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🚀 Conducting Virtual Science Experiments with Simulations

💡 "Science is not just about knowing, but about exploring and experimenting!"

📌 Presented by: Sujal Solanki

🆔 Enrollment No: 2301031000090

🏫 Division: B1

🎓 Roll No: 25

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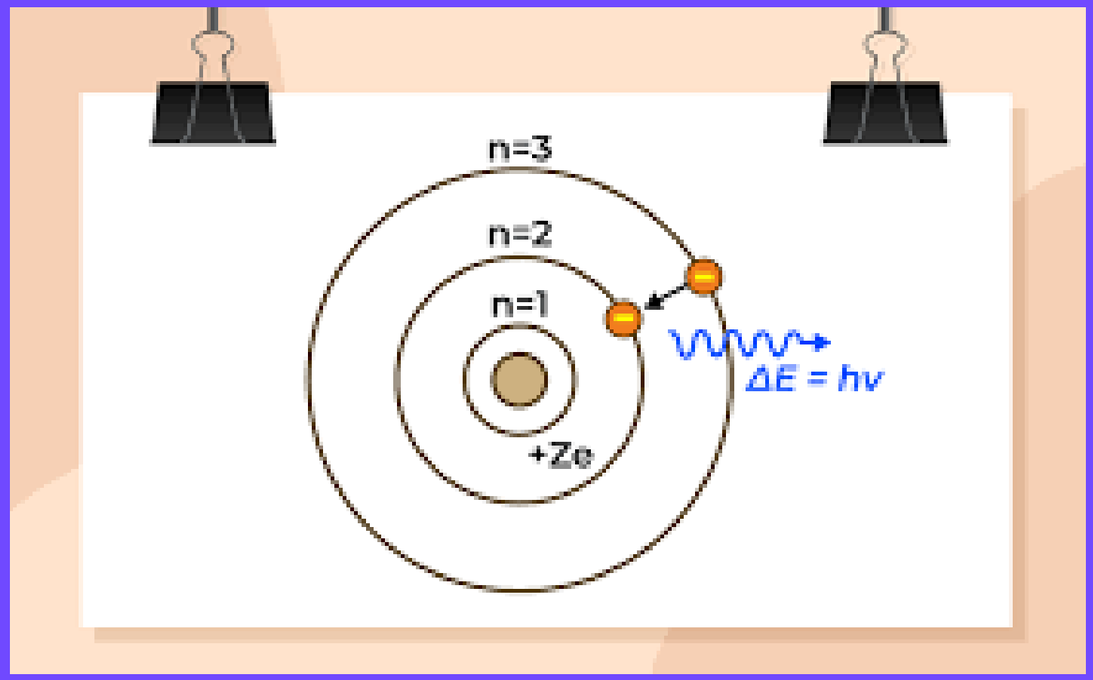
1. Bohr Model of the Atom

- Details: Explore the Bohr model of the atom and understand how electrons occupy distinct energy levels around the nucleus. You can manipulate the electron transitions and visualize how energy is emitted or absorbed in the form of light.
- Example Experiment: Observe how electrons in atoms move between energy levels when energy is supplied, creating spectral lines that correspond to different wavelengths of light.



