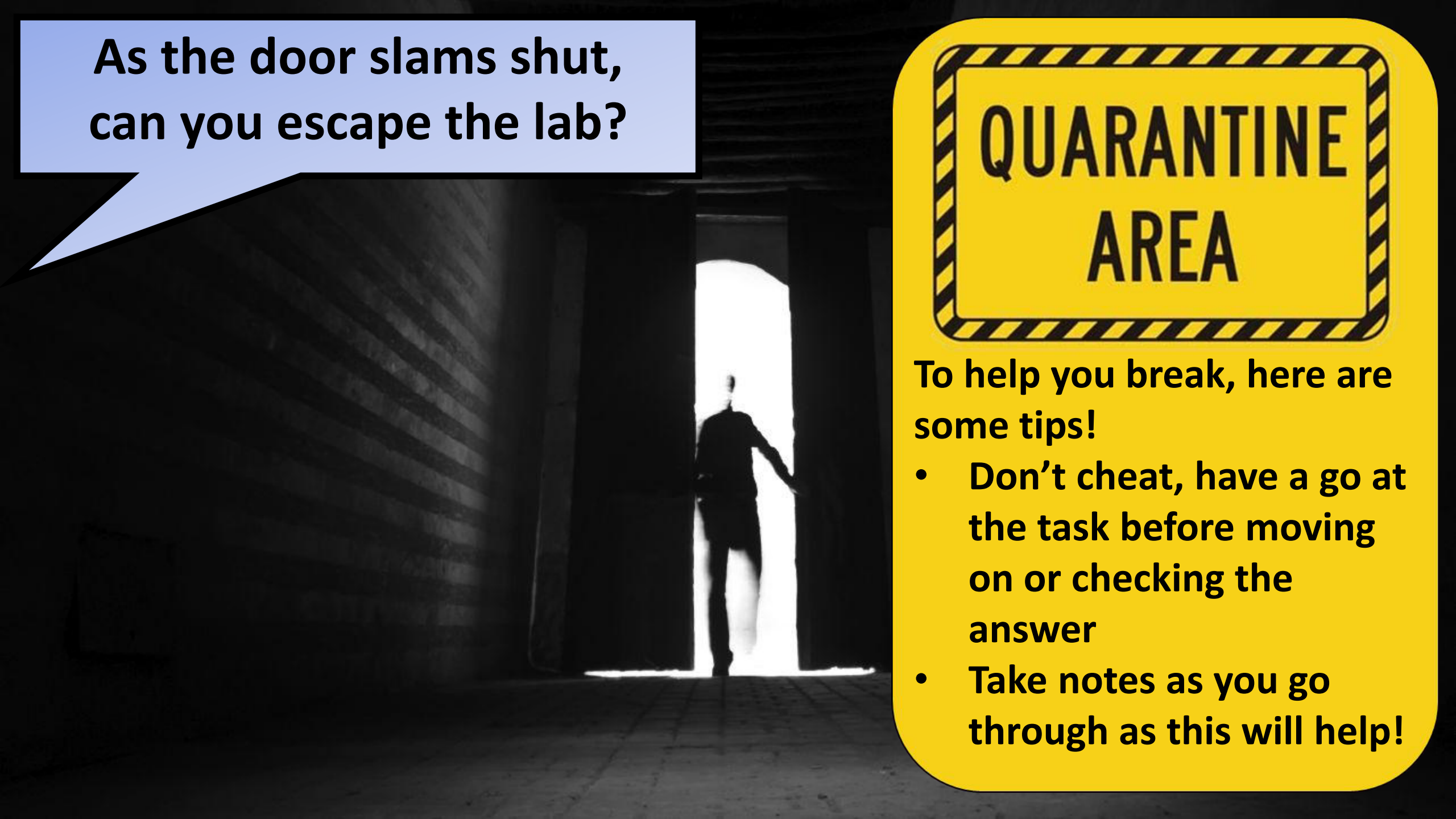
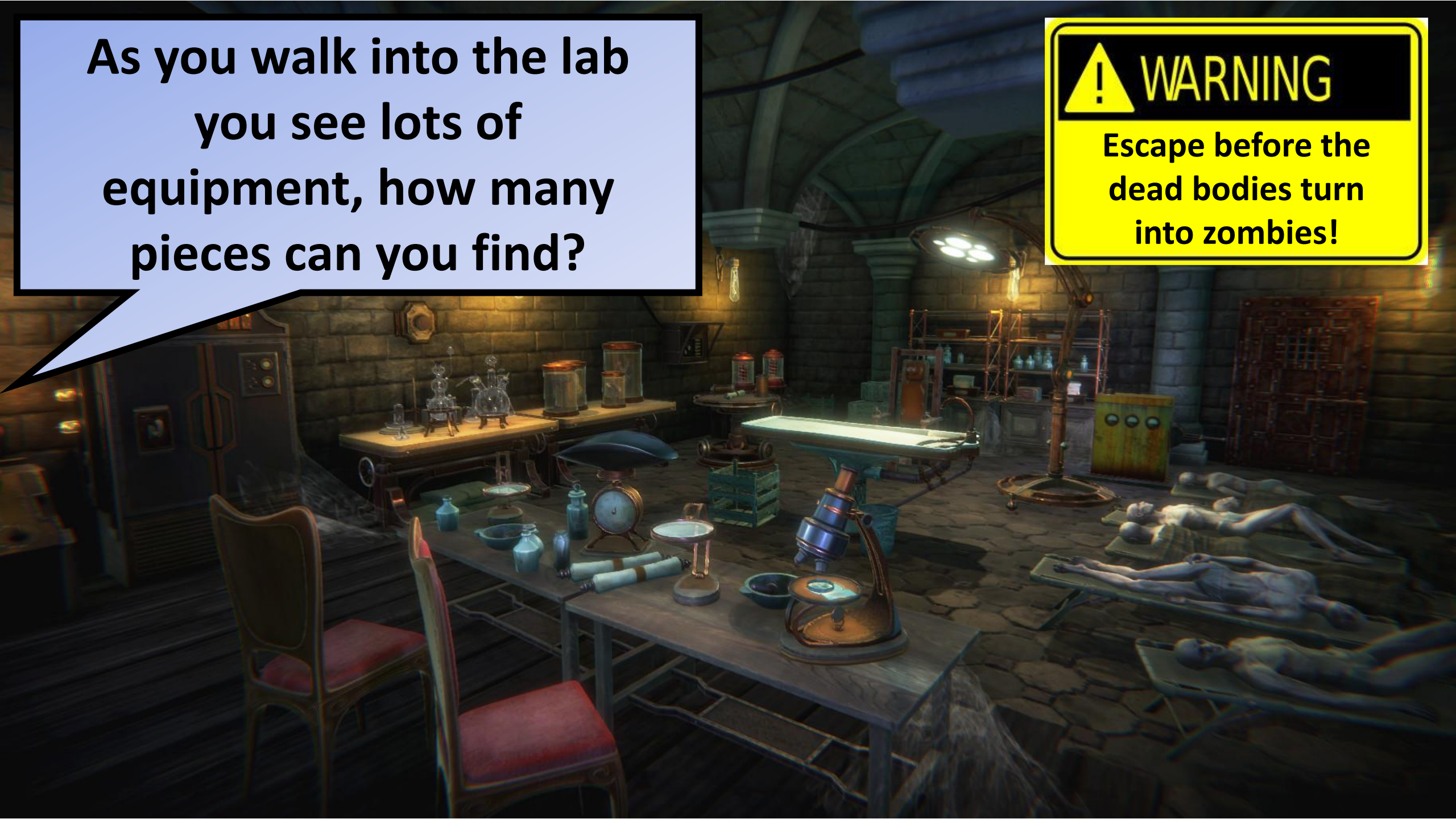
