

# Atomic structure App

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**Big Idea:** Design an app that able to give us all the information about any element just from giving the atomic number of the element .

## **Design Challenge:**

This app contains information about the elements and a molar mass calculator that will help you with several chemistry problems. There is a gallery available, which contains pictures of every element. This app will display the classic organisation of the elements, presented in the common ascending atomic number. Clicking on every element will give full information about it, as well as a picture to know how it looks like in real life.

# Introduction

Get quick information about every element on the periodic table using this app. You will be able to choose from different views, and get full insight on every element, with information like its molar mass, properties and atomic number.

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# Understand

- What is the atom ?
- Define energy levels ?
- Determine element atom symbols ?

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## STEAM integration

**Math :** Solving equation - cods

**Science :** Atomic structure of matter - Element atom symbols - Energy levels - Electronic configuration

**Technology:** Use visual C to design the app

**Art :** Design the pages of the app - Logo of the app

# Sets Practice

Q.1

Q.2

Q.3

Q.4

Describe your steps:

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Q.5

Q.6

# Understand

- Mass number

Atomic number

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and extend across the width of the page. There is a vertical margin line on the left side, creating a narrow left margin. The paper appears to be from a notebook or a standard ruled sheet of paper.

# Empathize

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- This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and extend across the width of the page. There is a vertical margin line on the left side, creating a narrow left margin. The paper appears to be from a notebook or a standard ruled document.



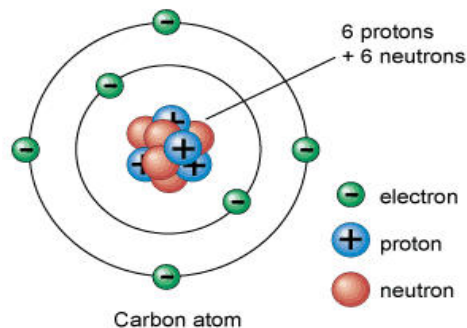
# Define

- What is the nucleus ?
- What is the electrons ?

[illegible]

# Ideate

- What are the different ways you can design your project?
- How will you embed the math into your project?
- Use the Ideate templates to come up with two to four different ways to design your project.



Elements sorted by:

#	Name	Symbol
1	Hydrogen	H
2	Helium	He
3	Lithium	Li
4	Beryllium	Be
5	Boron	B
6	Carbon	C
7	Nitrogen	N
8	Oxygen	O
9	Fluorine	F

Search

Lists Tables



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Ideate

Idea 1



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Idea 2



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Ideate

Idea 3



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Idea 4



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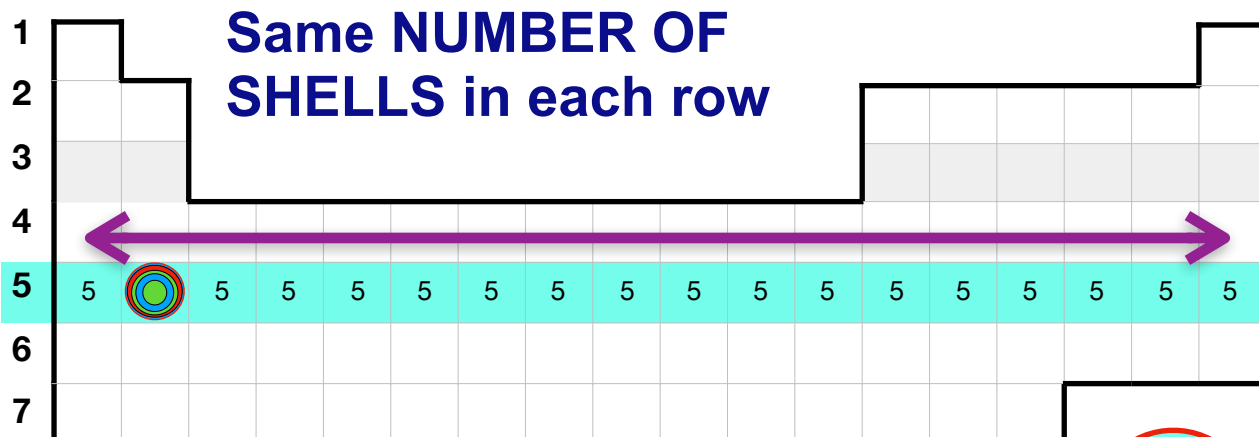