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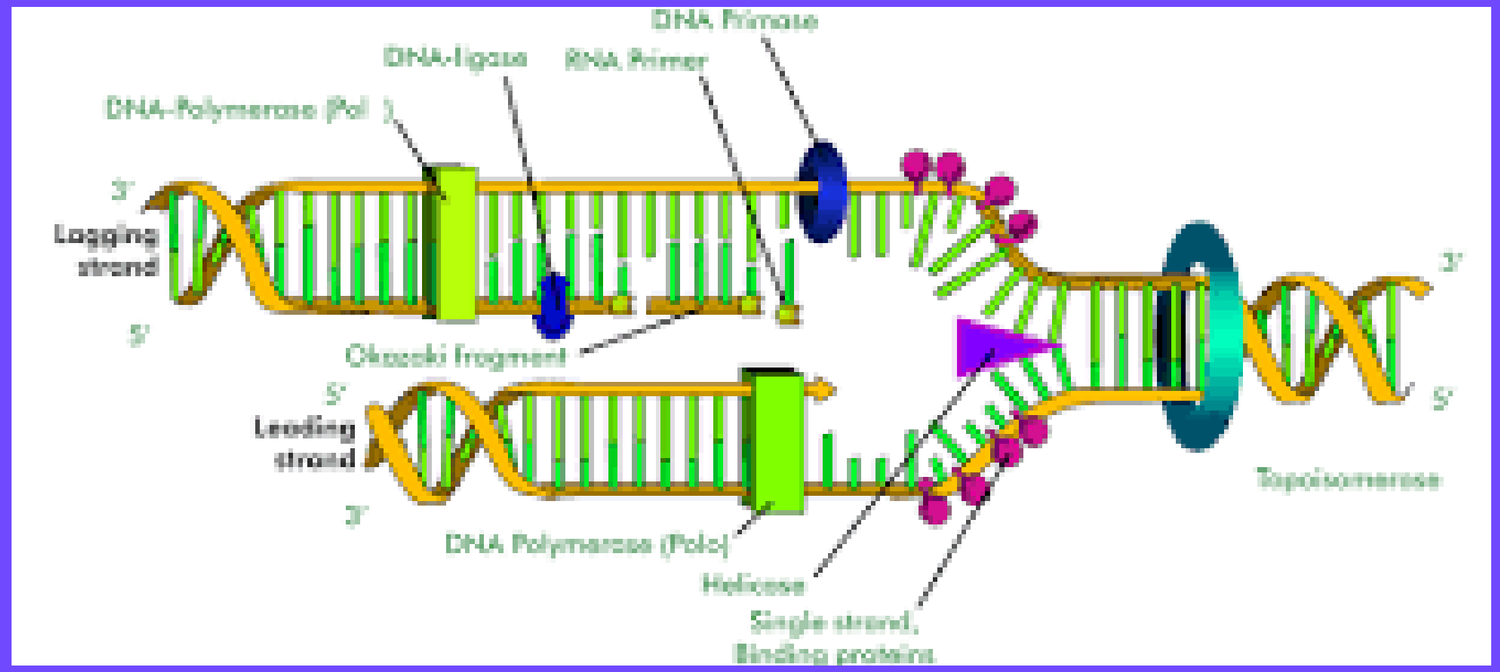
2. DNA Replication Simulation

- Details: This simulation shows the process of DNA replication, including the roles of various enzymes such as helicase, DNA polymerase, and ligase. Users can interactively step through each part of the replication process, helping solidify understanding of molecular biology.
- Example Experiment: Explore the unwinding of DNA, the formation of complementary strands, and how the lagging strand is synthesized in pieces.



