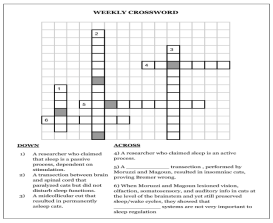
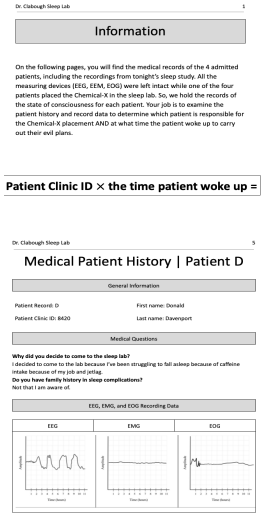
<table>
<tr><th>Game Notes</th><th>Game Component</th></tr>
<tr><td>The following components must be given to the players.</td><td>

**Starting Envelope containing 3 items**

**1. Crossword**

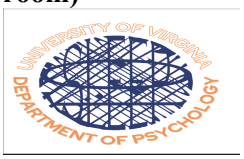



**2. Medical Records**




**3. A Pathway card (bloodstream)**

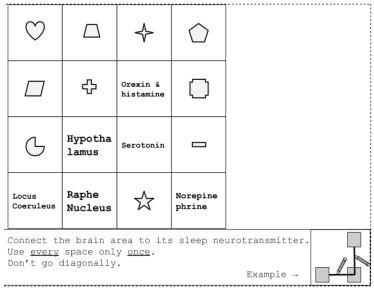

**Psych Sticker (given by instructor prior to the escape room)**

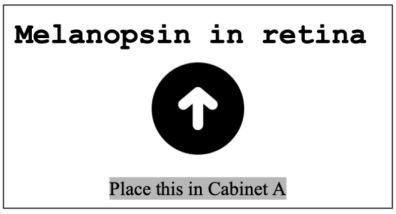



**Cabinet A, Cabinet B, Cabinet C, Cabinet D envelopes (sealed)**

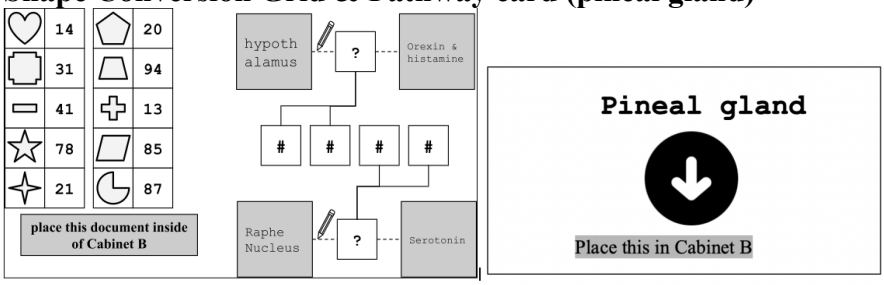
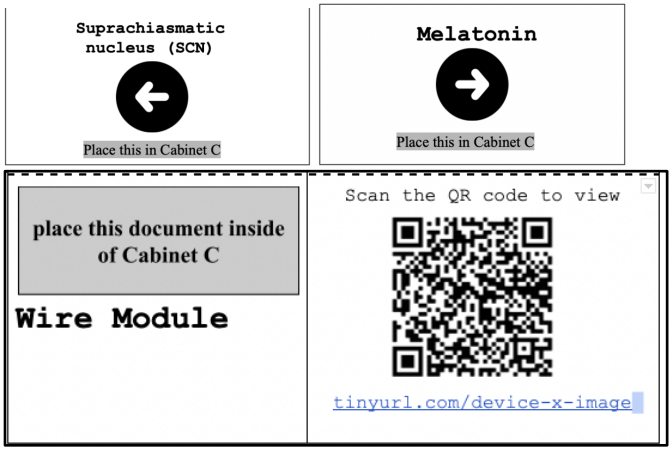
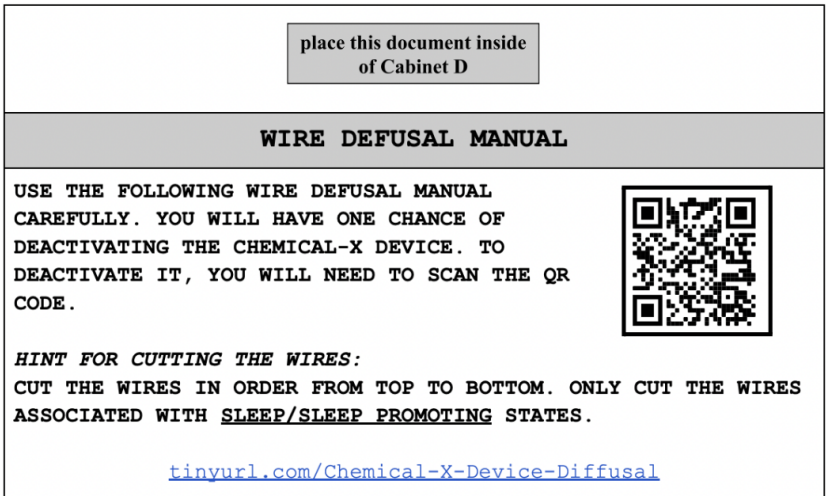
</td></tr>
<tr><td>**Cabinet A components**</td><td>