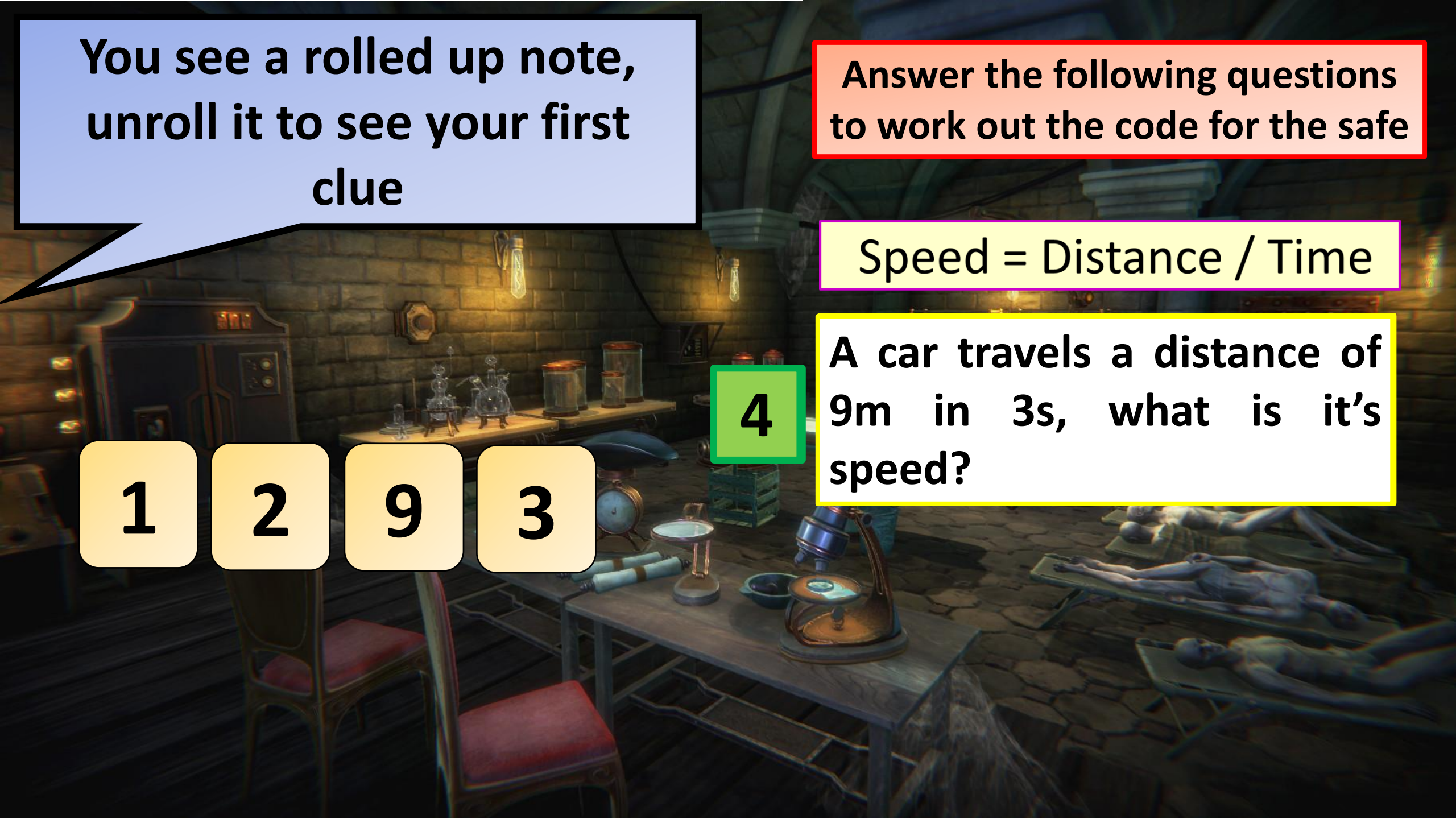
As the door slams shut, can you escape the lab?

