ATOMIC JOURNEY

$E_K = \frac{1}{2}mv^2$

$E = m.c^2$

$P.V = n.R.T$

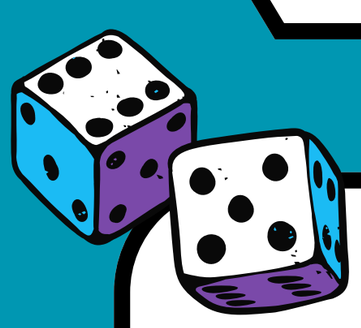
$\Sigma F = M.a$

Atomic Journey

Game Theme
Atomic structure

Grade Level
VI -VII

Game Type
Board Game



Game Overview

- The ‘Atomic Journey’ board game is designed to make learning about atoms and their subatomic particles engaging and interactive. It provides a visual and hands-on approach for students to deepen their understanding of atomic structures, including atomic numbers, mass numbers, and subatomic particles. Using gameplay to reinforce key concepts, students can visualise abstract ideas and apply their knowledge in a competitive and fun environment.
- By the end of the gameplay, players will be able to identify the basic components of an atom and apply their knowledge to identify and place protons, neutrons, and electrons.
- The game has 3 levels, progressing from simple to more challenging concepts:
- Level 1 focuses on understanding the basics of an atom.
- Level 2 centers around exploring subatomic particles such as electrons, protons, and neutrons.
- Level 3 involves constructing atomic structures.
- A complete game set, for one group, includes the following materials:
- Game board
- Dice
- Coloured counters
- 19 cards [5 cards for level 1, 5 cards for level 2, and 9 cards for level 3]
- Four symbolic atom structures template, six protons, six neutrons, six electrons, stars, and fake money
- Answer sheet

Gameplay Instructions

- Organize students into small groups of 4-5 players, depending on class size and provide each group a game set
- Each player selects a coloured counter to represent them and places it at the starting point on the board.
- Players take turns rolling a dice to determine how many spaces to move their counter along the game board.
- When a player lands on a space, they pick a card from the appropriate deck (Level 1, 2, or 3, depending on game level).
- Each card will have a question or a task related to atomic concepts. Players must answer or complete the task.
- Correct answers allow the player to earn rewards, such as symbolic protons, neutrons, and electrons or empty atomic structure templates.
- Players collect the necessary subatomic particles (protons, neutrons, and electrons) to complete atomic structures. When a player completes an atomic structure, they advance to the next level.
- Incorrect answers will result in the player passing their turn.
- The first player to complete all three levels and successfully build the atomic structures required in the final level wins the game.
- Alternatively, if time is limited, the winner can be the player who has made the most progress when time runs out.

Debriefing and Reflection

After the game, guide students to reflect on:

- How did collecting subatomic particles during the game help you better understand the roles of protons, neutrons, and electrons in an atom?
- What did you learn about how atomic number and mass number relate to the structure of different elements?
- Which level or task challenged your understanding the most, and how did you figure it out?

Adaptations for Gamplay

For Lower Grades: For younger or less advanced students, teachers can start with only Level 1 or Level 2, and gradually introduce more complex content as students become more confident.

For Higher Grades: To challenge higher-level students, teachers can add more advanced questions or require students to construct atoms for specific elements in Level 3, introducing isotopes or ions to further complicate the gameplay.


ATOMIC JOURNEY
START
PICK A CARD
MOVE ONE STEP BACK
PICK A CARD
MOVE ONE STEP FORWARD
PICK A CARD
SKIP THE TURN
PICK A CARD
MOVE ONE STEP BACK
PICK A CARD
PICK A CARD
MOVE ONE STEP FORWARD
MOVE ONE STEP BACK
PICK A CARD
PICK A CARD
MOVE ONE STEP FORWARD
PICK A CARD
MOVE ONE STEP BACK
PICK A CARD
PICK A CARD
MOVE ONE STEP FORWARD
PICK A CARD
MOVE ONE STEP BACK
PICK A CARD
MOVE ONE STEP FORWARD
PICK A CARD
SKIP THE TURN
PICK A CARD
MOVE ONE STEP BACK
PICK A CARD
MOVE ONE STEP FORWARD
PICK A CARD
MOVE ONE STEP BACK
PICK A CARD
TO ADVANCE LEVEL 3, YOU MUST SOLVE THE CROSSWORD PUZZLE
TO WIN, YOU MIUST CREATE STRUCTURE OF 4 ATOMS. IF YOU HAVE NOT CREATED FOUR ATOMS, GO BACK AND READ ALL CARDS
YOU WIN
TO ADVANCE TO LEVEL 2, YOU MUST GATHER FOUR EMPTY ATOMIC STRUCTURES IF YOU DO NOT HAVE FOUR ATOMIC STRUCTURES, GO BACK AND READ T HE REMAINING CARDS

