

How to Use This Guide



This guide comes in two parts: (1) a framework for teaching with virtual reality and (2) a set of lesson plans, each based on a VR video or experience. It's meant to be flexible based on your curricular goals and the needs of your students. Here are a few suggestions for using it in your classroom.

Teach Our Lesson Plans.

We've included lesson plans suitable for STEM and humanities classes that can be taught in one to two class periods. Each one is based VR experience or series of VR videos, and includes activities for before, during and after the VR experience.

Build Your Own Curriculum.

Are you teaching about animal intelligence in biology? Reading a novel about refugees in language arts? Learning about the civil rights movement in social studies? You can use any of the lesson plans in this guide to supplement a unit you're already teaching. Here are a few ideas:

Use a video as an engaging hook at the beginning of a unit. Take a "virtual field trip" to build background knowledge on a culture, place, people, historical event or scientific concept you are studying. Make what you're learning relevant to the real world by inviting students to connect what they're studying in class to a VR video.

You can also draw on the themes and learning strategies in this guide to create your own lesson plans or units around VR experience or film of your choice. Find many more 360 videos to use in your classroom in the [360 Video stream](#) or the [New York Times YouTube channel](#).

Lesson 1

A Mission to Pluto

The NYT VR Video **Seeking Pluto's Frigid Heart (8 min.)**

On July 14, 2016, NASA's New Horizons spacecraft zipped past Pluto and its moons, scanning the dwarf planet in unprecedented detail. Before this moment, the best images of Pluto were only a few fuzzy pixels wide.

In this virtual reality video, students will travel on New Horizons, gliding through space at a million miles a day. They will fly over Pluto's rugged surface and smooth places, stand on icy mountains, and watch the moon Charon rise on the horizon and touch down on a frost-rimmed crater billions of years old.



VIEW:
[The New York Times](#)
[YouTube VR](#)

Lesson 2

Meet Three Children Displaced by War and Persecution

The NYT VR Video **The Displaced (11 min.)**

More than 70 million people are currently displaced from their homes by war and persecution. Half are children. In this V.R. documentary, viewers travel to Ukraine, Syria and Sudan to learn the stories of three of those children.



VIEW:
[The New York Times](#)
[YouTube VR](#)

Lesson 3

Four Antarctic Expeditions



The NYT VR Videos The Antarctica Series (4 videos)

In this collection of four V.R. videos, viewers explore life on, above and below the Antarctic ice.

**VIEW SERIES:
[The New York Times](#)
YouTube VR
(links below)**

- In “[Under a Cracked Sky](#)” (10 min.), dive under eight feet of sea ice to swim with seals, explore ice caves and float above a dark seabed crawling with life.
- In “[Three Six Juliet](#)” (11 min.), fly in a helicopter through the McMurdo Dry Valleys, one of the most extreme environments on Earth.
- In “[McMurdo Station](#)” (9 min.), join the mechanics, cooks, drivers, firefighters, scientists and others who run a research station on the least habitable continent, thousands of miles from civilization.
- In “[A Shifting Continent](#)” (15 min.), fly with scientists in a military cargo plane as they probe the structure of the Ross Ice Shelf, a Texas-size chunk of floating ice.

Lesson 4

Time Travel Through Olympic History



The NYT VR Video The Modern Games (9 min.)

In this virtual reality experience, created ahead of the 2016 Rio Games, The New York Times transports you to iconic Olympic moments throughout history. Viewers travel back in time to stand beside history-making track and field star Babe Didrikson, record-setting long jumper Bob Beamon, and the fastest man in the world, Usain Bolt.

**VIEW:
YouTube VR**

Lesson 5

Decode the Secret Language of Dolphins and Whales

The NYT VR Video **The Click Effect (7 min.)**

Until recently, most research on sperm whales' communication had been conducted from a boat. Why? For one, few scientists were brave enough to swim with the world's largest predator. And the animals tend to be scared off by the burbling of scuba gear or submarines and robots. The best option for studying these mammals is free diving: diving dozens, sometimes hundreds, of feet on a single breath of air.

In this V.R. video, viewers join a journalist and a marine scientist on a free dive as they capture the secret "click" communication of dolphins and sperm whales.