**Grid 1 (first half) & Pathway Card (Melanopsin)**



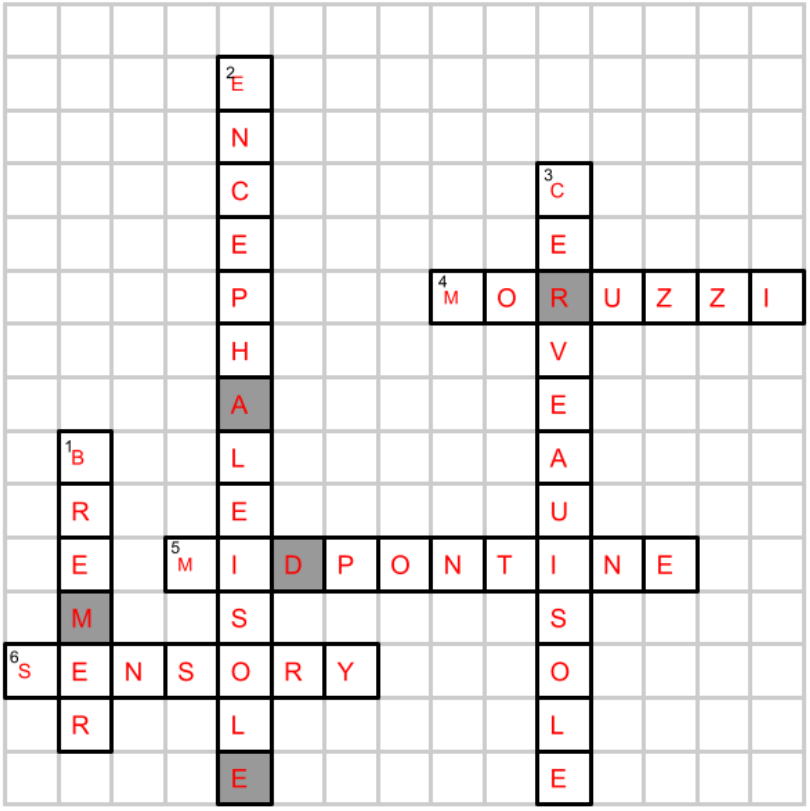

</td></tr>
</table>

| | |
|---|---|
| **Cabinet B components** | **Shape Conversion Grid & Pathway card (pineal gland)**<br>  |
| **Cabinet C components** | **QR Code for Wire Module & 2x Pathway Cards (SCN, Melatonin)**<br>  |
| **Cabinet D components** | **Wire Defusal Manual**<br>  |

**CROSSWORD PUZZLE**
**CODE: DREAM**

***NOTE: This puzzle is given to players at the beginning. The puzzle opens Cabinet A.***

## WEEKLY CROSSWORD KEY




**DOWN**

1) A researcher who claimed that sleep is a passive process, dependent on stimulation.
2) A transection between brain and spinal cord that paralyzed cats but did not disturb sleep functions.
3) A midcollicular cut that resulted in permanently asleep cats.

**ACROSS**

4) A researcher who claimed sleep is an active process.

5) A _____ transection , performed by Moruzzi and Magoun, resulted in insomniac cats, proving Bremer wrong.

6) When Moruzzi and Magoun lesioned vision, olfaction, somatosensory, and auditory info in cats at the level of the brainstem and yet still preserved sleep/wake cycles, they showed that _____ systems are not very important to sleep regulation

**TO SOLVE THE CROSSWORD PUZZLE:** Solve the crossword (down represents passive sleep and across represents active sleep). The shaded boxes highlight letters **DREAM**, which is the code. All components necessary to solve the crossword puzzle are given at the start of the escape room.
Code is entered here: https://tinyurl.com/cabinet-a

HINTS TO GIVE FOR CROSSWORD PUZZLE


If players are struggling, offer this word bank for assistance.