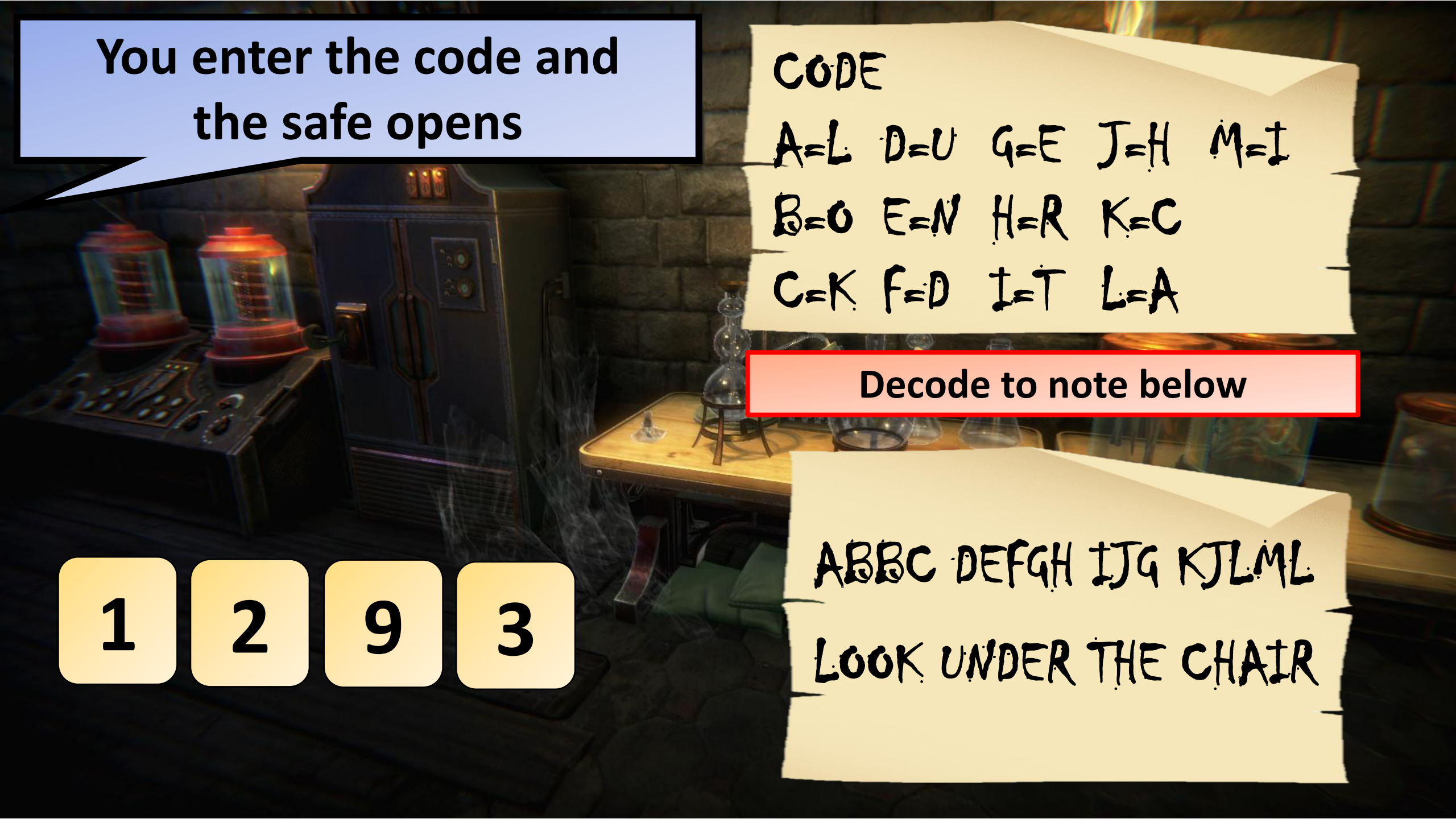


To help you break, here are some tips!