1

READ THE CARD

MEET UNCLE ATOM!

Hello friends! I'm Uncle Atom the tiny but mighty particle that makes up everything you see! Even though I'm too small to see, I'm everywhere around you.

A SPECIAL MISSION FOR YOU

Ask your teacher for a magnifying glass to observe something close up (like a leaf or your hand). Discuss how it might look if you could see the atoms

Congratulations! You win an empty atomic structure

2

READ THE CARD

UNCLE ATOM IS JUST LIKE BUILDING BLOCKS

I, Uncle Atom, am just like a tiny building block. Like blocks build a house or a ring. My other atom friends and I build everything in the world, from flowers to stars!

A SPECIAL MISSION FOR YOU

Tear a piece of paper into small pieces. Arrange these to form the first letter of your name, demonstrating how atoms come together to form objects.

Congratulations! You win an empty atomic structure

3

READ THE CARD

UNCLE ATOM'S INVISIBLE WORLD

It's me, Uncle Atom! Did you know I'm so tiny that no one can see me with their eyes alone? But together with my atom pals, we make up all the stuff you can touch and feel!

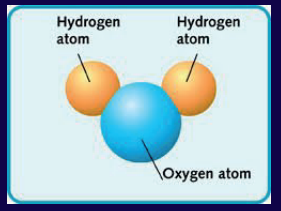
Congratulations! You win an empty atomic structure

4

READ THE CARD

UNCLE ATOM IN WATER

Splash! I love swimming in water with my two hydrogen atom friends and one oxygen atom buddy. Together, we make every drop of water.



Congratulations! You win an empty atomic structure

5

READ THE CARD
UNCLE ATOM IS IN THE AIR

Whoosh! I'm floating in the air!
The air you breathe is full
of my oxygen atom
friends. We are super
important for your breathing.

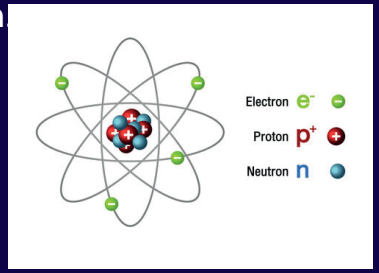
Congratulations! You win an empty atomic structure

LEVEL 2

6 READ THE CARD
MEET UNCLE ATOM'S FAMILY

Hello again! It's me, Uncle Atom
Did you know my family has three special members?

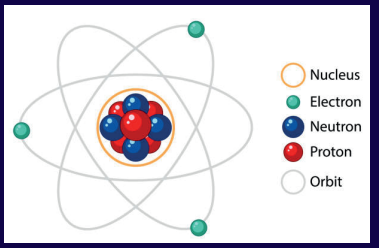
The members are proton, neutron and electron



Congratulations! You get the 1 proton

7 READ THE CARD
UNCLE ATOM'S HOUSE

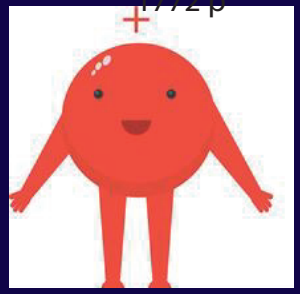
An atom is like a tiny house with two main parts. In the very center, called the nucleus, live the protons and neutrons. Surrounding the nucleus, electrons move a round in spaces called orbitals



Congratulations! You get the 1 neutron

8 READ THE CARD
PROTON, THE POSITIVE ONE

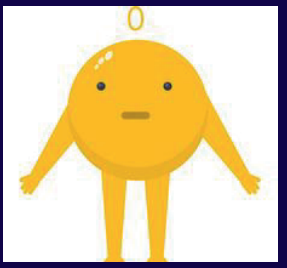
Meet Proton, always positive and cheerful! Proton lives in the nucleus and loves to hold things together. He's a bit heavy, but he's the heart of our atom house



Congratulations! You get the 1 proton

9 READ THE CARD
NEUTRAL NEUTRON

Say hi to Neutron! Neutron lives with Proton in the nucleus. Neutron is a bit of a neutral character, not positive or negative. But he's great at keeping the nucleus stable!"



