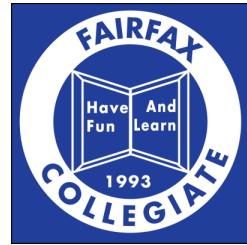**Fairfax Collegiate**
2026 Summer Program
Virtual Reality Course Syllabus
Rising Grades 7-9

Course Description

Navigate and create VR environments.

Visit global landmarks, soar through space, traverse the ocean floor, and navigate the inside of a human cell.

Use the Unity software development platform to program games in VR, and build your own 3D world.

Students discover immersive technology and explore how virtual reality can be used for discovery, creativity, and interactive design. The class is designed around a variety of short projects, apps, games, and discussion topics.

Students travel through scientific simulations, historical worlds, art studios, and puzzle environments while learning how VR experiences are constructed. They also model 3D objects, experiment with Unity tools, and ultimately design an interactive VR environment of their own. Fairfax Collegiate provides computers and Meta Quest VR headsets for student use, and students work in pairs throughout the course.

At the end of the course, instructors upload photos and videos for families to access. Students leave with a completed VR project and the confidence to continue exploring VR technology, 3D modeling, and interactive design.

Learning Objectives

Course Goals	**VR Technology:** Students use a virtual reality headset and peripheral controller to navigate an assortment of educational and entertaining experiences, as well as play-test their own projects.
	Exploration: Students explore different scientific fields, historical eras, and world landmarks in a variety of engaging apps.
	Creativity: Students create and share artistic projects in virtual reality.
	Unity: Students use the Unity platform to design and code 3D applications for VR.

Course Topics	**Intro to VR:** Students try out apps which familiarize them with the VR environment and several different control schemes.
	Science: Students use immersive apps to explore outer space, the ocean floor, and inside the human body.
	Geography: Students travel the globe, visiting landmarks worldwide.
	History: Students learn about cultures and mythology of the past, brought to vibrant life in VR.
	Art & Design: Students paint and sculpt in VR, and tour virtual art galleries.
	Problem-Solving: Students tackle assorted puzzles, developing critical thinking and having fun along the way.
	3D Animation: Students create and manipulate 3-dimensional objects in the Unity environment.
	Programming: Students learn to code in Unity to complete their VR projects.

Course Schedule

Class Meeting 1	**Course Rules and Introduction:** Students are introduced to course rules, their classmates, and the instructor.
	Enhance VR: Students put their memory and reflexes to the test in this collection of 12 brain-training minigames.
	Escape From Galaxen: Students battle aliens and deflect laser blasts in this adventure inspired by 1980s arcade games.
	A Very Potter VR Game: Students explore the wizarding world in this detailed fan tribute.
	Design Challenge: Quest Controls: Students reflect on the various control schemes they have tried, and propose controller ideas for their own apps.
Class Meeting 2	**Dino Encounters:** Students walk among dinosaurs in their prehistoric habitats.
	Organon Anatomy: Students use a medical school model to study the human skeleton and connective tissue.
	Immune U: Students learn about retroviruses, then play a game to collect RNA and develop a virus treatment.
	Nanome: Students manipulate molecules to build proteins in 3D space.
	App Research - Biology and Anatomy: Students explore science apps focused on plant and animal life, as well as the structure of the brain.
	Design Challenge: My Science App: Students generate ideas for a science-focused VR app, and workshop them with the class.
	Wave Hello to Hand Tracking: Students learn to use their own hands as video game controllers.

Class Meeting 3	**Kosmos School Science Simulations:** Students recreate three famous science experiments to learn about air resistance, magnetic fields, and the conservation of energy.
	Haywire Science Escape Room: Students construct circuits to solve puzzles, learning about different sources of electrical power in the process.
	From Muñoz School to the Moon: Students experience a mission to the moon first hand in this immersive short film.
	Rocket Launch XR: Students launch model rockets, and are introduced to the fleet of US rockets in service today, both governmental and commercial.
	Mission: ISS: Students board the International Space Station, explore its modules, and perform a space walk.
	The Virtual Traveler: Students virtually tour breathtaking landmarks via 360-degree photography.
	They're Gonna Put Me in a Movie: Students are introduced to the 360 Camera and plan out scenes to record.
	Design Challenge: Space and Physics: Students envision apps which demonstrate physics principles or simulate extraterrestrial environments.
Class Meeting 4	**Grunwald 1410:** Students learn about a medieval battle and practice archery.
	VR Travel: Students learn about the roots of VR, viewing stereopticon images of historic sites around the world.
	The Virtual Traveler: Students virtually tour breathtaking landmarks via 360-degree photography.
	Design Challenge: My Historic Place: Students plan out how to document a signicant location using multimedia coverage.
	They're Gonna Put Me in a Movie: Students are introduced to the 360 Camera and plan out scenes to record.
	All the World's a Stage: Students film immersive scenes using the 360 camera.
	What Happened to Then?: Students play back the 360 videos they shot on their VR headsets to experience them in a whole new way.
Class Meeting 5	**Office Escape Room:** Students use their wits to complete a clever escape room challenge.
	Stroke of Magic: Students use a magic paint brush to solve a series of clever puzzles.
	Pipe Connection: Students use a variety of control schemes to twist and connect 3D pipe segments in this test of perception.
	Temple Seeker VR: Students solve puzzles to progress through a fantasy-themed world.
	App Research - Puzzle Games: Students explore other brain-teasing puzzles, and report on their discoveries.
	Design Challenge: My Puzzle Game: Students pitch ideas for games incorporating problem-solving and exploration.
Class	**QuestCraft:** Students experience multiplayer Minecraft in VR.

Meeting 6	**NaN Industry:** Students use treadmills, pressure plates, and other devices to build Rube Goldberg-style assembly line paths. **App Research: Building and Climbing:** Students research apps focused on shaping and exploring a virtual environment, and brainstorm ideas they will use in their final projects.
Class Meeting 7	**Galleries Galore:** Students explore interactive art exhibits in a variety of virtual galleries. **Oodles of Doodles:** Students practice drawing and sculpting in 3D space. **Paint 3D:** Students create digital models in 3D to use in later VR projects. **Tinkercad:** Students create digital models in 3D to use in later VR projects. **Design Challenge: My Art App:** Students brainstorm concepts for an art-focused VR app and workshop their ideas with the group.
Class Meeting 8	**Intro to BYLDR:** Students use the BYLDR app to design a 3D environment entirely on their headset, complete with coding and animation.
Class Meeting 9	**Final Project: My VR Experience:** Students create an immersive, interactive environment incorporating lessons they've learned exploring and designing in Virtual Reality.
Class Meeting 10	**Final Project: Finishing Touches:** Students finish their final projects and build them to the headsets. **Back to Reality:** Students put away their equipment and discuss future applications of VR technology.