VIEW:
[Within](#)

Lesson 6

Memorials and Justice

The NYT VR Video **Remembering Emmett Till (8 min.)**

In this 360-degree documentary, students will travel with Audra D.S. Burch, a New York Times correspondent, to the Mississippi town where Emmett was killed. They will visit several key locations to explore the cultural reckoning happening now and examine the role that physical structures related to the Emmett Till case play in the efforts to memorialize him.



VIEW:
[The New York Times](#)

Lesson 7

The World's Biggest Physics Experiment

The NYT VR Video **Inside CERN's Large Hadron Collider (6 min.)**

In this virtual reality experience, viewers travel beneath the fields of Switzerland and France to tour the largest microscope ever built. They'll explore the ins and outs of the machine, hear about its future, and study the remnants of the Higgs boson, a long-sought particle that helps explain why there is mass, diversity and life in the cosmos.



VIEW:
[The New York Times](#)

Lesson 8

Journey to the Hottest Place on Earth

The NYT VR Video **The Land of Salt and Fire (6 min.)**

Tectonic shifts are disrupting the traditional way of life for people in the Afar region in Ethiopia. In this V.R. video, students will be transported to Dallol, Ethiopia, the hottest place on Earth, where they will travel with camel caravans across salt flats and active geothermal zones, to find out how the Afar people are adapting.



VIEW:
[The New York Times](#)
[YouTube VR](#)

Lesson 9

Anne Frank House VR Tour



Anne Frank House VR Tour (25 min.) **Middle School (6th-8th grade)**

In WWII, Anne Frank and her family went into hiding for over two years in Amsterdam's "Secret Annex" with 4 others to escape the Nazis. The Anne Frank House VR lets you experience their story in an emotional and unique way, exploring the recreated rooms of the Annex and immersing yourself in Anne's thoughts. Discover what happened to the group of 8 Jewish people and their bravery in hiding from the constant threat of discovery.

Lesson 10

Ecosphere

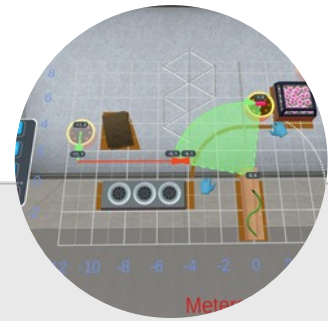


Ecosphere (20 min.) **Middle School (6th-8th grade)**

Ecosphere will take you on an immersive 360° journey to discover how people around the world are working with the United Nations to safeguard the future of our planet. Explore how communities in Fiji and Colombia are coming together to build resilience and secure a better future for generations to come. You'll also venture into some of the wildest places on earth, such as Kenya, Borneo, Raja Ampat, and the Sea of Islands, where indigenous and community-led efforts are creating space for both humanity and wildlife to thrive together.

Lesson 11

Math Learning with Prism



Prism (30 min.) **Middle School (6th-8th grade)**

Prisms is a virtual reality (VR) app that offers an interactive and immersive learning experience for mathematics education. It provides users with the opportunity to learn and practice various mathematical concepts in a three-dimensional (3D) virtual environment. Prisms allows students to experience and solve real-world problems, visualize and interact with mathematical structures through hands-on models, and connect 3D experiences to abstract representations like graphs, tables, equations, and vocabulary.

Lesson 12

Exploring Ocean Life with Ocean Rift



Ocean Rift (30-40 min.) **Middle School (6th-8th grade)**

Ocean Rift is the world's first VR aquatic safari park. Explore a vivid underwater world full of life including dolphins, sharks, turtles, sea snakes, rays, whales, manatees, sea lions and even prehistoric animals! You are free to swim around each of the 14 habitats using innovative motion controls. Activate the education mode to learn more about the animals you come across. There are over 40 fully narrated information points to find.

Lesson 13

Exploring the Stars with Star Chart



Star Chart (30-40 min.) **Middle School (6th-8th grade)**

Ocean Rift is the world's first VR aquatic safari park. Explore a vivid underwater world full of life including dolphins, sharks, turtles, sea snakes, rays, whales, manatees, sea lions and even prehistoric animals! You are free to swim around each of the 14 habitats using innovative motion controls. Activate the education mode to learn more about the animals you come across. There are over 40 fully narrated information points to find.

