# Nanome VR

# TEACHER GUIDE

## OBJECTIVE

Students will engage in a variety of activities meant to help them better understand the molecular structure of common molecules.

## MATERIALS

- Oculus Rift S or Oculus Quest
- Entrance/Exit Slip pre-printed on 8x5 index cards
- Molecule Cards printed on 8x5 index cards
- Molecule Research Guide
- Student VR Activity
- Social Media Templates
- Pencil

## SYNOPSIS

Nanome VR is a wonderful interactive VR application that allows the user to construct molecules. These molecules are 3D which can be rotated and examined. The app requires the correct formation and bond types be used. If not, it gives the user feedback and allows them to correct mistakes.

In this activity, students will completing a number of tasks. It begins with an "Entrance Slip" and ends with an "Exit Slip". In between they will be divided into two groups. One group will work in VR to construct a series of molecular structures while the second group will spend time researching a given molecule. On day 2, the groups will switch roles. After the completion of these two activities, students will use their research to create a social media post showcasing the properties of their molecule.

## TIMELINE

This activity is designed to take be completed in 3 or 4-45 minute sessions.

**CREATED BY THE BARBERTON HIGH SCHOOL VR TEAM**

Nanome VR

# TIMELINE

**Days 1-2**

- Before Day 1 –
  - Make copies of the following
    - Student VR Activity
    - Molecule Research Guide
    - Molecule Index Cards
    - Create the "Entrance" and "Exit" slips
    - Social Media templates
  - Students will complete an "Entrance Slip" before beginning the VR and research experiences.
    - Entrance Slip – List or describe 3 things you do not understand about molecular construction, bonds, or shape.
- Divide students into two groups: One group will do VR on day 1, the other will do research. On day 2 they will switch places.
- Group 1 working in Nanome VR will have a set of 5 x 8 notecards with molecular structures to build. Each notecard will have questions to answer?
- Group 2 will use the Internet to research their molecule. They collect information that should include:
  - Geometric structure
  - Properties such as conductivity, radioactivity, toxicity, etc.
  - Uses
  - Common names
  - History of its discovery
  - Natural state at room temperature
  - Physical description
  - Odor?
  - Etc.

**Day 3 – Social Media Post**

- Students will use the "Social Media Template" to create a social media post to advertise their molecule or market it. These should be fun and creative.
- As an added activity, have a "judge" select the best post(s) and actually post them to the class or school accounts.
- Exit Slip – Describe 1 thing VR helped you understand more clearly about molecular shape/bonds and 1 thing you still do not understand.



## STANDARDS

**Chemistry –**

- Compounds
    - Model the two basic types of compound formation at the atomic level
    - Interpret the information in a chemical formula
    - Use VSEPR theory to determine the molecular geometry and/or bond angles for a species