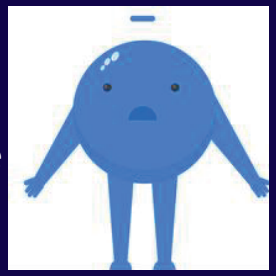
Congratulations! You get the 1 neutron

10

READ THE CARD

ELECTRON, THE SPEEDY

Look outside the nucleus, and you'll see Electron! Electron is super tiny and never gets tired! He orbits around nucleus at incredible speeds. He's always negative, but in a good way, balancing Proton's positivity! Without electron, we wouldn't have electricity!



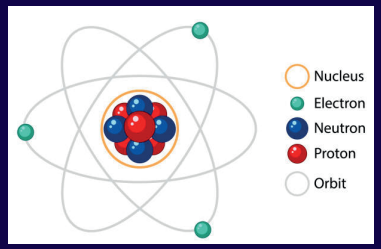
Congratulations! You get the 2 electron

LEVEL 3

11

READ THE CARD
UNCLE ATOM'S HOUSE

An atom is like a tiny house with two main parts. In the very center, called the nucleus, live the protons and neutrons. Surrounding the nucleus, electrons move a round in spaces called orbitals



Congratulations! You get the 1 neutron

12

A TASK FOR YOU
MATCH THE DESCRIPTION WITH ATOM PARTICLES

Neutron	I carry a negative charge
Proton	I have no charge
Electron	I have a positive charge

Congratulations! You get the 1 neutron

13

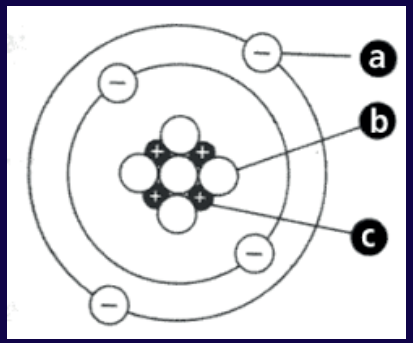
A TASK FOR YOU
MATCH THE DESCRIPTION WITH ATOM PARTICLES

Neutron	I live inside the nucleus
Proton	I orbit around the e nucleus
Electron	

Congratulations! You get the 1 proton

14

CREATE ATOMS
LABEL THE STRUCTURE OF ATOMS

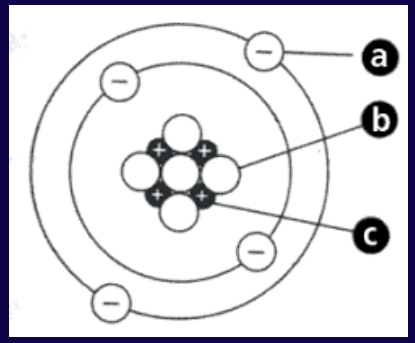


Congratulations! You get the 1 proton

15

CREATE ATOMS

LABEL THE STRUCTURE OF ATOMS



Congratulations! You get the 1 electron

16

A TASK FOR YOU

BUILD AN ATOM

Collect the structure of atoms, neutrons, protons and electrons. Using the material, build the structure of an atom. This atom has one electron and one proton

Congratulations! You get the 1 giant star

17

A TASK FOR YOU

BUILD AN ATOM

Collect the structure of atoms, neutrons, protons and electrons. Using the material, build the structure of an atom. This atom has one electron and one proton

Congratulations! You get the 1 giant star

18

A TASK FOR YOU

BUILD AN ATOM

Collect the structure of atoms, neutrons, protons and electrons. Using the material, build the structure of an atom. This atom has two electrons, two protons and two neutrons