Lesson 14

Home After War Virtual Reality Experience



Home After War (30-40 min.) **High School (9th-12th grade)**

"Home After War" immerses you in the city of Fallujah, previously under Islamic State (IS) control, where the war against IS has ended but the city is still unsafe due to the presence of booby-trapped homes and improvised explosive devices (IEDs). Through the eyes of Ahmaied Hamad Khalaf and his family, who have returned to their home after the fighting subsided, explore the space while Ahmaied shares his personal story of returning to a home that might be booby-trapped.

Lesson 15

MLK Now is the Time Virtual Reality Experience



MLK Now is the Time (30-40 min.) **Middle School (6th-8th grade)**

It's been sixty years since Dr. Martin Luther King delivered his iconic "I Have a Dream" speech, but the messages from that speech resonate today. "MLK: Now is the Time" is an immersive journey that explores key themes of Dr. King's speech and highlights systemic inequities that persist in our society. Through first-person stories and interactions, "MLK: Now is the Time" drops you into a thoroughly modern interpretation of a contemporary March on Washington that will inform and inspire a new generation of activists.

Lesson 16

Notes on Blindness VR Experience



Notes on Blindness (30-40 min.) **Middle School (6th-8th grade)**

An emotional journey into a world beyond sight. In 1983, after decades of steady deterioration, John Hull became totally blind. To help him make sense of the upheaval in his life, he began documenting his experiences on audio cassettes. These original diary recordings create the basis of this interactive non-fictional narrative which is a cognitive and emotional experience of blindness. Storytelling, art direction and graphical universe form a unique and singular immersion, completed by movement tracking, spacialized sound and controller interactions.

Lesson 17

Exploring Machu Picchu in Virtual Reality

National Geographic Machu Picchu (30-40 min.) **Middle School (6th-8th grade)**

National Geographic VR Machu Picchu is a virtual reality experience that takes you on an immersive journey to the ancient Incan citadel of Machu Picchu in Peru. Explore the intricate ruins of the city, learn about the history and culture of the Inca civilization, and witness the breathtaking beauty of the surrounding Andes Mountains. The experience includes stunning 360-degree views, guided tours by National Geographic experts, and the opportunity to capture photos to share with others.

Lesson 18

Exploring Antarctica in Virtual Reality

National Geographic Antarctica (30-40 min.) **Middle School (6th-8th grade)**

The National Geographic VR Antarctica experience allows users to explore the stunningly beautiful and remote continent of Antarctica. Through the immersive VR experience, users can get up close with a variety of Antarctic wildlife such as penguins, seals, and whales, as well as explore the breathtaking landscapes of glaciers, mountains, and icebergs. Additionally, users have the opportunity to learn about the ongoing scientific research being conducted in Antarctica and the importance of protecting this unique ecosystem.

Lesson 19

Traveling While Black



Traveling While Black (20 min.) **Middle School (6th-8th grade)**

"Traveling While Black" is a virtual reality documentary film that tells the story of African Americans who used the Green Book during the mid-twentieth century to travel safely and with dignity. The film combines 360-degree video, archive footage, and first-person narratives to immerse viewers in the experience of traveling in a segregated society. Through the eyes of the narrators, viewers will witness the impact of the Green Book on their lives, explore the history of segregation and civil rights, and reflect on current issues of race and identity.

Lesson 20

Let's Create Pottery VR

Pottery VR (20 min.) **Middle School (6th-8th grade)**

In this lesson, students will explore the virtual world of pottery making through the Let's Create Pottery VR experience. They will learn about the basic techniques of pottery making and use their creativity to design their own pottery pieces. Students will also have the opportunity to reflect on the benefits of virtual reality as a tool for learning.

Lesson 21

Traveling the World with Wander VR

Wander VR (30-40 min.) **Middle School (6th-8th grade)**

Using Wander for multiplayer field trips can be a great way for teachers to engage students in virtual travel and exploration, and to facilitate interactive and collaborative learning experiences. Teleport almost anywhere in the world - whether you wish to walk across the London Bridge, stroll the gardens of the Taj Mahal, or witness the enormity of the Great Pyramids of Egypt - unlimited exploration awaits!