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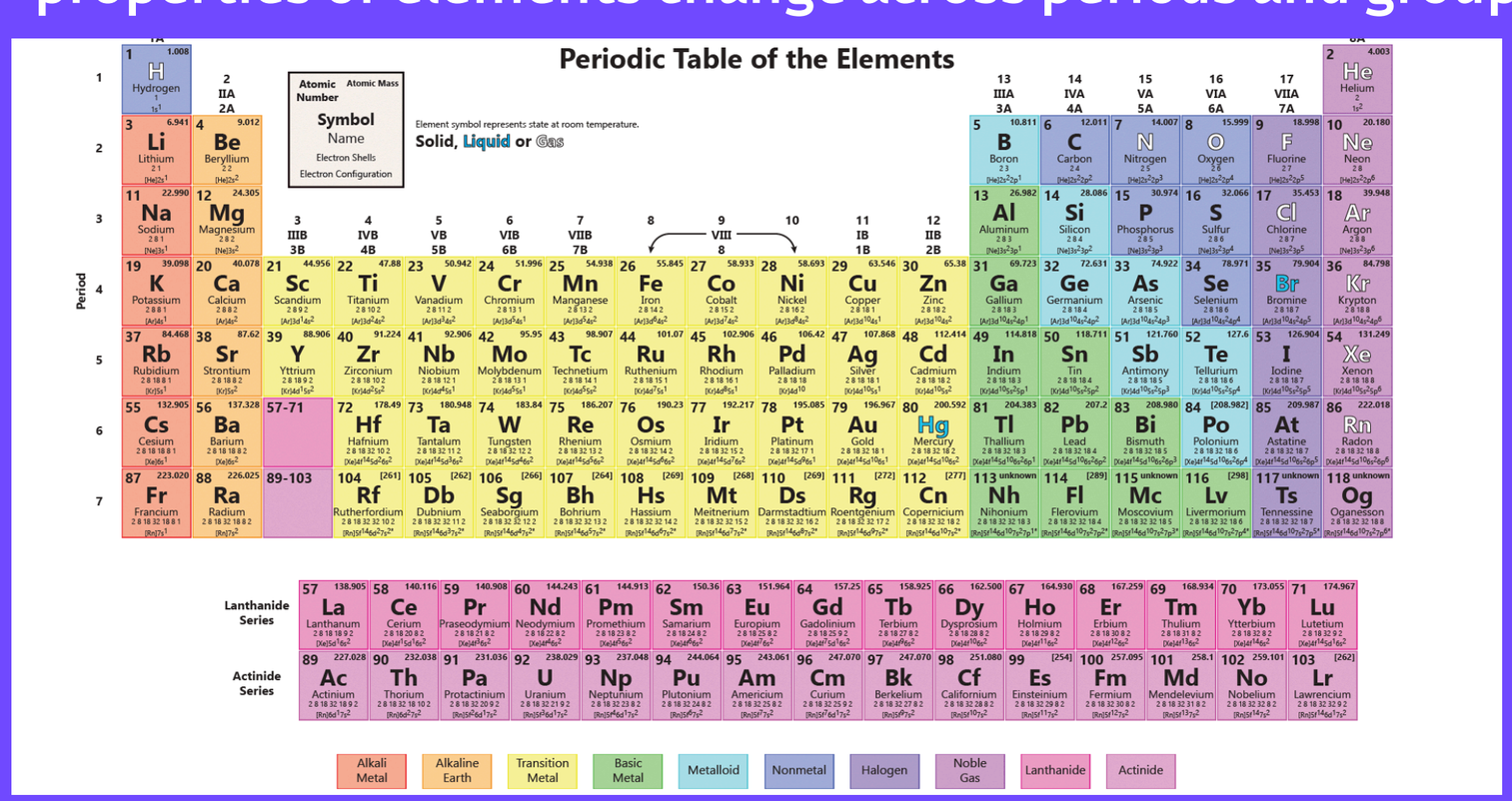
3. Interactive Periodic Table

- Details: This dynamic periodic table allows you to click on any element to get detailed information about its atomic structure, isotopes, ionization energy, and even its behavior in different chemical reactions. It's a great tool for exploring periodic trends and atomic theory.
- Example Experiment: Compare the electron configurations of different elements, explore trends in electronegativity, and see how the properties of elements change across periods and groups.