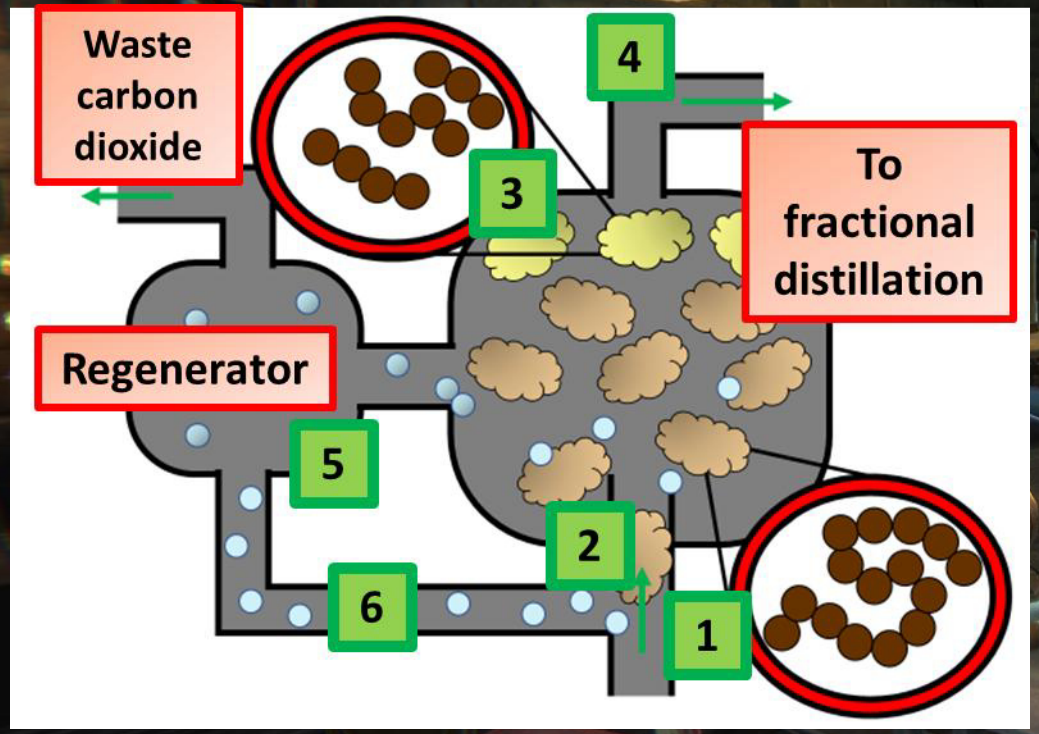
- Don’t cheat, have a go at the task before moving on or checking the answer
- Take notes as you go through as this will help!


As you walk into the lab you see lots of equipment, how many pieces can you find?
WARNING
Escape before the dead bodies turn into zombies!


You see a rolled up note, unroll it to see your first clue
Answer the following questions to work out the code for the safe
Speed = Distance / Time
A car travels a distance of 9m in 3s, what is it's speed?
4
1
2
9
3


You enter the code and the safe opens
1 2 9 3
CODE
A=L D=U G=E J=H M=I
B=O E=N H=R K=C
C=K F=D I=T L=A
Decode to note below
ABBC DEFGH IJG KJLML
LOOK UNDER THE CHAIR

You look under the chair and find an envelope



S C A L E S

Put the following statements in order to see where the next clue it

E — During the reaction the catalyst becomes coated with carbon so is pumped into a regenerator where it is burnt off

A — The long chain hydrocarbon molecules are broken down into smaller ones This reaction is called cracking The cracked hydrocarbons can have double bonds

S — The cleaned catalyst flows back into the reaction vessel to be reused

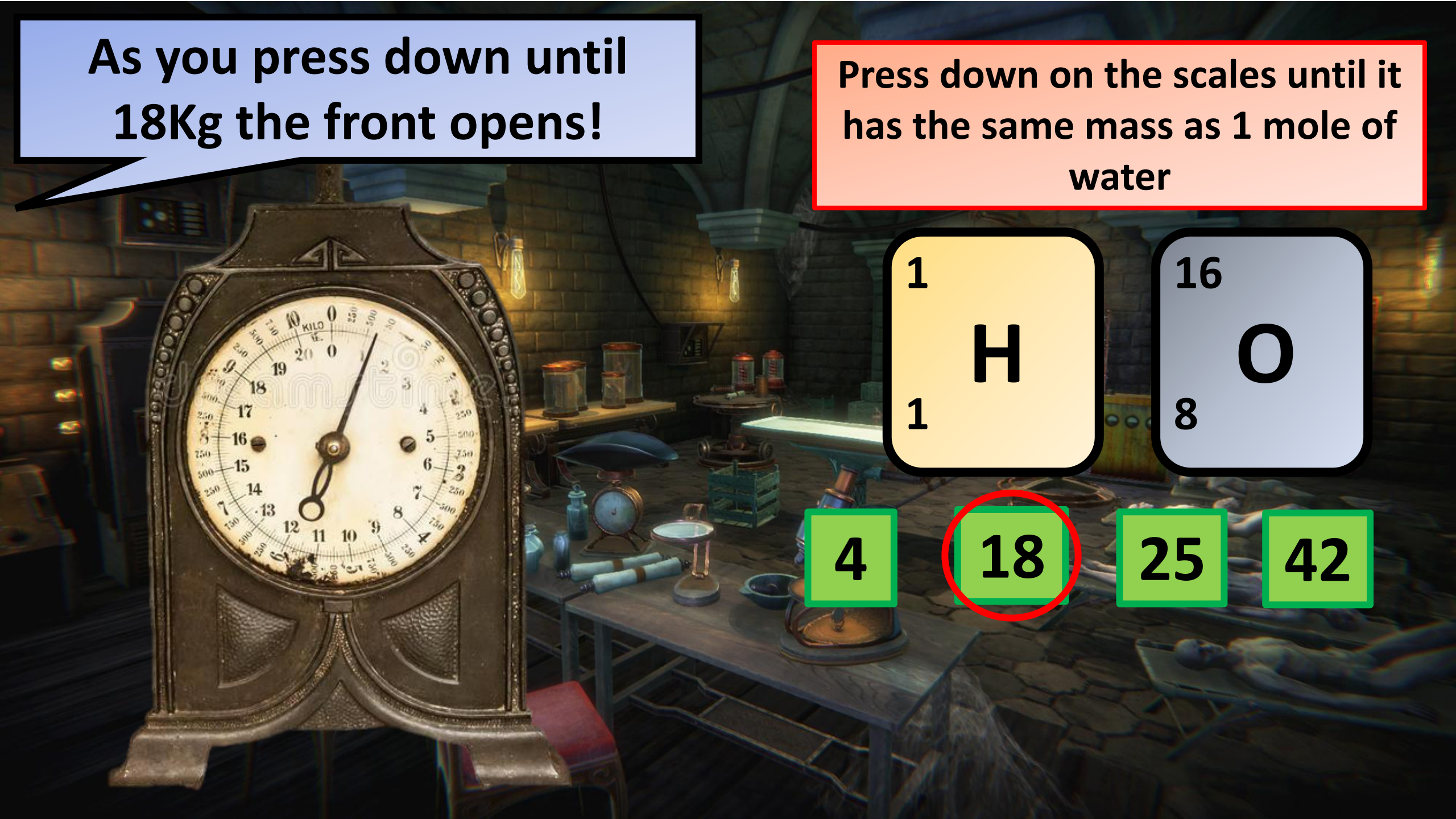
L — The mixture of cracked molecules is pumped into a fractional distillation column where they are separated