Lesson 22

On the Morning You Wake - Exploring Nuclear Threat and the Impact on Communities

On the Morning You Wake (30 min.) **Middle School (6th-8th grade)**

On the Morning You Wake is a VR experience that immerses the viewer in the moments following the false ballistic missile alert in Hawaii in 2018. It explores the emotions and experiences of the people who received the message and the questions they were forced to confront. The experience also delves into the larger issue of nuclear weapons and their threat to the world. Through powerful imagery and storytelling, On the Morning You Wake provides a thought-provoking commentary on the dangers of nuclear weapons and their potential impact on humanity.

Lesson 23

Figmin XR

Figmin XR **Middle School (6th-8th grade)**

Figmin XR is a virtual reality (VR) platform designed for educational purposes. It provides an immersive and interactive experience for students to learn about various subjects through the use of VR technology. Figmin XR allows users to explore virtual environments, manipulate objects, and interact with educational content in a three-dimensional space. This platform is designed to enhance traditional classroom teaching and offer a more engaging and memorable learning experience for students. With Figmin XR, students can learn about various subjects like science, history, and art, and explore new worlds and concepts in a safe and controlled virtual environment.

Lesson 24

Exploring Systemic Racism and Poverty through We Live Here VR Experience

We Live Here (40 min.) **Middle School (6th-8th grade)**

We Live Here is a VR experience that explores the stories of five residents of Milwaukee's Sherman Park neighborhood, highlighting their experiences and the impact of systemic racism and poverty on their lives. The experience combines powerful storytelling with immersive 360-degree video to provide students with a unique perspective on the issues faced by communities affected by these challenges.

Lesson 25

Rhythm and Exercise with Beat Saber

Beat Saber (30 min.) **Middle School (6th-8th grade)**

In this lesson, students will explore the popular virtual reality game, Beat Saber, to learn about rhythm and exercise. Students will analyze the rhythmic structure of different songs and use physical movement to respond to the rhythms they hear. They will also discuss the benefits of using physical activity as a way to engage with music.

Lesson 26

VR for Physical Education

VR can be used in gym class as a tool to engage students in physical activity and make workouts more fun and interactive. It can provide a new way of experiencing exercise, and can also offer a variety of different environments and activities that may not be possible in a traditional gym setting. There are several Oculus apps that can be used for a physical education class for middle school students. Here are some examples:

1. Supernatural - a fitness app that provides full-body workouts with expert trainers, dynamic music, and beautiful landscapes.
2. Beat Saber - a rhythm game that combines music and swordplay to provide a fun and challenging workout.
3. Creed: Rise to Glory - a boxing game that provides a high-intensity workout while improving coordination and reflexes.
4. Dance Central - a dance game that teaches choreography to popular songs while providing a fun and engaging workout.
5. FitXR - hundreds of fun, accessible workouts that will get you moving whatever your skill level. 5 interactive studios — Box, Dance, Sculpt, Combat and HIIT — with hundreds of on-demand classes and 7 new workouts each week. Make fitness so fun it feels like play.
6. NFL - lets players experience what it's like to compete as the QB of their favorite NFL team.
7. Gym Class Basketball VR - Experience high-flying dunks, pickup games with friends around the world, and compete to be a star in the largest VR sports community.

These apps can help students improve their physical fitness, coordination, and overall health while providing an entertaining and immersive experience.

Lesson 27

Youtube VR to Explore the World of Dance

YouTube VR can be used to explore dance for middle school students by providing immersive experiences that allow students to watch and learn from professional dancers and explore different styles of dance. Students can use VR headsets to view performances from all over the world, allowing them to observe and learn from a wide range of dancers and styles. YouTube VR also offers 360-degree dance videos that allow students to feel like they are on stage with the dancers, providing a unique perspective on the art form. Overall, YouTube VR provides an engaging and interactive way for middle school students to explore dance and develop their skills and appreciation for the art form.