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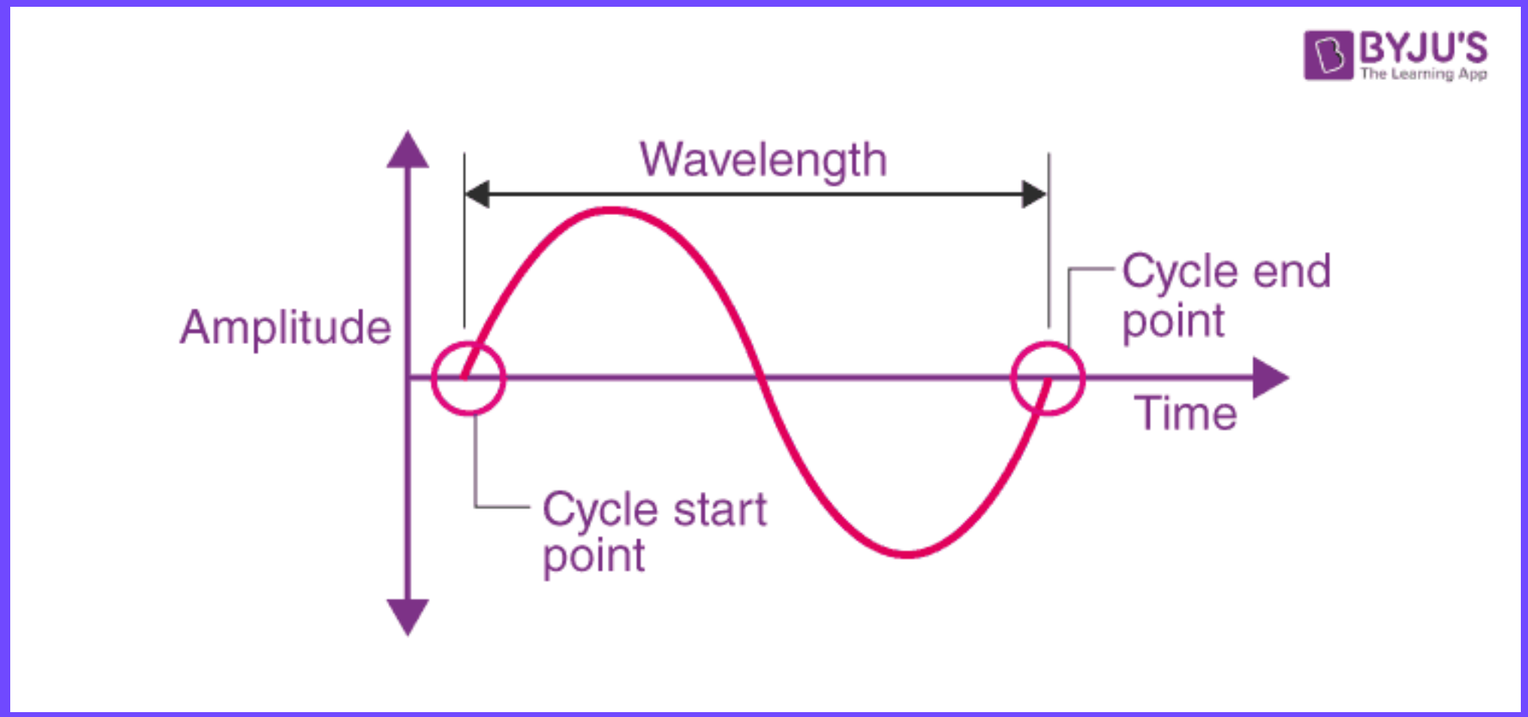
4. Physics of Waves and Sound

- Details: This simulation allows you to create different types of waves on a string, observing how changing the amplitude, frequency, or tension in the string affects the wave behavior. It's great for learning about wave properties, reflection, and interference.
- Example Experiment: Adjust the wave frequency to observe standing waves and resonance, and see how waves travel through different mediums.