C — A catalyst of zeolite crystals is added This lowers the temperature needed to break down the hydrocarbons

S — Long-chain hydrocarbons are heated until they turn into vapour. This 'feedstock' is pumped into the reaction vessel

As you press down until 18Kg the front opens!

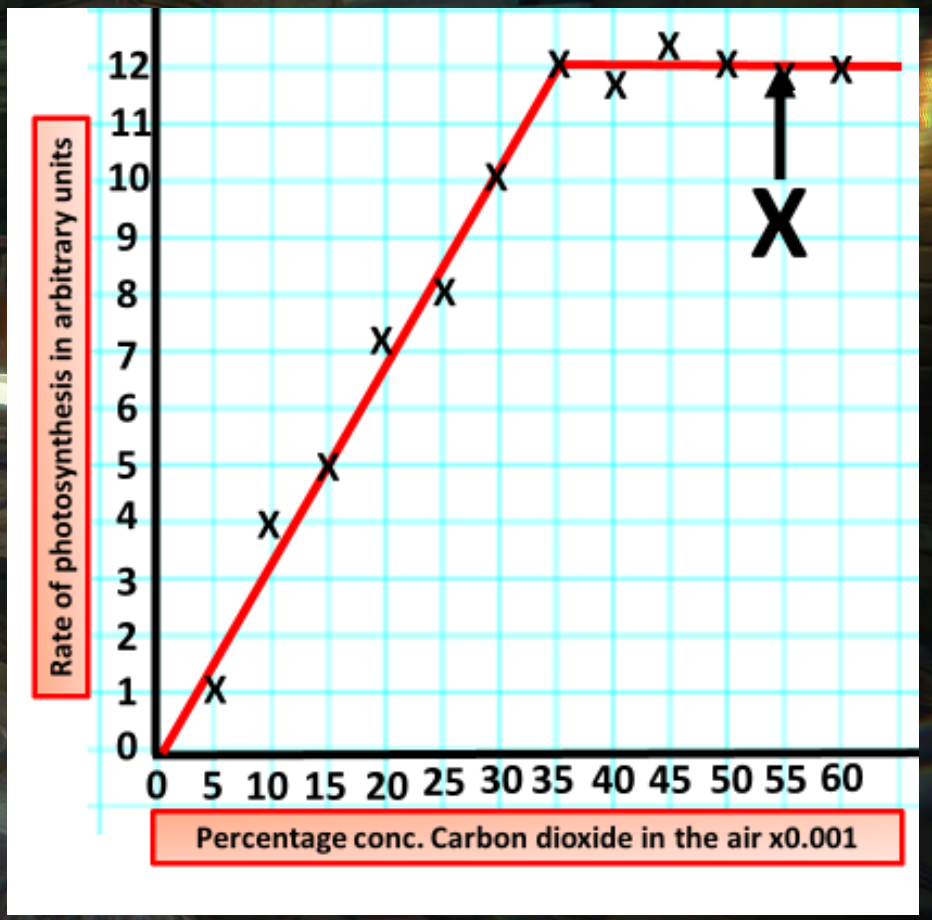
Press down on the scales until it has the same mass as 1 mole of water



1st Door code number: 8
Here's the next clue

What is the maximum rate of photosynthesis of the tomato plants shown in the graph?