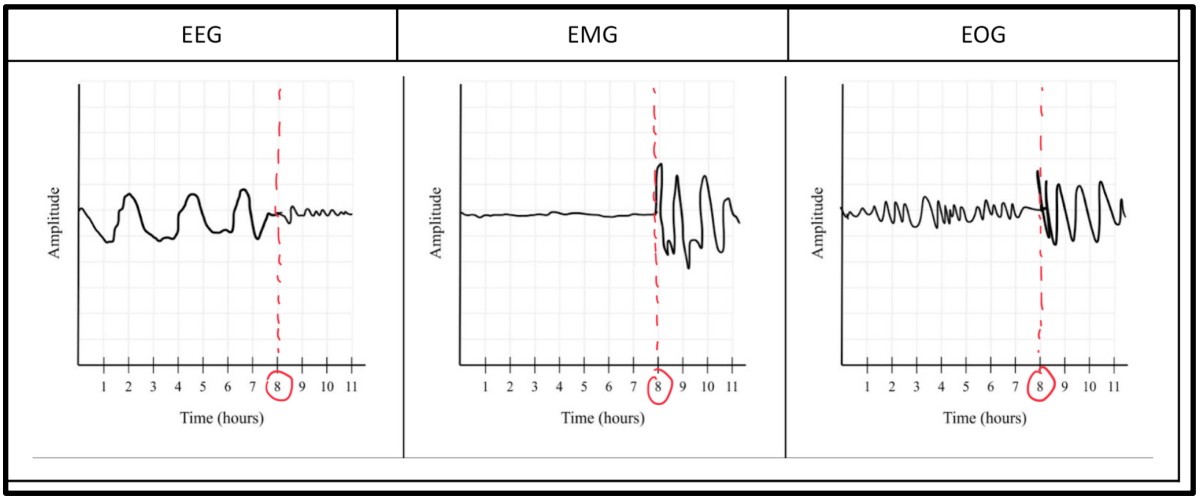
**MEDICAL RECORDS**
**CODE: 53936**

***NOTE: This puzzle is given to players at the beginning. The puzzle opens Cabinet B.***

The objective of the puzzle is to determine which patient is responsible for the Chemical-X placement AND at what time the patient woke up to carry out their evil plans.

The patient that committed the crime must have been awake when they placed the device. **Patient B** is the only patient whose EEG, EMG, and EOG recording data supports this. Patient B woke up and started moving at **8**. All other patients do not have significant EMG activity, which means the device did not pick up muscle movement.

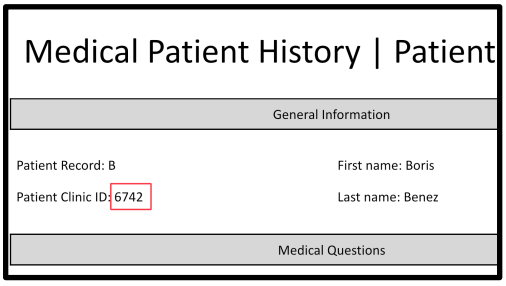
*Patient B EEG, EMG, and EOG Recordings*




Movement of EEG, EMG, and EOG waves supports the claim that the patient woke up and started moving at 8.

