

# Into the Periodic Table 3D

Teaching the Periodic Table through 3D simulation

## Lesson

Teaching the Periodic Table through 3D simulation

## Objectives

- 1) Students will gain a basic understanding of the Periodic Table through 3D simulation and visualization,
- 2) Students will gain a deeper understanding of the components of the Periodic Table and how they comprise the whole

## Activity

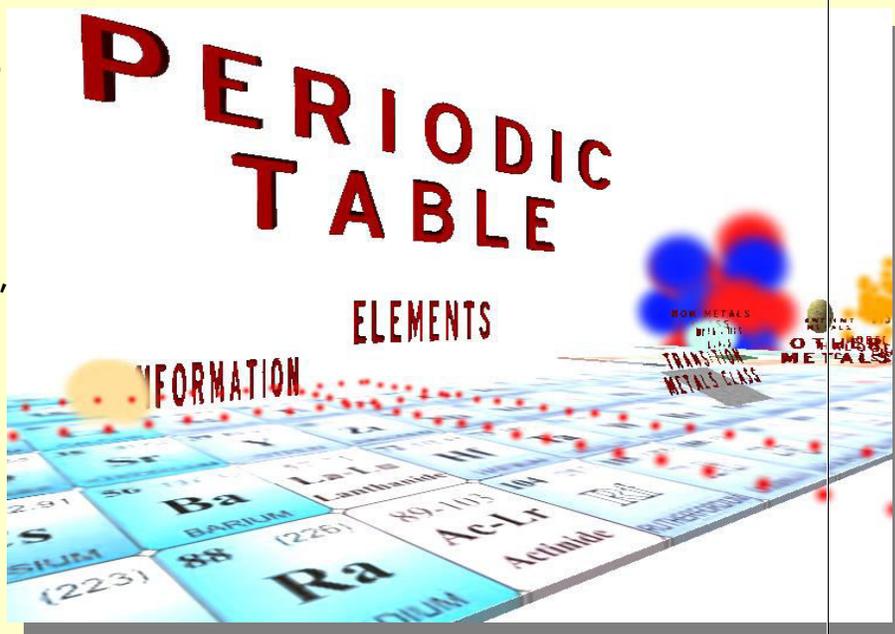
Students travel across the Periodic Table in real-time 3D, helping them to visualize and understand its structure and function.

## Materials

### Periodic Table3D Homepage

(click or cut and paste URL into browser)

<http://www.sunrisevr.com/periodictable3d>



## 3D Simulation and Investigation

3D simulations are designed to make subject matter more engaging to today's technology-savvy kids, and help them bridge the gap between the "concrete" world and the abstract world of concepts. When students experience complex subject matter in real-time 3D it becomes clearer. Students learn best when they are actively immersed in subject matter from a variety of different viewpoints; 3D simulation is designed to help students visualize difficult ideas and objects through investigation at any scale (atomic, cellular, planetary, conceptual, etc), and doing things that would normally be impossible.

## Required Technology

- PC/Tablet

## Optional Technology

- Projector
- Multiple Computers
- Internet Connection

## Grouping

- Large Group Instruction
- Small Group Instruction

## Staging

Check computer/Tablet for Internet access if needed

## Procedure

1. Access program
  2. Pick a lead student navigator to control movement through the 3D environment
  3. Pick a lead student reader to read information about the Periodic Table as it appears on-screen
  4. Begin the lesson by asking students what they already know about the Periodic Table and elements; write responses on the board
  5. Review basic facts about the Periodic Table including:
    - The periodic table is the most important chemistry reference there is, arranging all the known elements in an easily understood manner
    - An element is a substance that cannot be broken down into simpler substances.
  6. Start traveling through the program, facilitate discussion by asking students where the class should go.
  7. Use the 3D simulation as a visual aid; explain information as needed
  8. Have students pay special attention to:
    - How elements are arranged in order of atomic number
    - The different classes of elements
    - How elements can be created
  9. Have a final wrap-up with a question and answer period about the Periodic Table. Ask them how it works, and what are the primary components of the table. Ask them what parts of the Periodic Table they found interesting.
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## Optional Activity: 3D Scavenger Hunt + Discussion

Have students find a particular part of Periodic Table, such as the element Oxygen. If students are on multiple computers, have them “race” to the part of the table the teacher wishes to highlight. Once students find/arrive at the location, the teacher may commence discussion. Repeat in other areas of the simulation as desired to build understanding.

## Homework/Review

Students may also access the program outside the classroom to supplement textbook questions

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## Functional Notes

- The program is available on multiple platforms
- If using the program online, please ensure the Unity3D Player is installed on the computer; through the Internet Explorer Browser; download the latest at <https://unity3d.com/webplayer>.
- If you see something in **red** you can probably click on it
- For ease of use you can go through most 3D objects, and even the ground
- The school library can request and access programs (free) at [www.sunrisevr.com](http://www.sunrisevr.com) for off-line use via PC and Mac if there is no internet connection