- 6
- 8
- 10
- Check under the desk



You find a locked box under the desk

Put the following in order of size (smallest to biggest)

1	Organ system
2	Organelle
3	Tissue
4	Cell
5	Organ

2 4 3 5 1

You open the box and pull out this sheet

Work out what the equations are for each variable below

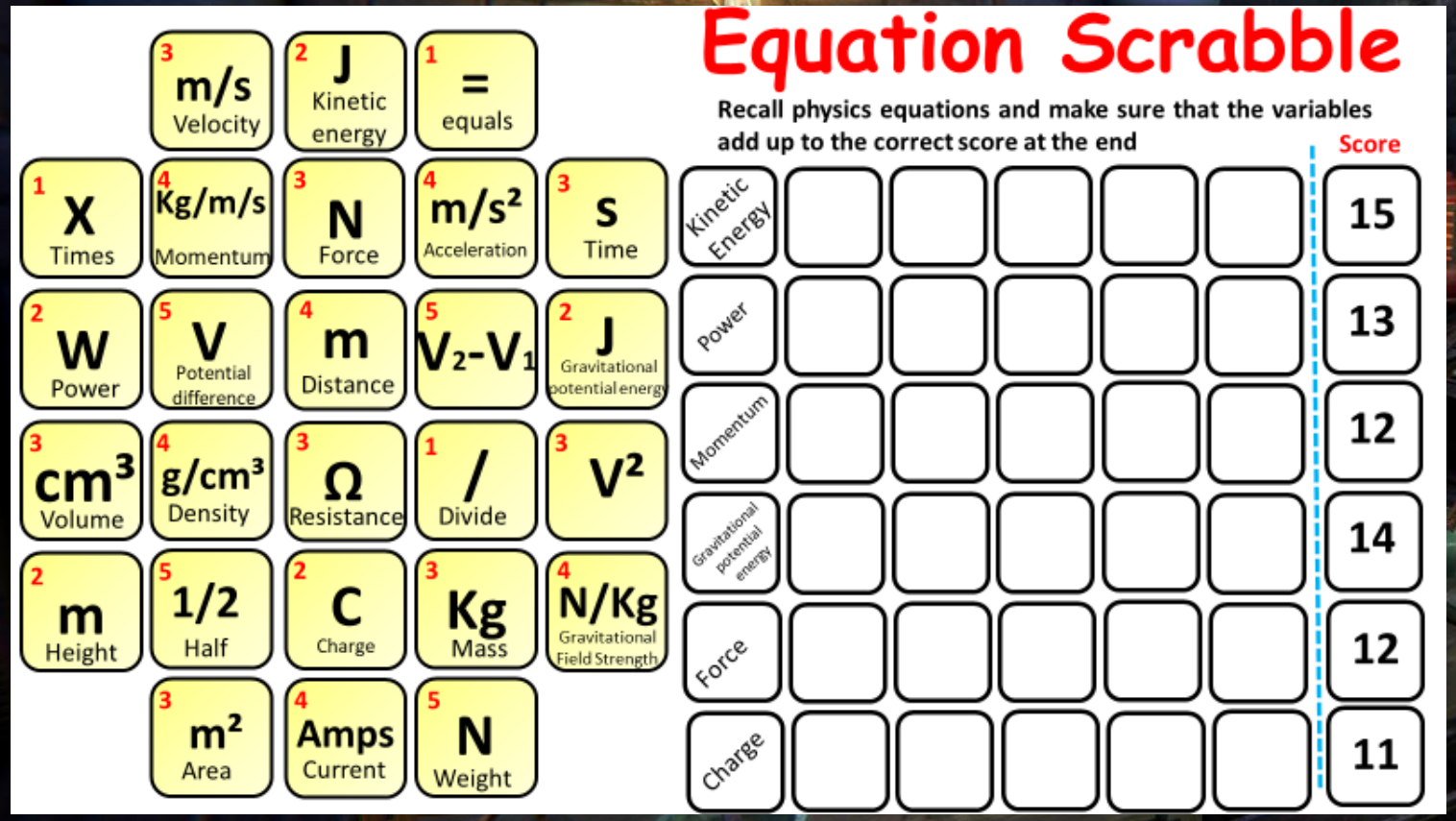
Equation Scrabble

Recall physics equations and make sure that the variables add up to the correct score at the end

						Score
Kinetic Energy						15
Power						13
Momentum						12
Gravitational potential energy						14
Force						12
Charge						11

3 m/s Velocity	2 J Kinetic energy	1 = equals		
1 X Times	4 Kg/m/s Momentum	3 N Force	4 m/s^2 Acceleration	3 s Time
2 W Power	5 V Potential difference	4 m Distance	5 V_2-V_1	2 J Gravitational potential energy
3 cm^3 Volume	4 g/cm^3 Density	3 Ω Resistance	1 / Divide	3 V^2
2 m Height	5 1/2 Half	2 C Charge	3 Kg Mass	4 N/Kg Gravitational Field Strength
	3 m^2 Area	4 Amps Current	5 N Weight	