---

*Patient B Clinic ID: 6742*

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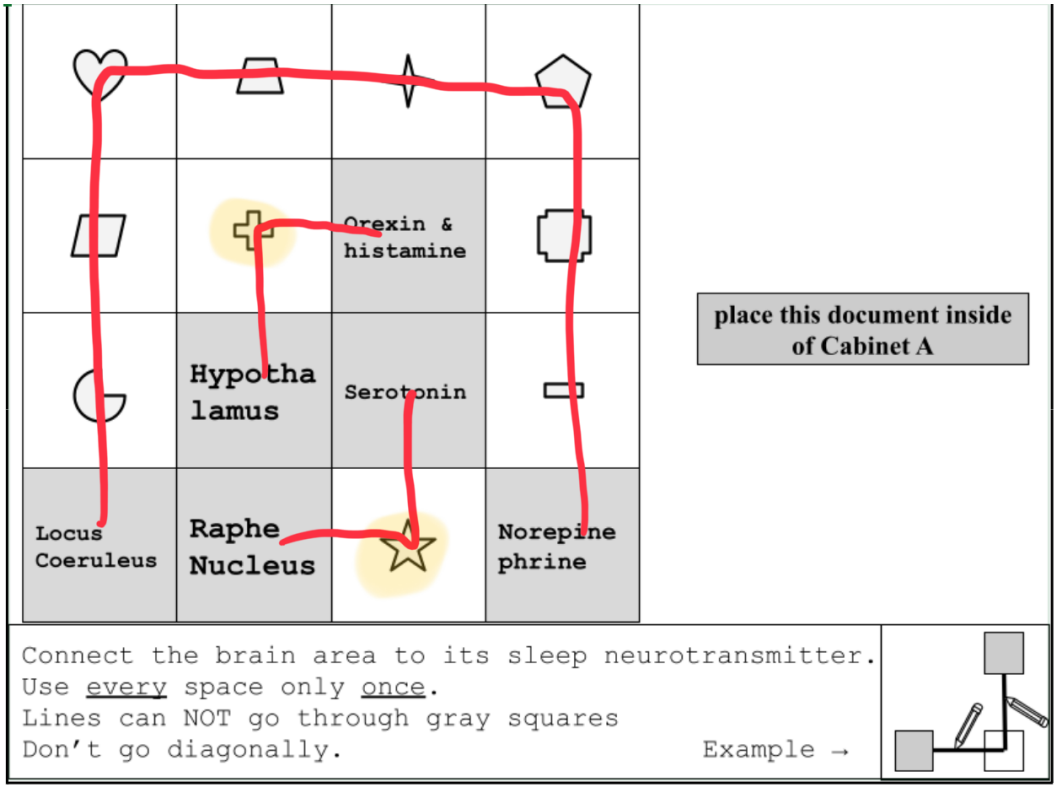
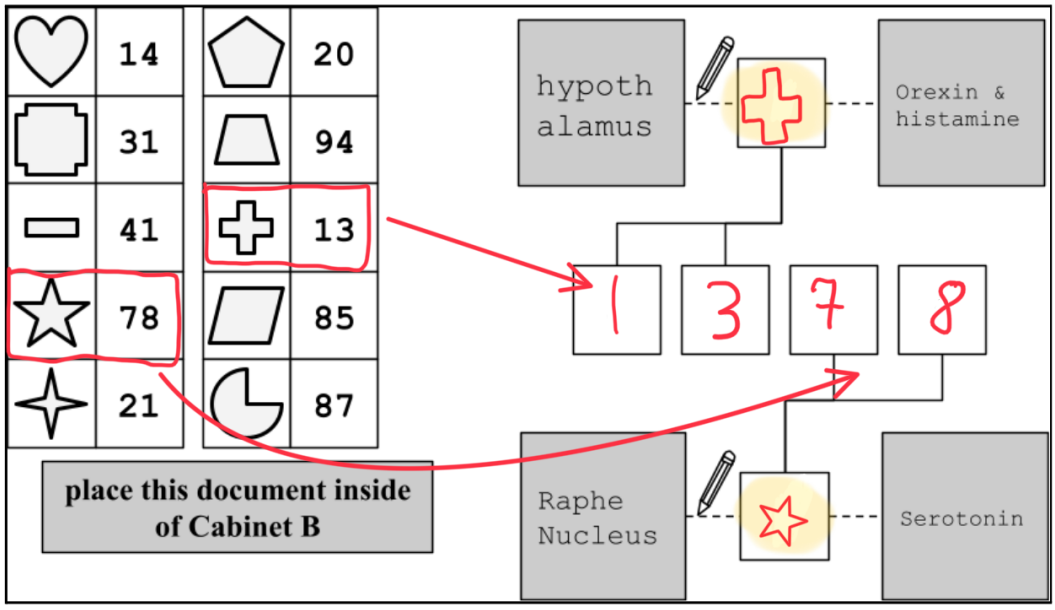
**Patient Clinic ID × the time patient woke up =**

The formula at the beginning of the document states to multiply the patient clinic ID by the time patient woke up. Multiplying 6742 by 8 yields 53936.
Code is entered here: https://tinyurl.com/cabinet-b

**GRID**
**CODE: 1378**

*NOTE: To complete this puzzle and unlock Cabinet C, players must've solved the crossword puzzle AND the medical records puzzle, thus opening Cabinet A and Cabinet B.*




To solve this puzzle, players must connect the brain area to its associated sleep neurotransmitter.