# Prototype

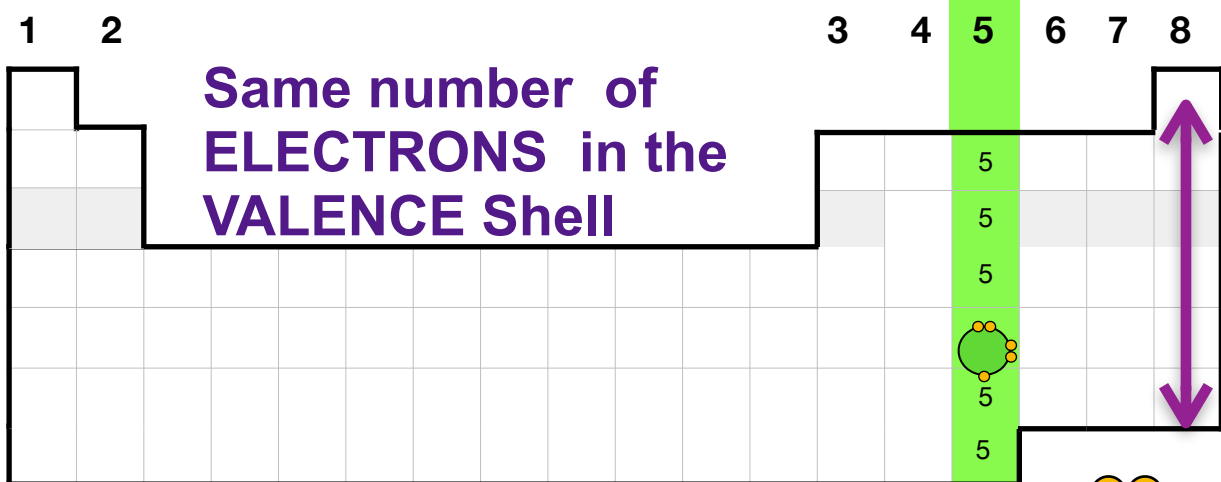
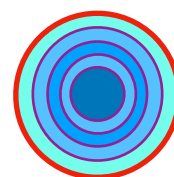
- Choose your one best idea from the Ideate
- Why did you choose this version over others? What do you like about this version?

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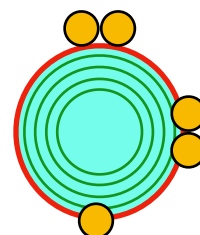
## Period and Group page



P E R I O D S



G R O U P S



## Periodic Table Page

Helium	Fluorine
Neon	Chlorine
Argon	Bromine
Krypton	Iodine
Xenon	Astatine
Radon	

Glue this under the Group 6

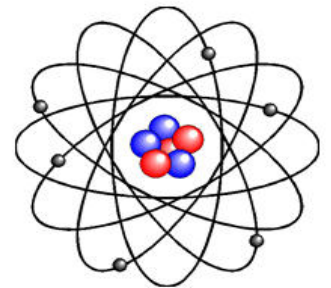
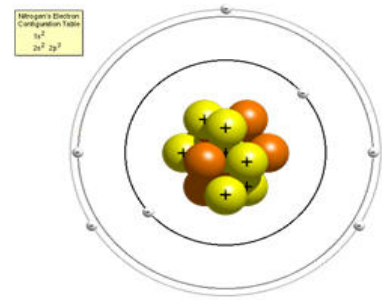
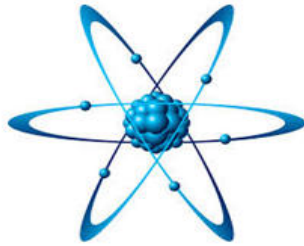
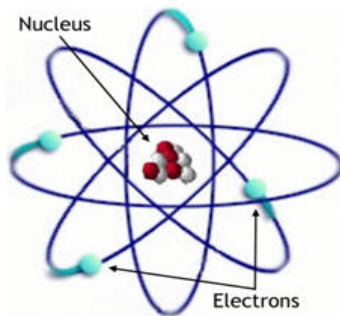
H  
Hydrogen

Li Lithium	Be Beryllium
Na Sodium	Mg Magnesium
K Potassium	Ca Calcium
Rb Rubidium	Sr Strontium
Cs Caesium	Ba Barium
Fr Francium	Ra Radium

[illegible]