Note down the equations you've got from this activity



KE = ½ x mass x velocity²

power = work done / time taken

momentum = mass x velocity

GPE = mass x gravitational field strength x height

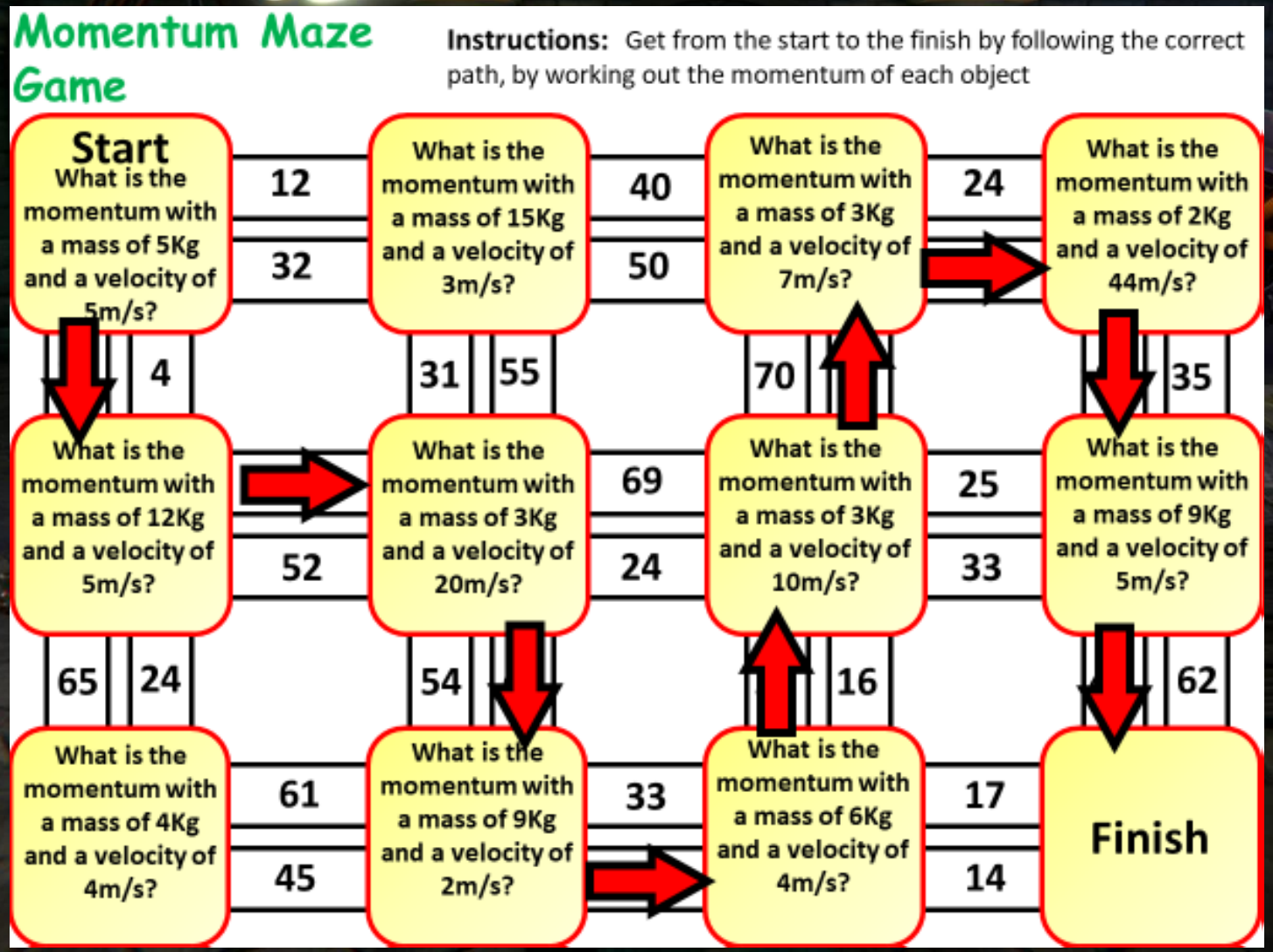
force = mass x acceleration

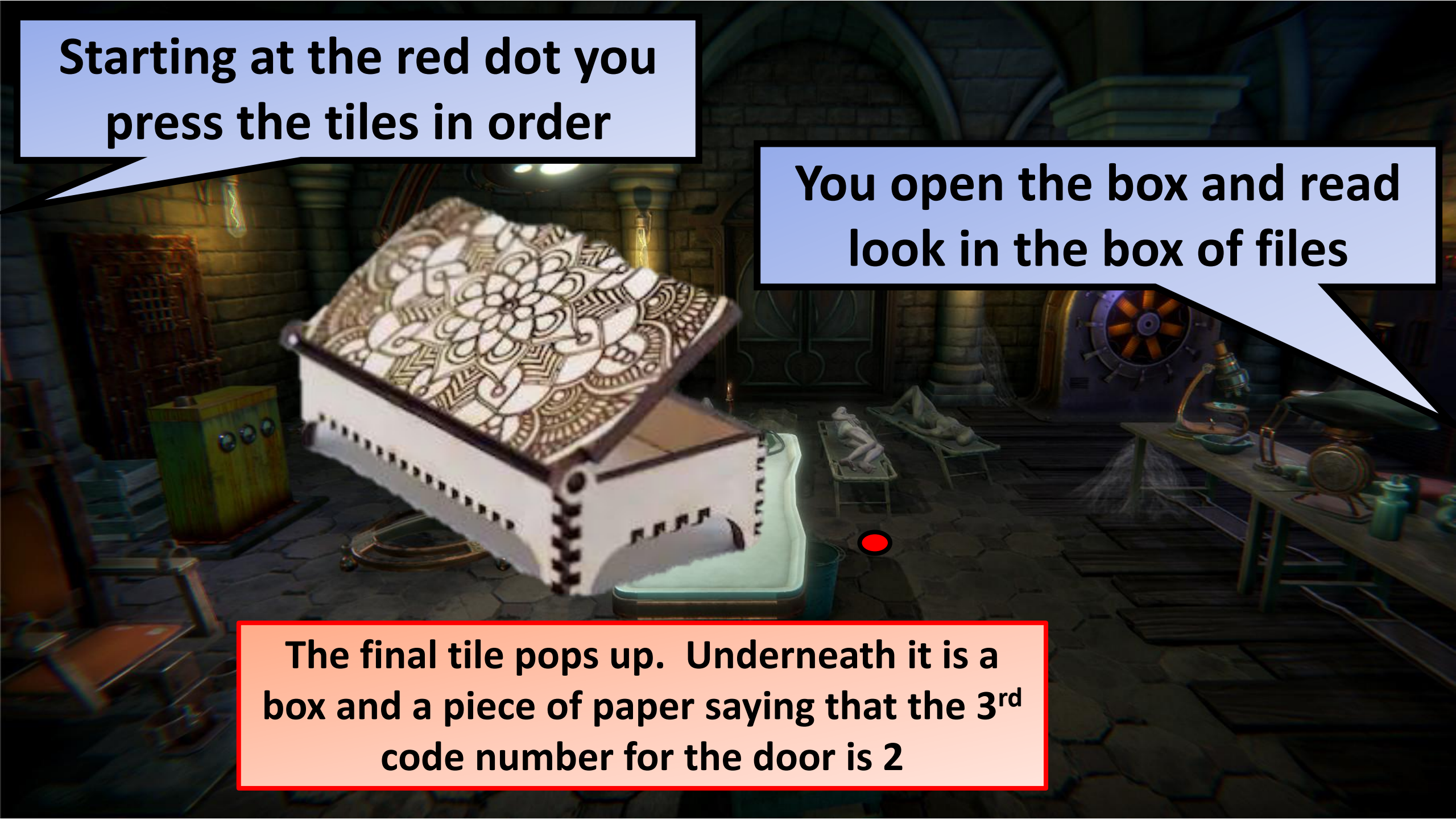
Charge flow = Current X Time

You turn the sheet over and read that the 2nd number of the door code is 5, check under the crate

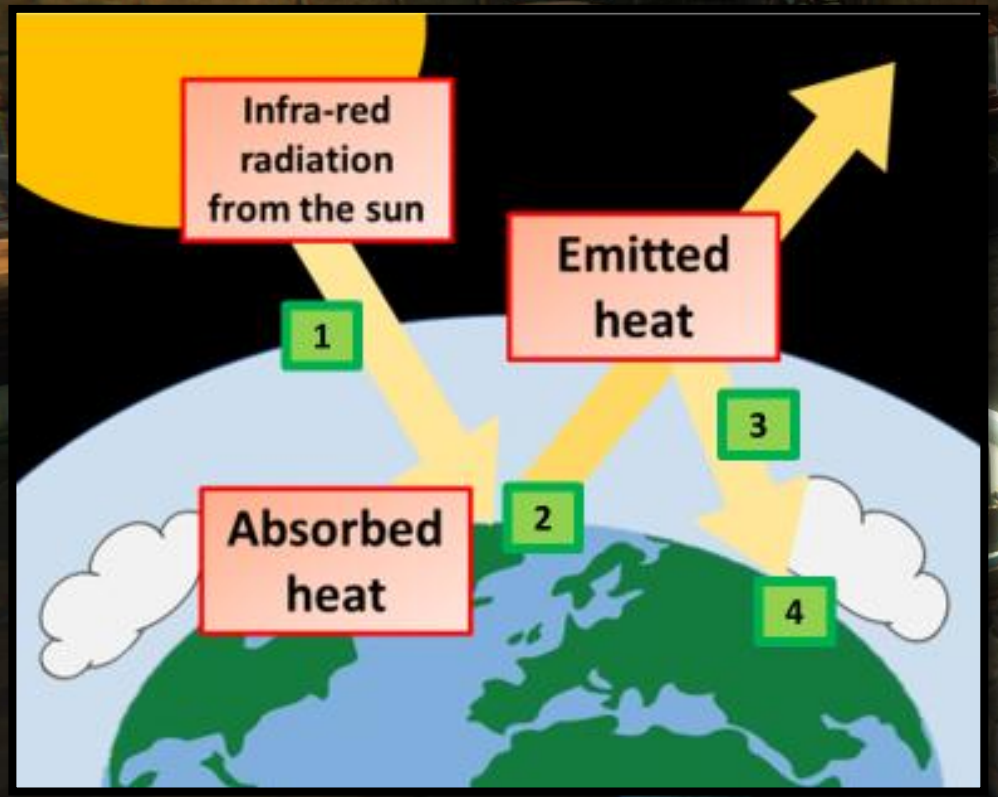
You turn the box over and find the clue below

Use one of the equations to work your way around the maze, then go to the red dot and press the tiles




Starting at the red dot you press the tiles in order
You open the box and read look in the box of files
The final tile pops up. Underneath it is a box and a piece of paper saying that the 3rd code number for the door is 2

You pull out the first sheet and read the following question



Put the following stages in order and note down the chain of numbers

1. The Earth becomes warmer as a result.
2. Heat from the Sun enters the Earth's atmosphere and warms the Earth's surface.
3. Some of this heat is absorbed by greenhouse gases. These gases then radiate the heat back towards Earth.
4. The Earth's surface becomes hotter and radiates heat back out

2 4 3 1

You move the box and see the safe lock behind it and enter the previous code

You open the safe and pull out the following note

Look down the microscope

2 4 3 1

So what do you think the code should be?

To complete the code for the door, count how many white blood cells there are


The code you should have is!
8
5
2
3
You enter the code and escape the lab!


DID YO ESCAPE?