Locus coeruleus → norepinephrine

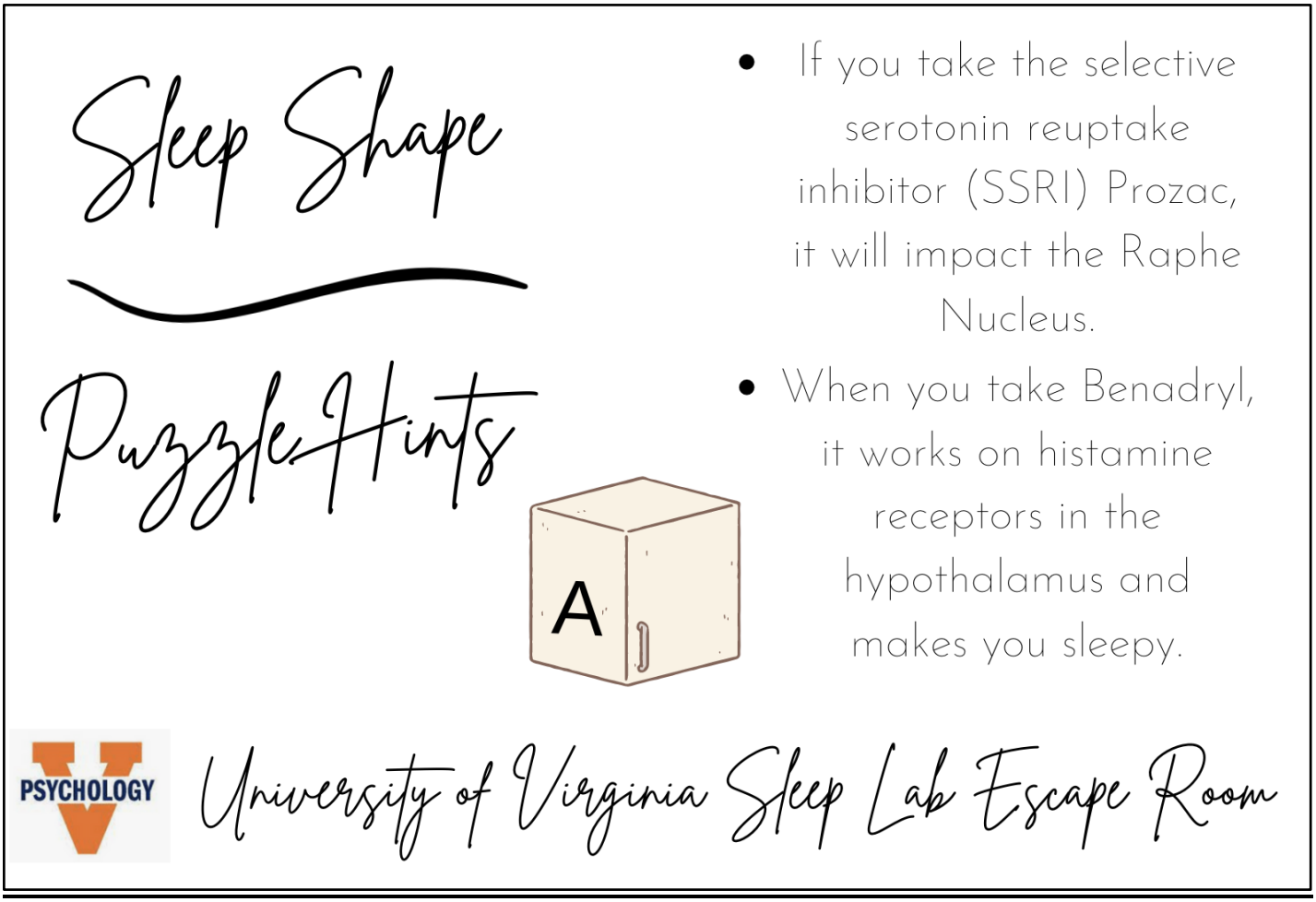
Raphe nucleus → serotonin

Hypothalamus → orexin & histamine

The connections happen by connecting the respective brain area and sleep neurotransmitter with a line.
Each line will pass through a shape.
The shapes that pass between *Hypothalamus → orexin/histamine* & *Raphe Nucleus → serotonin* are key for solving the puzzle.
The conversion chart can be used to create a 4 digit code out of the shapes that pass between the connections.

The code is 1378. Code is entered here: https://tinyurl.com/cabinet-c

HINTS TO GIVE FOR GRID PUZZLE




**CARD PATHWAY**
**CODE: ULDRL**

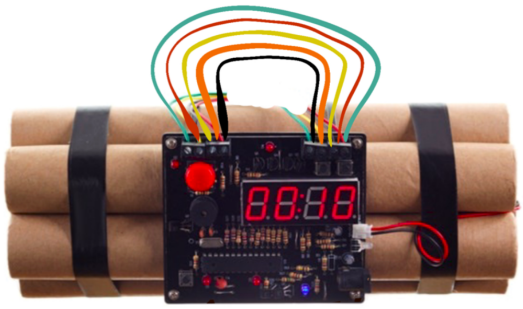
*NOTE: To complete this puzzle and unlock Cabinet D, players must've collected 5 directional cards by opening Cabinet A, Cabinet B, and Cabinet C.*

Each card represents a different step related to sleep. Cards must be arranged in correct order (reproduced below). The correct order will show the direction of arrows (UP, LEFT, DOWN, RIGHT, LEFT).