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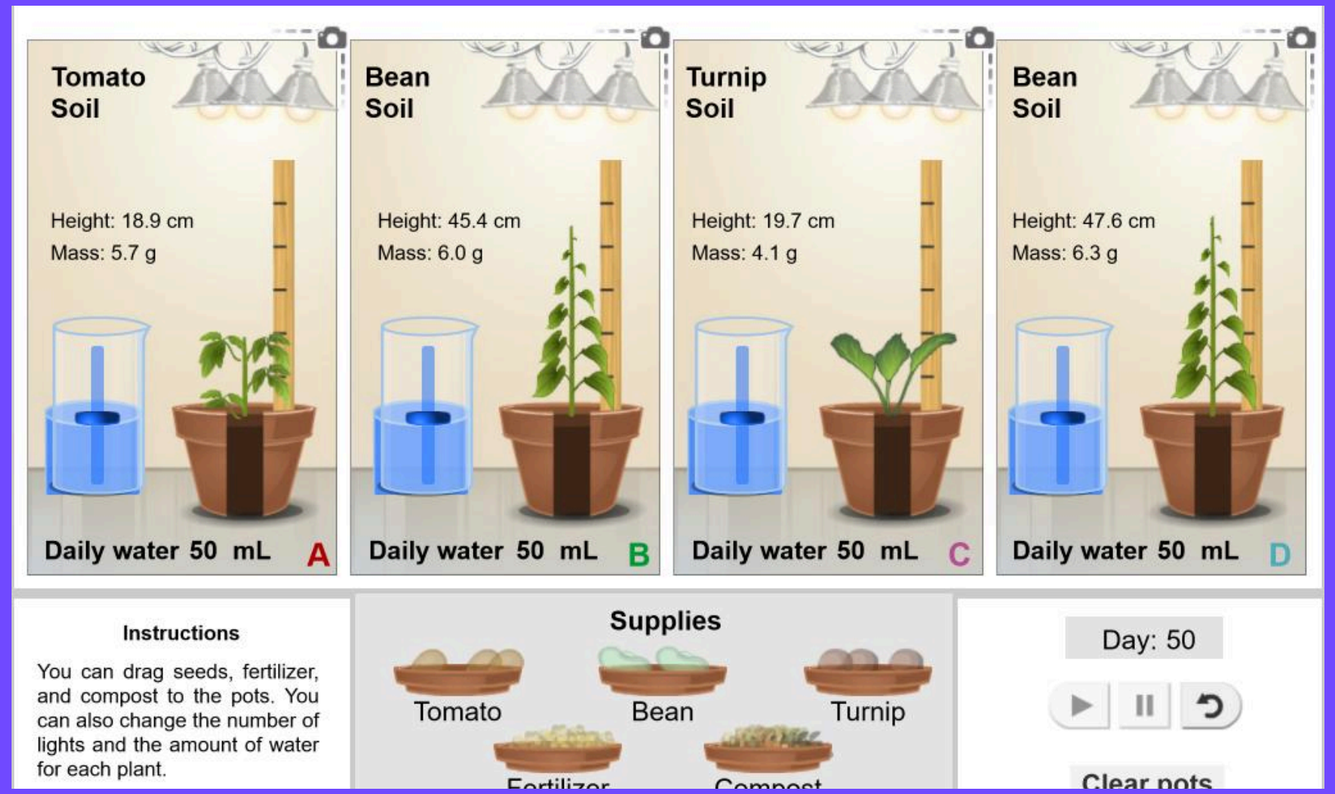
5. Interactive Plant Growth Experiment

- Details: This simulation helps you understand the factors influencing plant growth, such as water, light, and soil quality. It allows you to manipulate variables and observe how each factor contributes to the development of the plant.
- Example Experiment: Experiment with changing light intensity, water availability, and soil type to determine which combination leads to optimal plant growth.



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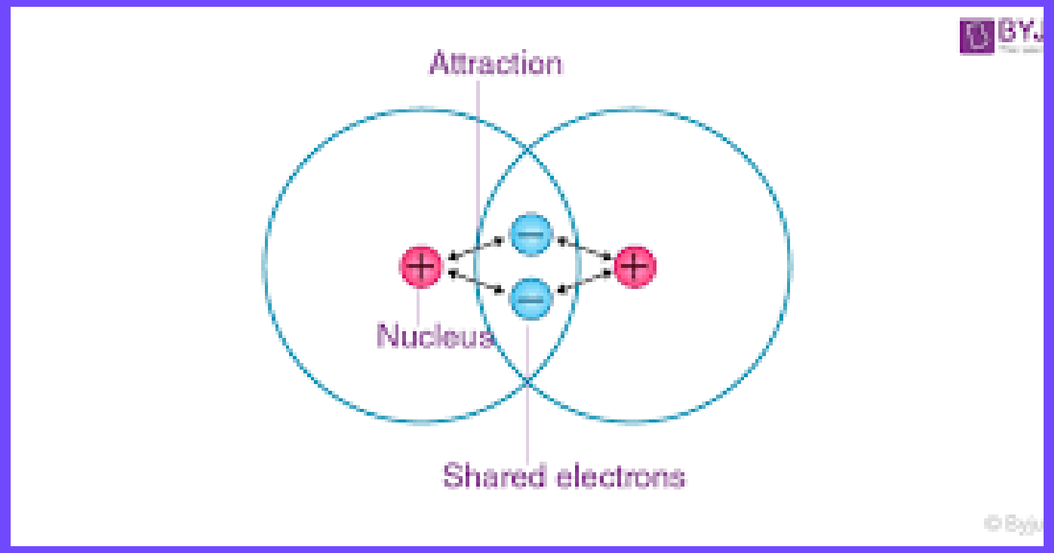
6. Virtual Chemical Bonding Lab

