

The Hand3D

Teaching Human Anatomy through 3D simulation

Lesson

Teaching Human Anatomy through 3D simulation

Objectives

1) Students will gain a basic understanding of the Hand through 3D simulation and visualization,

2) Students will gain a deeper understanding of the components of the Hand, and how they function together.

Activity

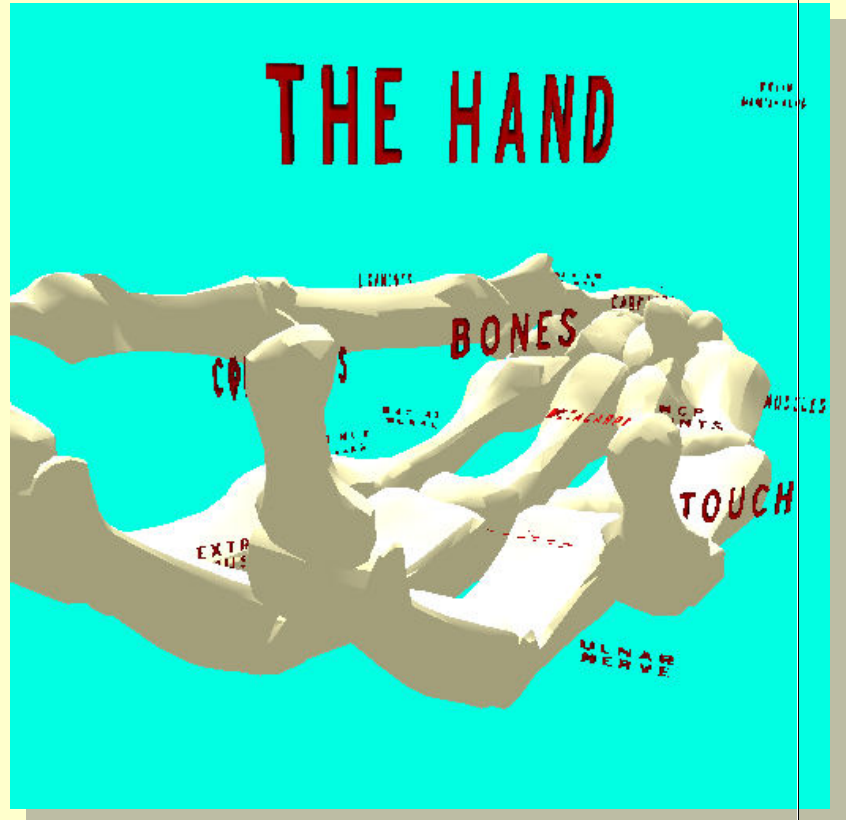
Students travel through the Hand in real-time 3D, helping them to visualize and understand it's structure and function.

Materials

Hand3D Homepage

(cut and paste URL into browser, or Ctrl+click on picture above)

<http://www.sunrisevr.com/thehand3d>



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 Hand as it appears on-screen
4. Begin the lesson by asking students what they already know about the Hand; write responses on the board
5. Review basic facts about the Hand including:
 - The Hand is the primary point of the anatomy we use to physically control our surroundings.
 - The Hand is made up of 27 bones
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:
 - The three types of small bones in the hand
 - The muscles that work together to make the hand function
9. Have a final wrap-up with students with a question and answer period about the Hand. Ask them how it works, and what are the important bones in the hand.

Optional Activity: 3D Scavenger Hunt + Discussion

Have students find a particular part of the Hand, such as the Phalanges. If students are on multiple computers, have them “race” to the part of the Hand 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

Functional Notes

- An internet connection is needed
- Ensure the Unity3D Player or Adobe Flash is installed on the computer; download the latest at <https://unity3d.com/webplayer> and <http://www.adobe.com/downloads.html>.
- 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 for off-line use via PC and Mac if there is no internet connection