This direction yields code **ULDRL.** Code is entered here: https://tinyurl.com/cabinet-d

**WIRE DEFUSAL**
**CODE: GRB**

*NOTE: To complete this puzzle and unlock Chemical - X Device Defusal (1), players must have opened Cabinet A, Cabinet B, Cabinet C, and Cabinet D.*



**The device has five wires: green, red, yellow, orange, black**

| | |
|---|---|
| **Green** | **VLPO region is active** |
| **Red** | **High adenosine concentration** |
| **Yellow** | **Beta waves** |
| **Orange** | **Raphe nucleus is active** |
| **Black** | **Release of melatonin** |

**place this document inside of Cabinet D**

**WIRE DEFUSAL MANUAL**

**USE THE FOLLOWING WIRE DEFUSAL MANUAL CAREFULLY. YOU WILL HAVE ONE CHANCE OF DEACTIVATING THE CHEMICAL-X DEVICE. TO DEACTIVATE IT, YOU WILL NEED TO SCAN THE QR CODE.**

***HINT FOR CUTTING THE WIRES:***
**CUT THE WIRES IN ORDER FROM TOP TO BOTTOM. ONLY CUT THE WIRES ASSOCIATED WITH SLEEP/SLEEP PROMOTING STATES.**

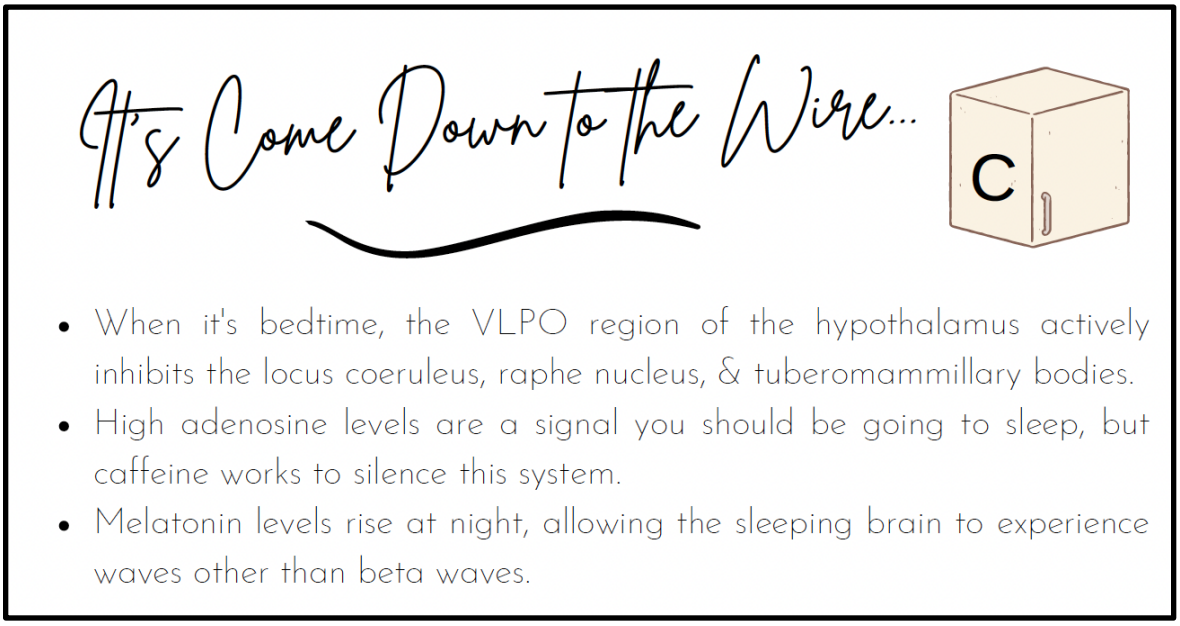
**tinyurl.com/Chemical-X-Device-Diffusal**

To solve this puzzle, players need to cut the wires in order from top to bottom AND only cut the wires associated with sleep/sleep promoting states.

- Green wire will be CUT because VLPO (ventrolateral preoptic nucleus) is responsible for sleep drive circadian “hypnotic” signal.
- Red wire will be CUT because high adenosine concentration is by-product of cyclic AMP which is used to generate energy. As adenosine levels rise, it sends a cue to the body to sleep.
- Yellow wire will NOT be cut because beta waves are associated with alert state.
- Orange wire will NOT be cut because raphe nucleus keeps you awake (it works in balance with VLPO) as it releases serotonin and projects over the brain as a neuromodulator
- Black wire will be CUT because melatonin is secreted by pineal gland. Melatonin goes into blood stream and into cells and acts as a synchronizer to tell them what time it is and to lead to sleep.

