

**QX-ORB**

**← THE GAME →**

**START GAME**

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**Workshop: Using a Bloch sphere to make Quantum 'easy'**

**By Dimitri van Esch and Femke Verheijen**

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# QX-ORB

← THE GAME →

13-16 years old

START STAGE 1

10-12 years old

START STAGE 2

17-20 years old

START STAGE 3

21+ years old

START STAGE 4

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# QX-ORB

## ← THE GAME →

Stage 1: 10-12 years old

**Learning objectives and goals:**

- Recognition of Bloch sphere later in life

Taking the 'quantum physics' for granted

Trail and error approach

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# QX-ORB

## ← THE GAME →

**Stage 2:** 13-16 years old

**Learning objectives and goals:**

- Recognition of Bloch sphere later in life
- Triggering interest in Quantum Technology
  
- BIT vs QUBIT: superposition
- QC controls the QUBIT via gates (x,y,z,u)
- Rotation around x-,y-,z-axis

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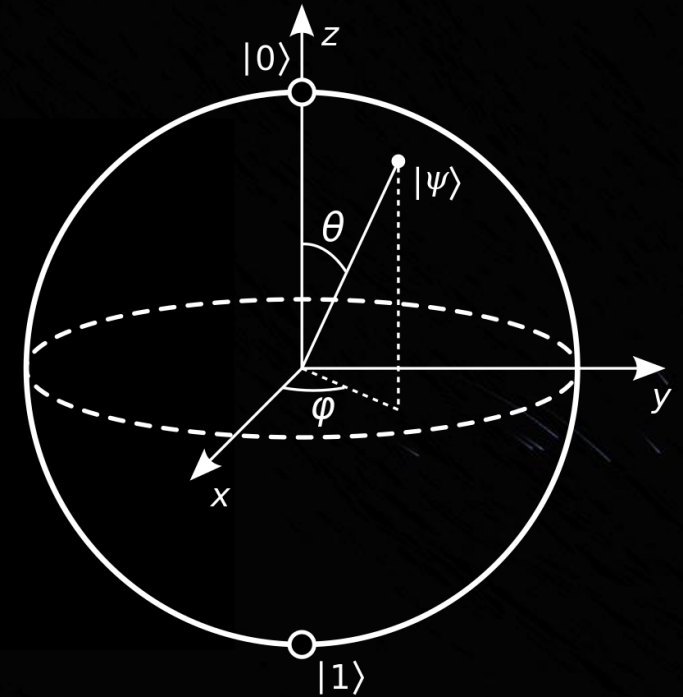
# QX-ORB

## ← THE GAME →

**Stage 3: 17-20 years old**

**Learning objectives and goals:**

- Recognition of Bloch sphere
- Interested in Quantum Technology
- BIT vs QUBIT: superposition
- QC controls the QUBIT via gates (x,y,z,s,u)
- Dirac notation
- Probability calculations



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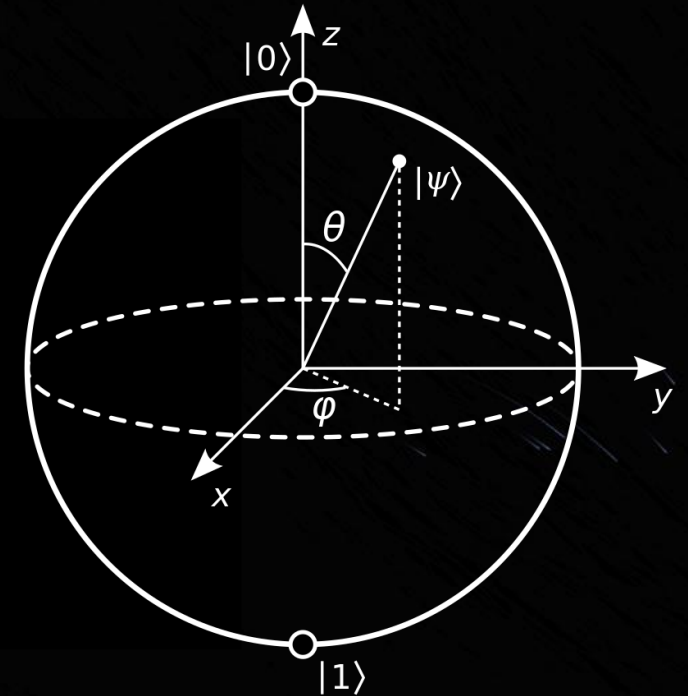
# QX-ORB

## ← THE GAME →

Stage 4: 21+ years old

Learning objectives and goals:

- Recognition of Bloch sphere
- Interested in Quantum Technology
- BIT vs QUBIT: superposition
- QC controls the QUBIT via gates (x,y,z,s,u)
- Dirac notation
- Probability calculations
- Gates as a matrix
- Effect of relative phase



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← THE GAME →

START GAME

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OPTIONS

FREEPLAY MODE

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