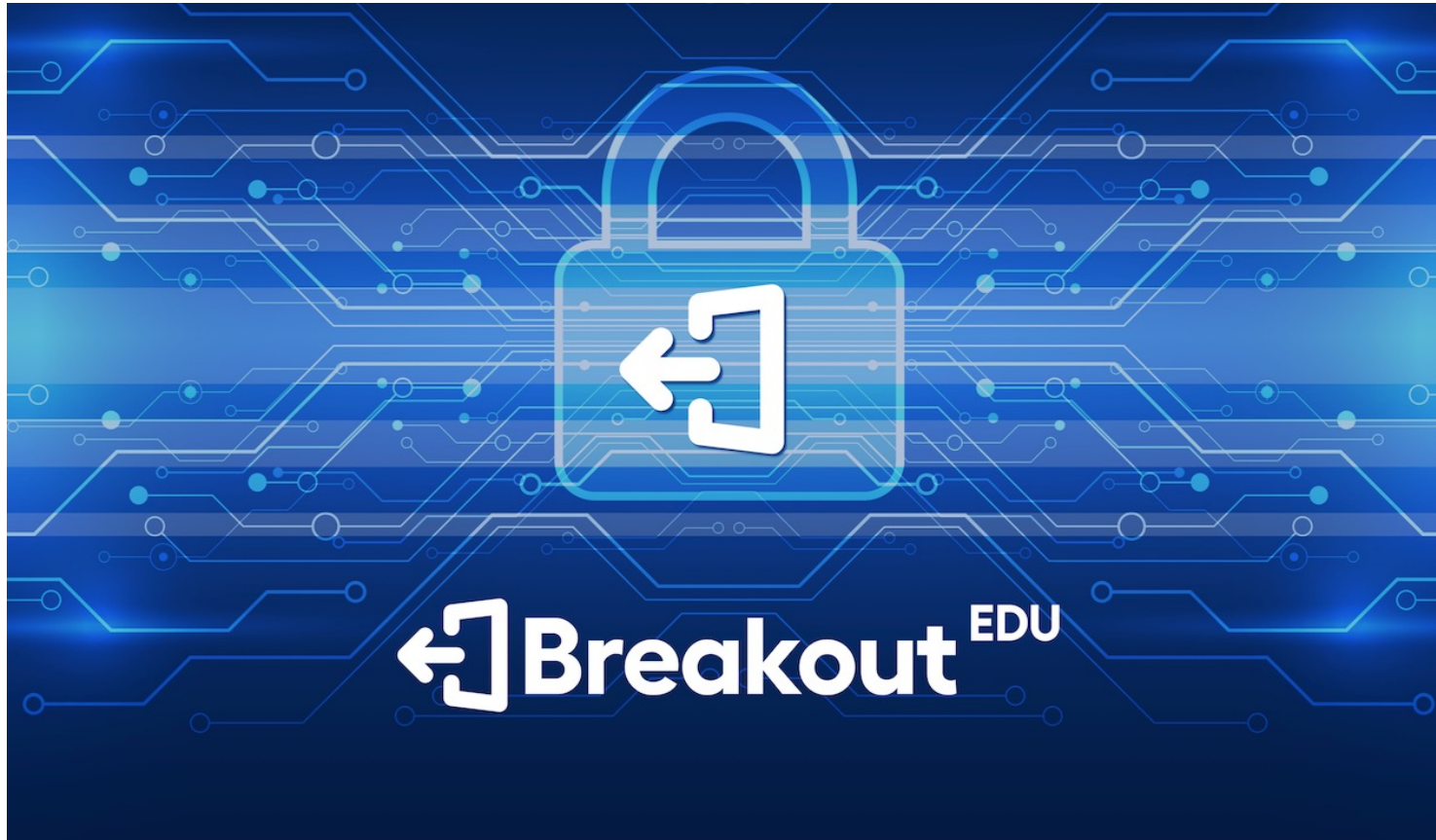
THAT SOUNDS GREAT BUT IT'S TOO MUCH WORK!

- Creating an educational escape room could require a lot of effort

- You can start with Breakout EDU

- Or make something simple in Google Forms

"I've learned that people will forget what you said, people will forget what you did, but people will never forget how you made them feel."