Virtual Experiences:

- 1."Misty Copeland - A Ballerina's Tale" - This is a 360-degree video of Misty Copeland, one of the most famous ballerinas in the world, performing on stage.
- 2."Michael Jackson - Thriller (360 Video)" - This is a 360-degree video of the famous Michael Jackson music video for "Thriller," featuring the iconic dance moves that made him a legend.
- 3."Maddie Ziegler's World: Inside the Young Dancer's Life and Career" - This is a 360-degree video that takes you behind the scenes with Maddie Ziegler, a young dancer who rose to fame on the TV show "Dance Moms" and has since become a star in her own right.
- 4."Sia - The Greatest (360 Video)" - This is a 360-degree video of the music video for Sia's song "The Greatest," which features a group of young dancers performing intricate choreography.

These are just a few examples, but there are many other YouTube VR videos of famous dancers and dance performances.

Lesson 28

Exploring Science and Engineering with Adam Savage's Tested VR

Adam Savage's Tested VR (30 min.) Middle School (6th-8th grade)

Adam Savage's Tested VR is a virtual reality experience that provides viewers with a behind-the-scenes look at the world of science, technology, and creativity. The experience is hosted by Adam Savage, who is known for his work on MythBusters and his passion for making and creating. In the experience, viewers can explore Savage's workshop, watch him build projects, and learn about different tools and techniques used in making. The experience also features interviews with other makers and creatives, as well as demonstrations of various projects and inventions.

Activity

Introduce the lesson by asking students if they have heard of Adam Savage and what they know about him.

Explain that Adam Savage is a science communicator and former host of the show "MythBusters."

Allow students to explore the different virtual reality experiences available in the app, such as exploring a VR lab, testing a rocket launch, and building a machine. Encourage students to discuss and share what they are learning about science and engineering concepts and principles through the VR experience.

Divide students into small groups and assign each group a hands-on activity related to science and engineering.

Activity 1: Build a Bridge - Using popsicle sticks, students will work together to build a bridge that can hold a certain amount of weight.

Activity 2: Design a Rocket - Students will design and create a paper rocket and test it in a launcher.

Activity 3: Create a Rube Goldberg Machine - Students will create a machine that completes a simple task in a complex way, using everyday objects.

Allow students to present their creations and explain how they applied science and engineering concepts and principles in their designs.

Lesson 29

Career Exploration with Youtube VR

YouTube VR can be used for career exploration by providing students with virtual tours of different workplaces and industries. Students can view videos of people working in different careers and get a sense of what it would be like to work in those jobs. They can also watch videos of people discussing their career paths and offering advice on how to pursue specific careers. This can be particularly helpful for students who are not able to participate in traditional job shadowing experiences due to logistical or other barriers. Additionally, YouTube VR can be used to provide students with an immersive experience of visiting college campuses, attending career fairs, and meeting with career advisors.

Activity

1. Day in the Life: Professional Ballet Dancer: This video offers an immersive VR experience that allows viewers to follow a professional ballet dancer throughout their day.
2. Flight Simulator VR: This video offers a virtual reality experience of what it's like to be a pilot, flying a plane in various conditions.
3. Day in the Life: Veterinarian: This video offers a VR experience of what it's like to be a veterinarian, including examining animals, performing surgery, and more.
4. Welding in VR: This video offers a VR experience of what it's like to be a welder, allowing viewers to practice their welding skills in a virtual environment.
5. Day in the Life: Chef: This video offers a VR experience of what it's like to be a chef, including preparing and cooking food in a professional kitchen.
6. Virtual Reality Surgeon: This video offers a VR experience of what it's like to be a surgeon, performing surgery on a patient in a virtual operating room.
7. Day in the Life: Architect: This video offers a VR experience of what it's like to be an architect, including designing and building structures in a virtual environment.
8. Virtual Reality Police Training: This video offers a VR experience of what it's like to be a police officer, including training scenarios and simulated situations.
9. Day in the Life: Marine Biologist: This video offers a VR experience of what it's like to be a marine biologist, including exploring marine life in a virtual underwater environment.
10. Virtual Reality Construction Site: This video offers a VR experience of what it's like to work on a construction site, including operating heavy machinery and building structures.