Congratulations! You get the 1 giant star

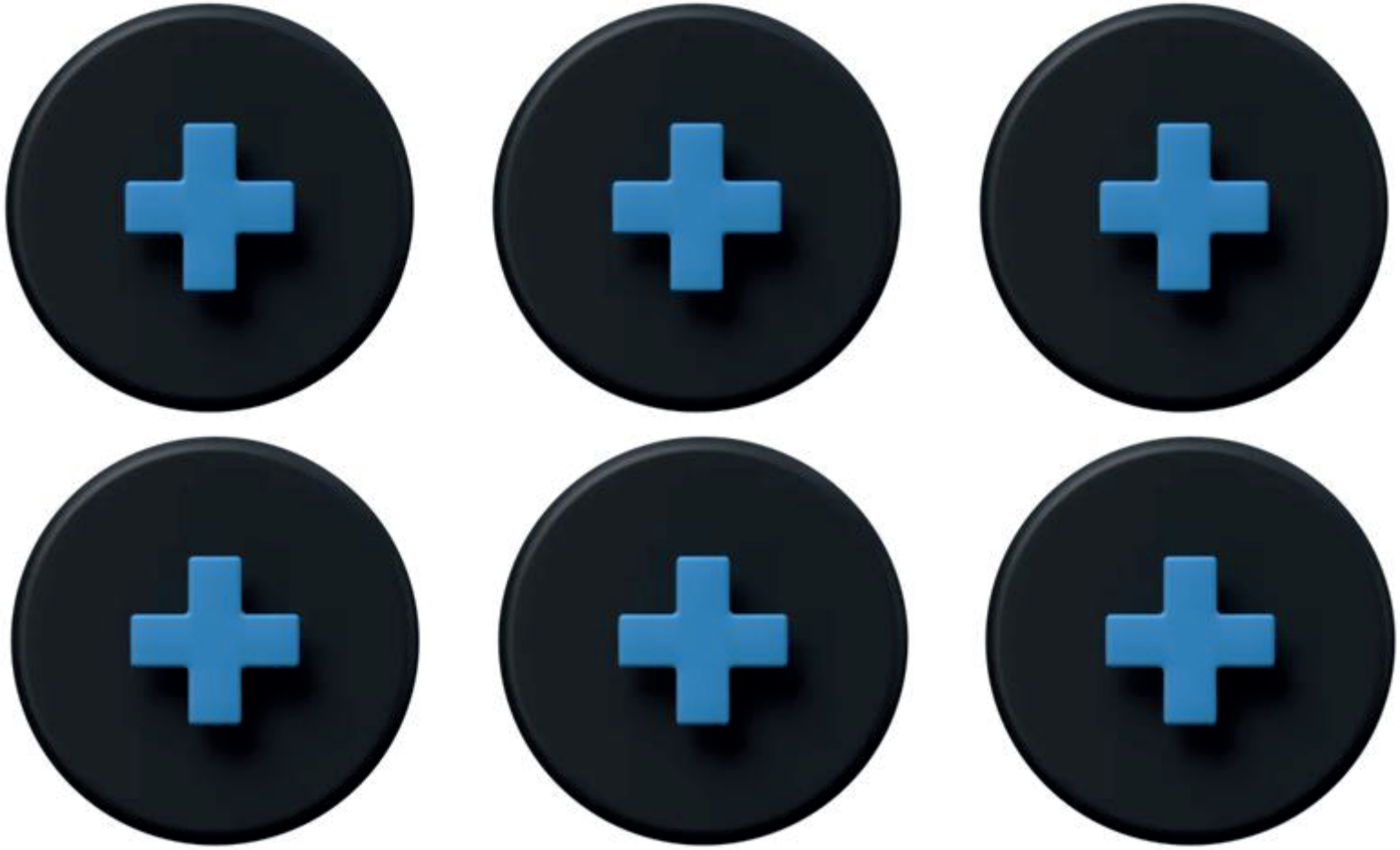
19

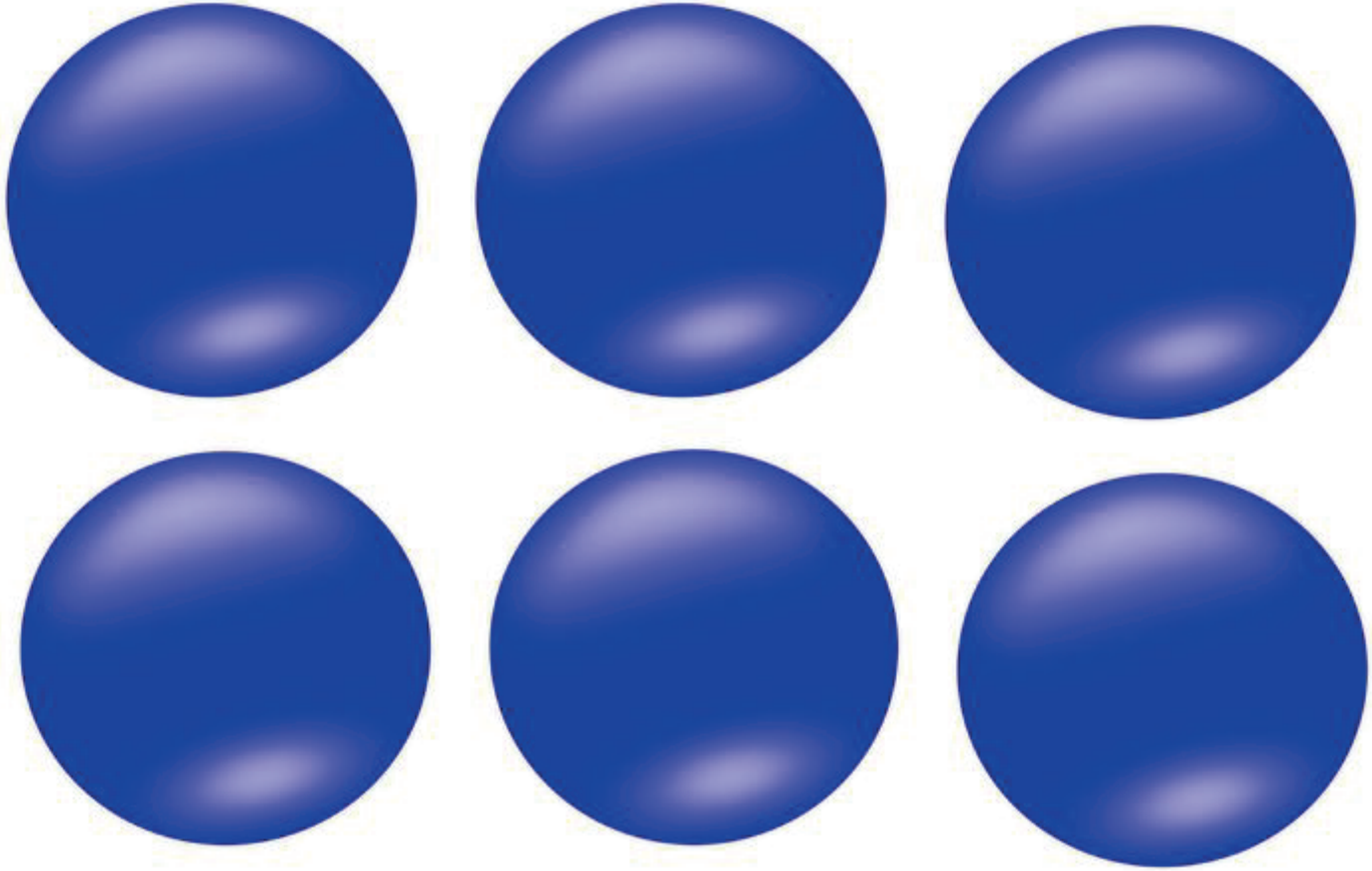
A TASK FOR YOU

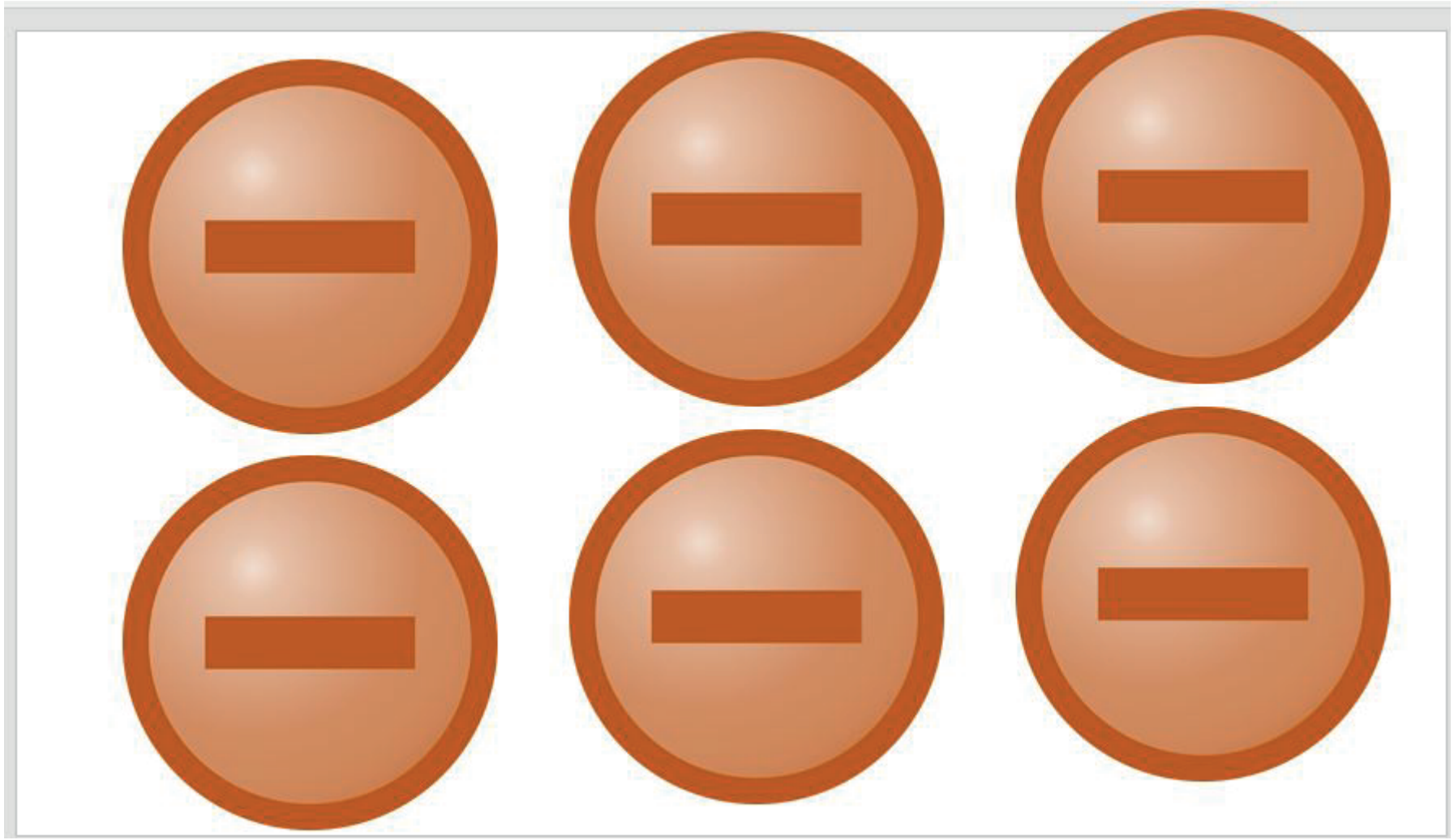
BUILD AN ATOM

Collect the structure of atoms, neutrons, protons and electrons. Using the material, build the structure of an atom.
This atom has two electrons, two protons and two neutrons

Congratulations! You get the star







ANSWER SHEET

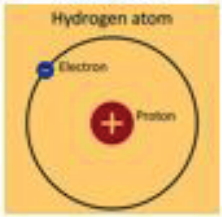
Card 12
Proton- I have a positive charge
Electron - I have a negative charge
Neutron - I have no charge

Card 13
Proton- I live inside the nucleus
Electron - I orbit around the nucleus
Neutron - I live inside the nucleus

Card 14
A – electron
B – neutron
C - Proton

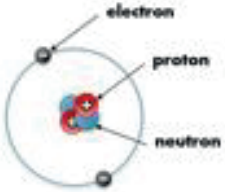
Card 15
A – electron
B – neutron
C – Proton

Card 16



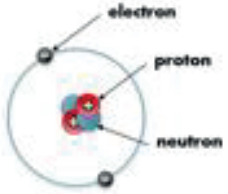
Card 17

Card 18



Helium Atom

Card 19



Helium Atom