– Maya Angelou

WORDS OF WISDOM
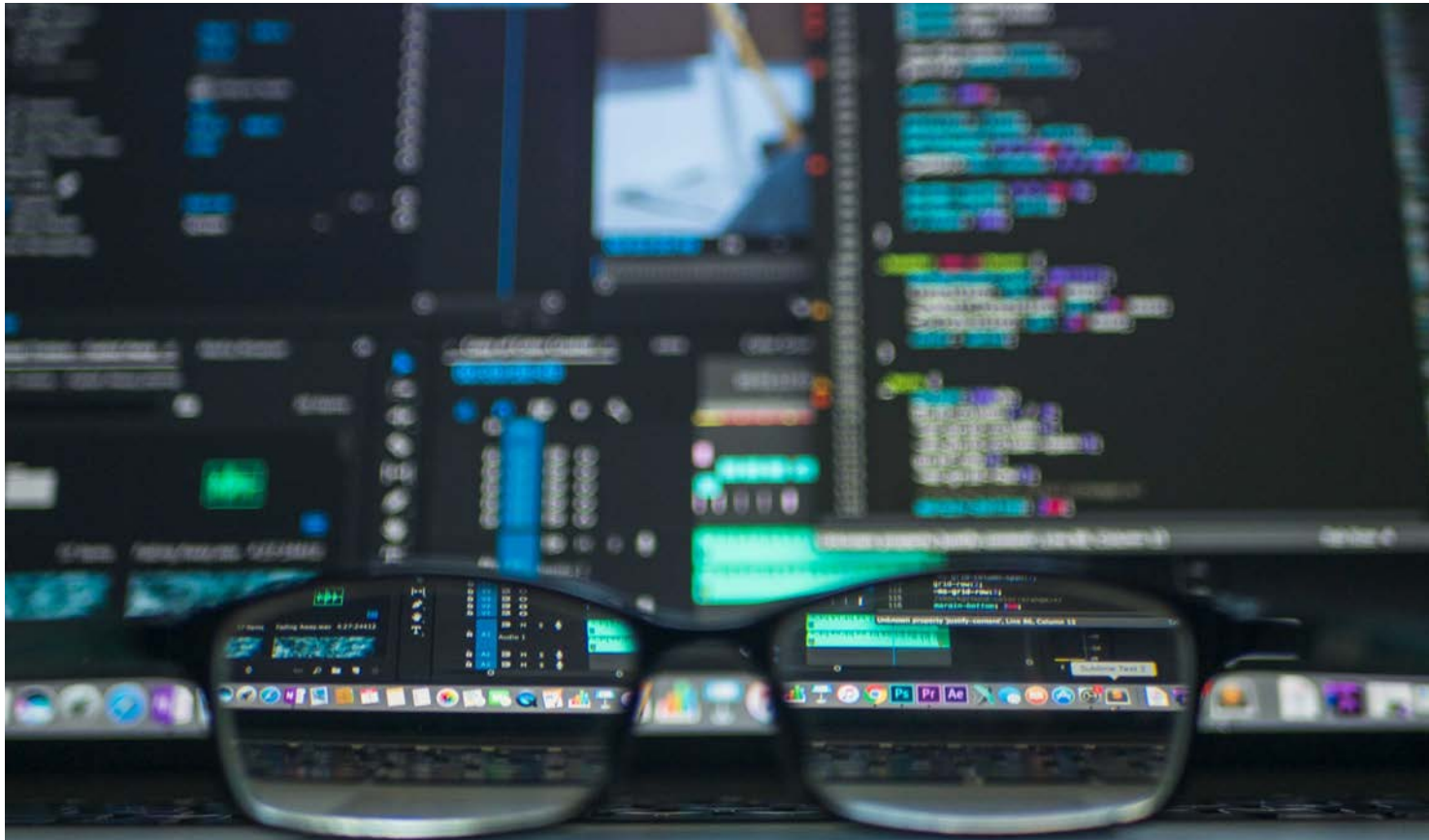
TOOLS

- **Google Forms**

- **Telescape Live**

- **Twine**

- **Breakout EDU**

- **Room Escape Maker**

- **https://wke.lt/w/s/77EGS4**

- **https://wke.lt/w/s/5q6_uq**
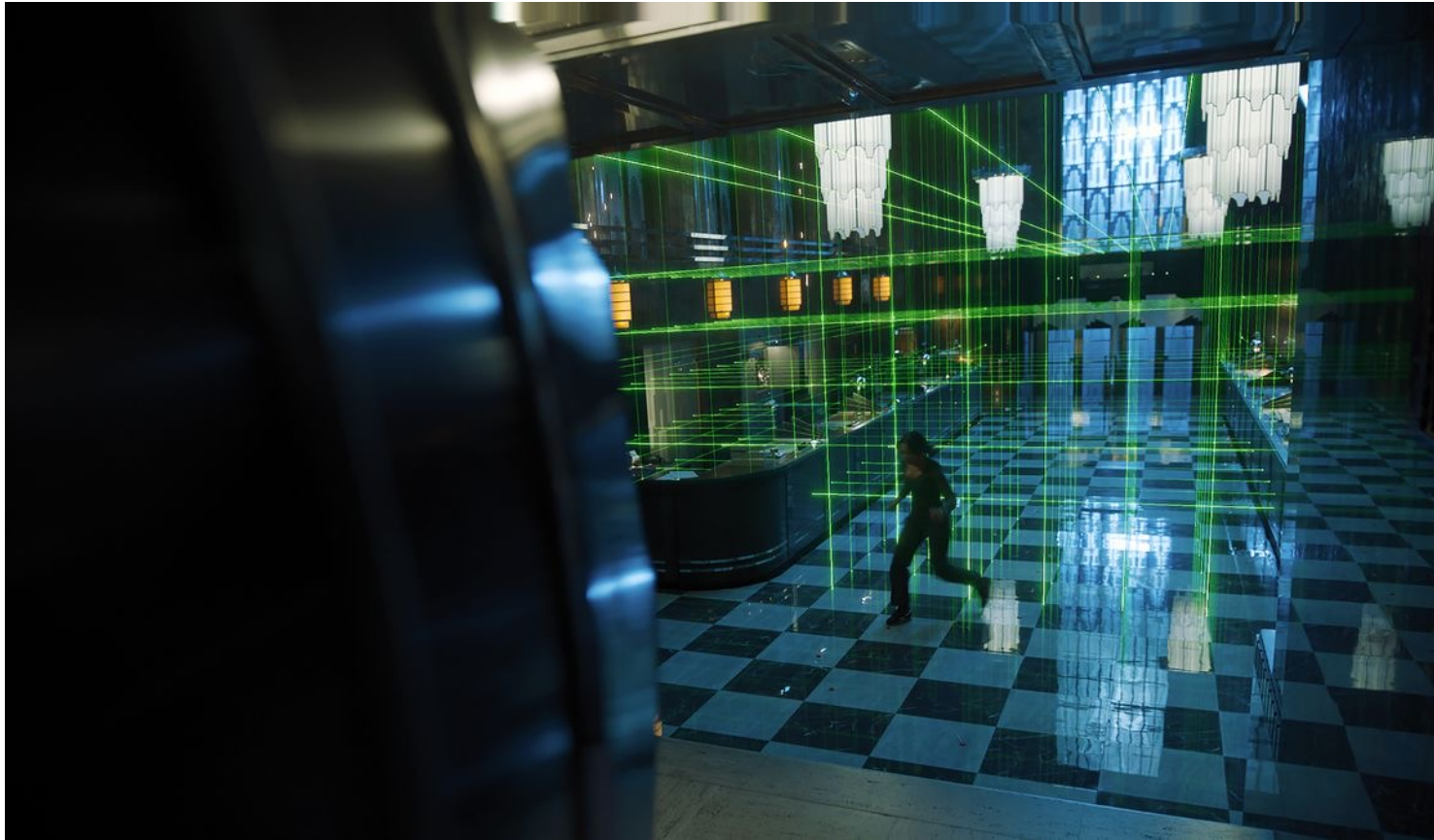
ESCAPE ROOM MOVIES

- Escape Room (2019)
- Escape Room: Tournament of Champions (2021)
- Jumanji (1995)
- Jumanji: Welcome to the Jungle (2017)
- The Maze Runner (2014)
- Cube (1997)
- The Shawshank Redemption (1994)
- Panic Room (2002)
- Split (2016)
- The Great Escape (1963)
- Saw (2004)
- Victory (1981)

FURTHER READING

Fotaris, P. & Mastoras, T. (2019). **Escape rooms for learning: A systematic review,** Proceedings of the 12th European Conference on Games Based Learning (ECGBL 2019), pp. 235-243

Nicholson, S. & Cable, L. (2021). **Unlocking the potential of puzzle-based learning**. Corwin

Walsh, A. (2017). **Making Escape Rooms for Educational Purposes: A Workbook**. Innovative Libraries.

Kroski, E. (2018). **Escape Rooms and Other Immersive Experiences in the Library**. ALA Editions

Chassapakis, D. (2017) **Journal 29: Interactive Book Game**. Primedia eLaunch LLC.

Hamer-Morton, J. (2020). **The Wexell Escape Room Story Book**. Wellbeck Publishing.

Gillies, R. (2020). **Extraordinary Investigations: The Morgan File: A Puzzle Novel**.

Get in touch

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Congratulations

CERTIFICATE
Of
AWARD

You escaped!

*Congratulations on completing all activities
and escaping from this workshop!*

YOU ARE NOW READY TO MAKE YOUR OWN ESCAPE ROOM!