# Bones in 3D...
# Learn about the human body

With an interactive app, learning the human anatomy in VR becomes an exciting adventure! You can learn about the construction of the human body on your own, without a textbook. Gamifying makes learning a stimulating, engaging, and fun activity.

**AGE**
13+

**DURATION**
60 minutes

**NUMBER OF PARTICIPANTS**
6 or more

## OBJECTIVES

The participant:

–   practices creativity and visual thinking,
–   develops their digital competence,
–   knows the structure of the human skeleton,
–   knows key anatomical terms,
–   can make a quiz in the Kahoot app,
–   can identify and name the human skeletal bones.

## EQUIPMENT AND MATERIALS

–   two VR headsets with the 3D Organon VR Anatomy app installed,
–   two tablets,
–   the participants' own smartphones with access to the internet,
–   a computer and a projector,
–   printouts of the worksheet for each participant (Appendix),
–   pens, coloured pencils, pencils, marker pens for each participants,
–   large sheets of white paper, sticky tape.
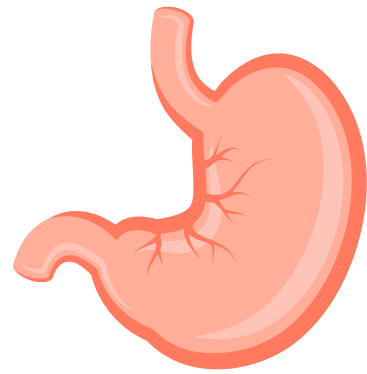
## APPLICATION

**3D Organon VR Anatomy**
https://www.oculus.com

scan QR code

The app can be used in the stationary or immersive mode, but for the most impressive results, use the standing immersive mode. The app has a large database of anatomical terms with the official terminology in many languages including Polish.

The free version of the app gives you access to the human skeletal system, but you can use the free 7-day trial period for the premium version, which allows you to explore all body systems (eg the respiratory, urinary, digestive system) and other structures and organs (such as the structure of the tooth or the hair), as well as to solve quizzes in the material you have learned.

**Note: t**his script uses an app for the Oculus Quest 2 headset. If you have another headset, find a similar app that works with your headset.

## WORKSHOP

### Welcome and introduction

Start from a warm-up that will enhance the participants' focus and is a good introduction into the subject. Name any part of the body (the right ankle, the left elbow, the left shinbone, the right shoulder), and ask the participants to touch, as quickly as possible, the opposite of the body part they just heard (that is, when they hear 'the right ankle' they touch their left ankle).

Then, to introduce the application to the participants, you can play them a video (in Polish) from the Pedagog Michalina YouTube channel showing the educational potential of the app, or choose another demo.

### Main part

Hand out the printed worksheets to the participants. Then, divide the participants into two groups – to do that, have them do a simple task where they have to place themselves in a single file, from the youngest to the oldest, without using words. Divide the single file into two groups. Each gets a single VR headset and a tablet, both using the same WiFi network.
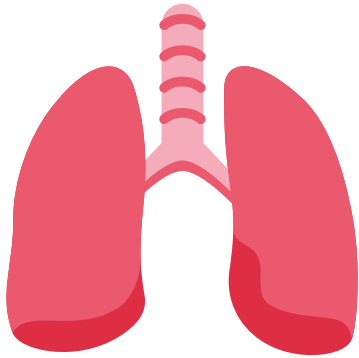
In each group, one person starts the 3D Organon VR Anatomy app and then screencasts their screen to the tablet so that the other participants can follow what is going on.

Each participant has the task of completing the worksheet on the structure of the human body. The participants in each group share the worksheets so that each person can explore different body parts in VR. When one person is engaged in the exploration, other participants fill in their worksheets. You can find some suggested sources in the Useful links section.

The participants can also fill in their worksheets based on what they see in the app. But do not tell the participants to use the app and the worksheet in this specific way; rather, allow them to freely explore their way around the skeleton in any manner they choose and to focus on information other than what is listed on the worksheets. In this way, the participants will be able to experience various forms of gaining knowledge on the subject. To reinforce the knowlede, one person using the app could 'deconstruct' an element, such as the skull, into smaller pieces, placing them around the virtual space, while another could put them back together, like a 3D puzzle, and then the two change places. It is worth keeping track of time and set the timer for 5-7 minutes per person. Depending on the digital competences of the participants, support them as and how they need it and help them solve potential problems.

For the next task, the participants in each group place the large paper sheets on the floor and stick them together so that one of them could lie down on the paper sheets and another could trace their outline with a marker pen. The aim of this task is to reconstruct the skeletal system and remember the names of the components. Doing it with the use of a life-sized drawing will help reconstruct and remember the information on the human skeletal system. After the task, the groups show their work to each other and find the similarities and the differences.

## Conclusion and evaluation

At the end of the workshop do a quiz: ask each group to prepare a quiz of maximum 10 questions in the **Kahoot app**. The participants can do it using the tablet and logging in to the app e.g. with their Google accounts. Kahoot allows users to create various types of quizzes, such as multiple choice or true/false questions.

To recap what they have learned, the groups share their PIN codes generated by the application with each other to share the quizzes – each participant uses their tablet or phone to do the other team's quiz.

Once the participants finish, sum up the workshop. Ask them to switch off the headsets and thank them for their participation.

## Useful links

The video from the Pedagog Michalina YouTube channel showing the potential of the Organon 3D VR Anatomy app (in Polish)
**https://youtu.be/FnNhCGA25LM**

Free 7-day trial version of the app
**https://store.3dorganon.com/en/**

YouTube video: The structure and functions of the skeletal system. The human skeleton in a nutshell (in Polish)
**https://www.youtube.com/watch?v=B-kbwMRKNPg**

Presentation: *Structure and functions of the skeleton and the muscular system. Disorders of the locomotor system, their prevention and treatment* (in Polish)
**http://pce.lebork.pl/files/lo/lo-6-7-marzec/4-biologia1.pdf**

The structure of the human skeletal system (in Polish)
**https://eszkola.pl/biologia/uklad-szkieletowy-czlowieka-5078.html**

## Appendixes

Worksheet: *The human skeletal system*

**Michalina Ignaciuk** – a pedagogue at a Gdańsk psychological and pedagogical consulting centre. She is a pedagogical therapist who works with learners with specific learning difficulties and conducts workshops for parents and teachers. She uses modern technologies, including virtual reality, in her practice. Finalist of the Nauczyciel Jutr@ [the teacher of tomorrow] 2021 contest. Author of Pedagog Michalina, an educational YouTube channel.

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