**Escape the Chemical Factory Guide:**

**Safety Room (Code Puzzle)**

Hint:

Spoiler Tag: Delete to see what’s underneath!

If you haven’t found the puzzle yet, look for something that stands out in the picture. If you have found the puzzle, make sure you count everything correctly when you’re answering!

Solution:

Spoiler Tag: Delete to see what’s underneath!

Pay attention to the prefixes in each name, since they will you the number of atoms of each type. Since there are no iodine atoms in the compounds, the first number will be 0, since 0 x 6 = 0. If you count the sulfur atoms carefully, there are 2 in silicon disulfide, 1 in sulfur dioxide, and 1 in sulfur hexafluoride, so adding them up you get 4, and 4 x 1 is 4. Lastly, if you count the fluorine atoms carefully, there is 1 in fluorine trichloride and 6 in sulfur hexafluoride, so adding them up you get 7, and 7 – 5 = 2.

Answer:

**042**

Spoiler Tag: Delete to see what’s underneath!

Spoiler Tag: Delete to see what’s underneath!

**Safety Room (Cipher)**

Hint:

Listen to the hint on the screen. Does the number have any significance?

Spoiler Tag: Delete to see what’s underneath!

Spoiler Tag: Delete to see what’s underneath!

Solution:

Spoiler Tag: Delete to see what’s underneath!

The next place you should go to is the office. To solve the puzzle in the office, use the cipher provided.



Answer:

Go to the **office**.

Spoiler Tag: Delete to see what’s underneath!

Spoiler Tag: Delete to see what’s underneath!

**Office (Key Card)**

Hint:

Spoiler Tag: Delete to see what’s underneath!

If you feel you don’t have enough information yet, you probably don’t. Maybe try a different puzzle first. If you feel you have enough information, how might you use it to decipher the phrase?

Solution:

Spoiler Tag: Delete to see what’s underneath!

Since there are 26 letters in the cipher from the safety room, each letter can be substituted based on its position in the alphabet. For example, for any P that appears in the phrase, since it is in the first position in the cipher, you can substitute it for an A, the first letter of the alphabet. Similarly, for any H that appears, since it is in the second position in the cipher, you can substitute it for a B, the second letter of the alphabet and so on for all 26 letters.

Answer:

Spoiler Tag: Delete to see what’s underneath!

Unscrambling the phrase, to get the key card, you need to **CLICK ON TIE.** Refer to the picture below for the specific spot.

A person sitting at a desk writing on papers

Description automatically generated

**Control Room (Chemical Formula)**

Hint:

You should be on the right track for this puzzle if you solved the key card puzzle.

Spoiler Tag: Delete to see what’s underneath!

Spoiler Tag: Delete to see what’s underneath!

Solution:

Spoiler Tag: Delete to see what’s underneath!

Substitute letters using the cipher you found in the safety room to decipher the chemical formulas. If done correctly, the first formula will read Ca3P2, or calcium phosphide – if you take the first and second letter of the name, you get C and A. The second formula will read BI3, or boron triiodide – if you take the first, sixth, and fifth letter of the name, you get B, T and N. The third formula will read Li3P, or lithium phosphide – if you take the sixteenth and third letter of the name, you get E and I.

Answer:

Combining and unscrambling all the letters together, it spells **CABINET**.

Spoiler Tag: Delete to see what’s underneath!

Spoiler Tag: Delete to see what’s underneath!

**Vessel**

Hint:

Spoiler Tag: Delete to see what’s underneath!

The clues are a little tricky, but that doesn’t mean you need to panic. There are key words in each clue that will point you to the answer.

Solution:

Spoiler Tag: Delete to see what’s underneath!

The first chemical is Tungsten, as it says in the clue, and the chemical symbol is W. The second chemical is atomic number of 1, Hydrogen, and the chemical symbol is H. The third element is atomic number 53, Iodine, and the chemical symbol is I. The fourth element is the neighbour of atomic number 53, but not the noble gas, so it must be atomic number 52, Tellerium, and the chemical symbol is Te. The fifth element is a lonely metalloid, which are shown by the dark green elements. The most “lonely” element is the one without any direct neighbours, Boron, and the chemical symbol is B. The sixth element is the element you need to breathe in, Oxygen, and the chemical symbol is O. The seventh element is the first noble gas alphabetically, which is Argon, and the chemical symbol is Ar. The eighth and final element is the hardest one, since it is only specified as a synthetic, radioactive transition metal. The answer to this one is Darmstadtium and its chemical symbol is Ds. Now, you should have all the information to solve this puzzle.

Answer:

Putting all the chemical symbols together, they spell **whiteboards**.

Spoiler Tag: Delete to see what’s underneath!

Spoiler Tag: Delete to see what’s underneath!

**Key Box**

Hint:

Spoiler Tag: Delete to see what’s underneath!

For the diagram with rings and dots, what is it called? Maybe that can help you out. Also, the hint on the screen about the Olympics is a pretty good one – what might it mean?

Solution:

There are two parts to this puzzle. The first part is the atom diagram on the screen – since there are 3 protons in the nucleus, the atomic number is 3, and the element with this atomic number is Lithium. For the second part, you need to use the atomic for gold, silver, and copper. By placing them into the equation, you get 79 - 47 – 29 + 1 = 4.

Spoiler Tag: Delete to see what’s underneath!

Answer:

First, you need to click the correct element or compound (**Lithium**), and then the correct number, **4**.

Spoiler Tag: Delete to see what’s underneath!

Spoiler Tag: Delete to see what’s underneath!