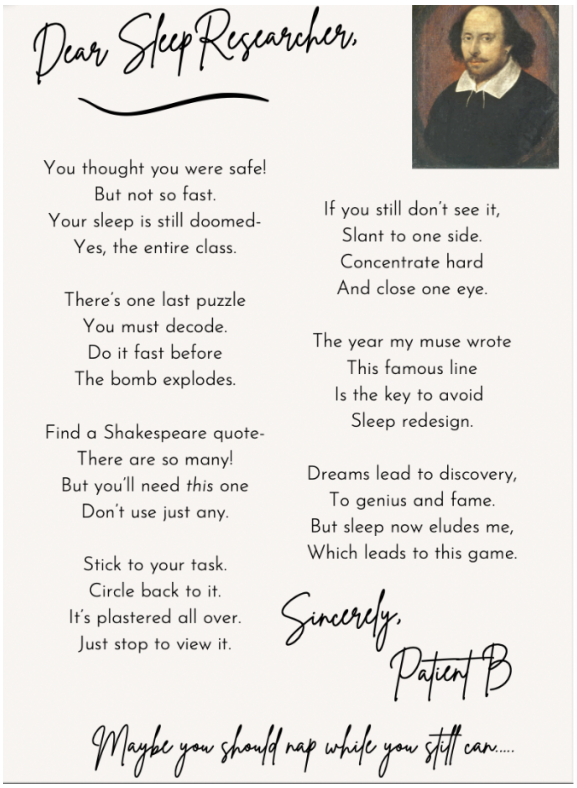
The wires lead to cutting of Green, Red, and Black wires, code **GRB**. Code is entered here: http://tinyurl.com/Chemical-X-Device-Diffusal

HINTS TO GIVE FOR WIRE DIFFUSAL



**SHAKESPEARE**
**CODE: 1602**

*NOTE: **NO CONCRETE HINTS SHOULD BE GIVEN ON THIS PUZZLE.** To complete this puzzle and unlock Chemical - X Device Diffusal (2), players must've opened Cabinet A, Cabinet B, Cabinet C, Cabinet D, and Chemical - X Device Diffusal (1).*



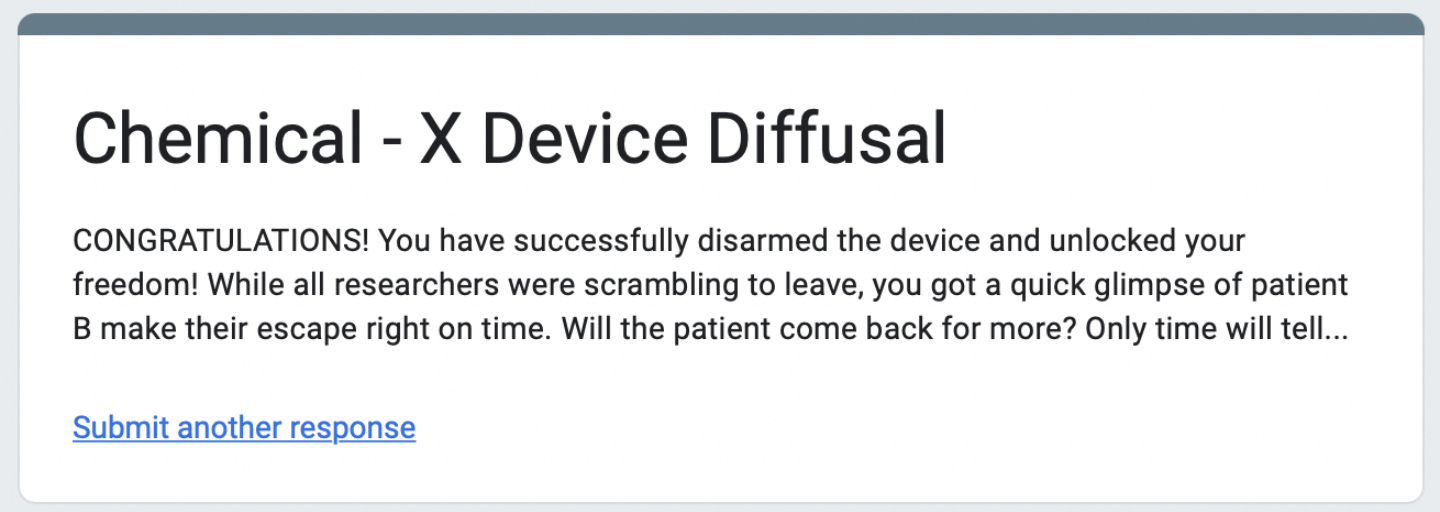

To solve this puzzle, players must look at the psychology sticker and refer to the Shakespeare poem for directions.

Rotating the psychology sticker and covering one of your eyes will show 4 words.

| | | | |
|---|---|---|---|
|  |  |  |  |
| **SLEEP** | **PERCHANCE** | **TO** | **DREAM** |

"Sleep Perchance To Dream" is a line from Hamlet, written by Shakespeare. The Shakespeare Poem states to find the Shakespeare quote and use the year for when it was written. The year is **1602**.
Code is entered here: http://tinyurl.com/Chemical-X-Device-Diffusal