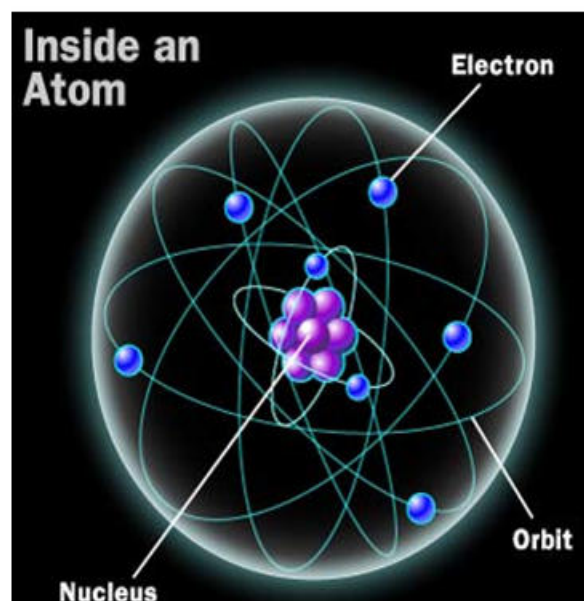
La	Ce	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb
Lanthanum	Cerium	Praseodymium	Neodymium	Promethium	Samarium	Europium	Gadolinium	Terbium	Dysprosium	Holmium	Erbium	Thulium	Ytterbium
Ac	Th	Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	No
Actinium	Thorium	Protactinium	Uranium	Neptunium	Plutonium	Americium	Curium	Berkelium	Californium	Einsteinium	Fermium	Mendelevium	Nobelium

# Structure of the Atom



## The Structure of an Atom

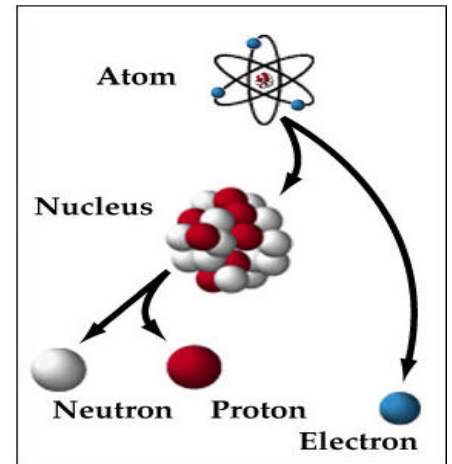
Nucleus – center of the atom



# The Structure of an Atom

## – Proton

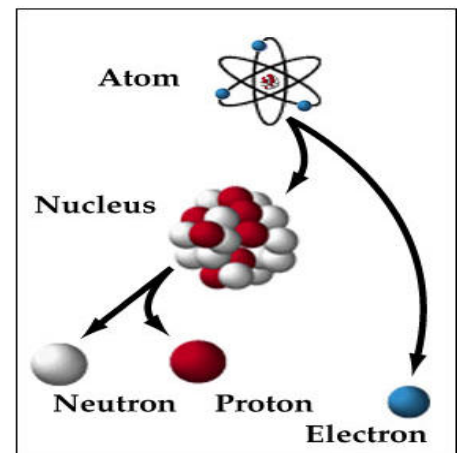
Has a positive (+) charge  
Has a relative mass of 1  
Determines the atomic number  
Found inside the nucleus



# The Structure of an Atom

## – Neutron

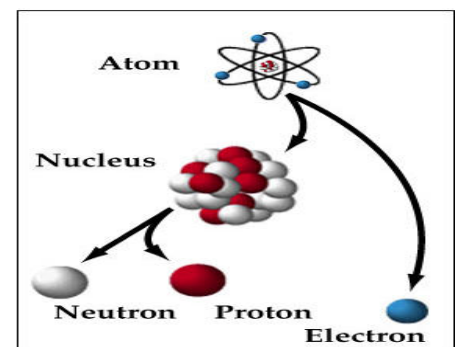
Has no (0) charge  
Has a relative mass of 1  
Determines the isotope  
Isotopes are two of the same element with different masses  
Found inside the nucleus



# The Structure of an Atom

## – Electron

Has a negative (-) charge  
Has a relative mass of 0  
Determines the ion  
Cation (+ ion)  
Anion (- ion)  
Found outside the nucleus



# STEM Lesson Checklist

	<b>Self-Assessment</b> - Developing (1) - Satisfactory (2) - Outstanding (3)
<b>1. Aligned to Grade-Level Standards</b> The lesson is aligned to appropriate state and/or national math, science, technology, and engineering standards.	
<b>2. Multidisciplinary</b> A true STEM lesson must integrate science, technology, engineering, and mathematics.	
<b>3. Addresses Authentic Challenges</b> The lesson presents students with real-world challenges or problems with practical and meaningful implications.	
<b>4. Integrates 21st Century Skills</b> The lesson encourages students to develop creativity, critical thinking, problem solving, and teamwork.	
<b>5. More Than One Solution</b> The lesson includes problems or challenges that have more than one possible solution.	
<b>6. Uses the Engineering Design Process</b> Any design, construction, or prototyping follows the steps of the engineering design process.	
<b>7. Hands-On</b> The lesson encourages hands-on manipulation of technology or materials to solve a problem or engineer a design.	
<b>8. Integrates Technology</b> The lesson incorporates technology in a way that is seemly and appropriate, simplifying rather than complicating the lesson.	
<b>Overall Score</b>	