- Details: Explore the world of chemical bonds by constructing molecules and learning how atoms bond through ionic, covalent, or metallic interactions. This simulation can demonstrate how atoms form bonds and how these bonds influence the properties of materials.
- Example Experiment: Combine atoms of different elements to see how they form stable molecules through different types of chemical bonds, and observe the properties that result from these bonds (e.g., melting points, conductivity).



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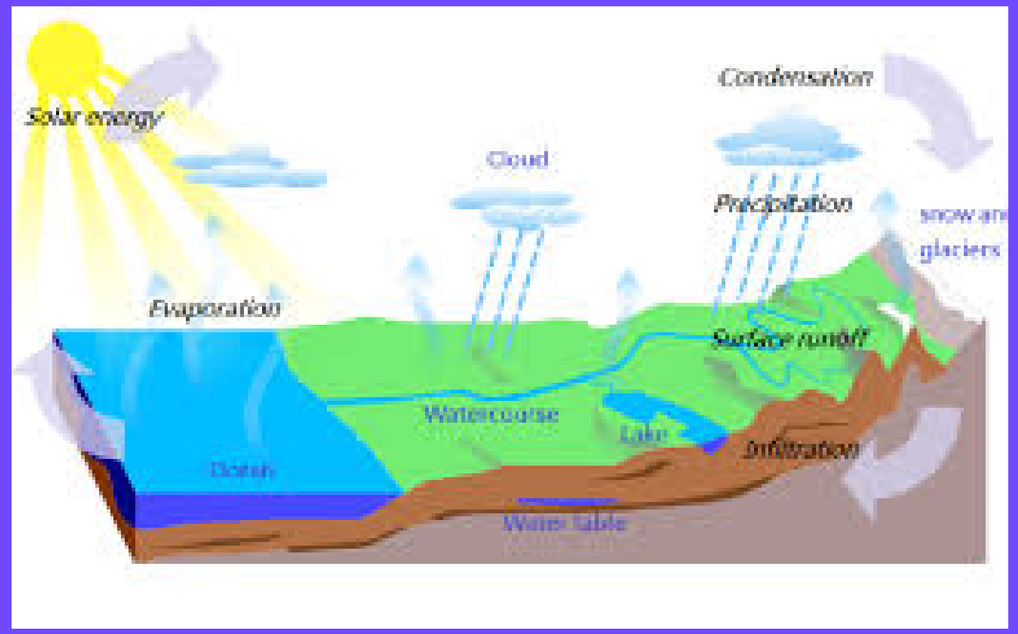
7. The Water Cycle Simulation

- Details: This simulation provides a hands-on experience of how water cycles through the environment. You can manipulate various factors like temperature and humidity to see how they affect the processes of evaporation, condensation, and precipitation.
- Example Experiment: Adjust the temperature and watch as water changes phases from liquid to gas and back to liquid, illustrating how clouds form and how precipitation occurs



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8. Interactive Solar System Simulation

- Details: This 2D solar system simulation lets you explore planetary motion, orbits, gravity, and how different factors like mass and distance influence the orbits of planets and moons. It's a great way to visualize the workings of the solar system.
- Example Experiment: Simulate the effect of changing the mass of a planet or the distance between two objects on their gravitational interactions, and observe how these changes affect their orbits.