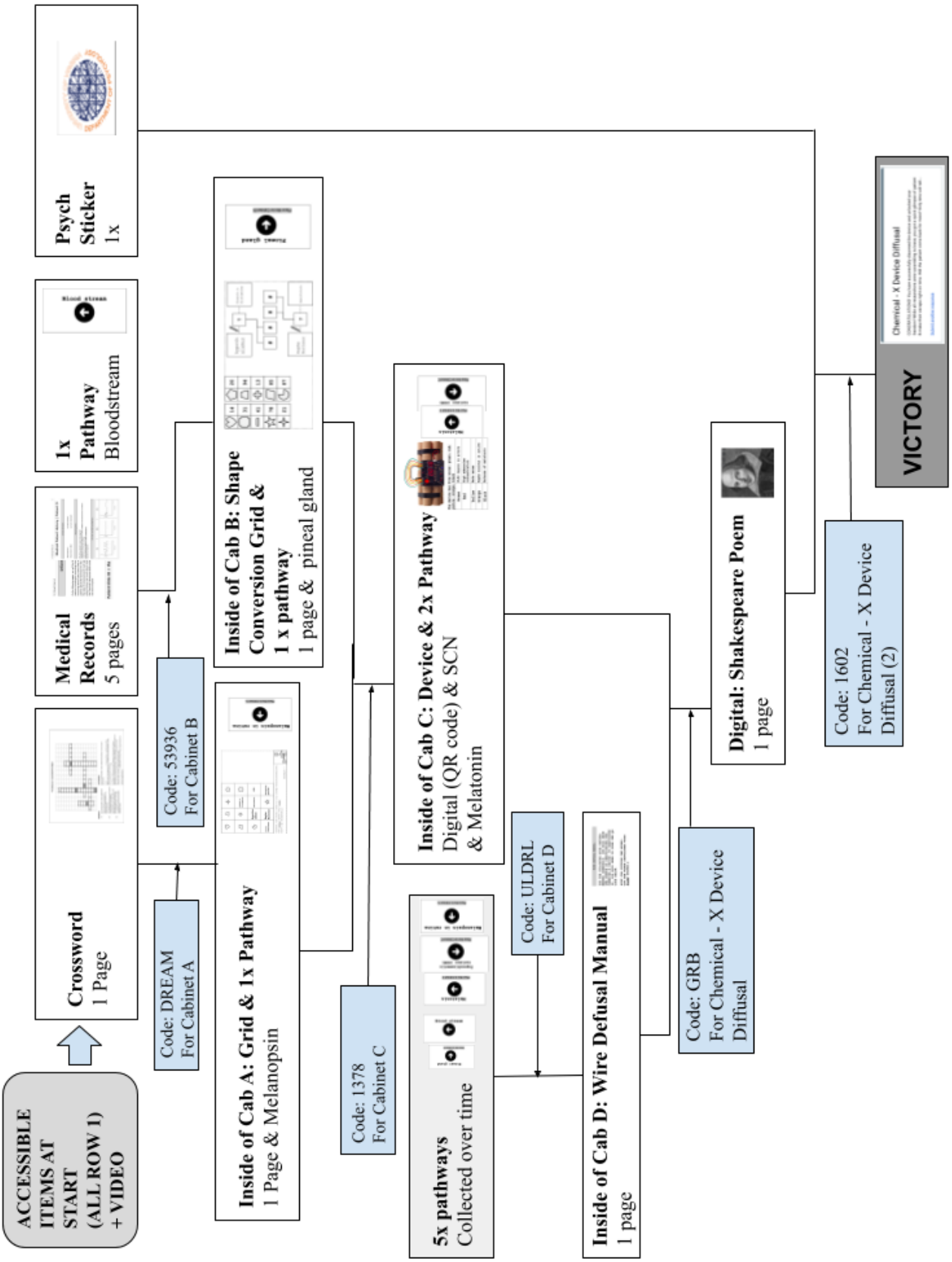
**Players have successfully completed the entire escape room if they show this screen:**



# Chemical - X Device Diffusal

CONGRATULATIONS! You have successfully disarmed the device and unlocked your freedom! While all researchers were scrambling to leave, you got a quick glimpse of patient B make their escape right on time. Will the patient come back for more? Only time will tell...

Submit another response


ACCESSIBLE ITEMS AT START (ALL ROW 1) + VIDEO
Crossword
1 Page
Code: DREAM
For Cabinet A
Code: 53936
For Cabinet B
Code: 1378
For Cabinet C
Code: ULDRL
For Cabinet D
Code: GRB
For Chemical - X Device
Diffusal
Code: 1602
For Chemical - X Device
Diffusal (2)
Medical Records
5 pages
1x Pathway
Bloodstream
Psych Sticker
1x
Inside of Cab A: Grid & 1x Pathway
1 Page & Melanopsin
Inside of Cab B: Shape Conversion Grid & 1 x pathway
1 page & pineal gland
Inside of Cab C: Device & 2x Pathway
Digital (QR code) & SCN & Melatonin
5x pathways
Collected over time
Inside of Cab D: Wire Defusal Manual
1 page
Digital: Shakespeare Poem
1 page
VICTORY