

VR & AR LESSON PLAN

Animals in their Environments

Learning Area

HASS / Science

Year Level

Year 4

Kit

AR/VR Education Kit

Duration

2 x 60 minute lesson

Lesson Overview

Experience and observe animals in their natural environments through the use of Virtual Reality, and use this knowledge to create sustainable habitats through the use of Augmented Reality.

Learning Intentions

By the end of this lesson, students will:

- expand their knowledge of natural environments and the needs of living things through the use of Virtual Reality,
- expand and practise their digital creation skills using Augmented and Virtual technologies, and
- critically reflect and innovate solutions to achieve sustainable habitats.

Task Summary

Students will observe and analyse zoo animals in their natural habitats, through the use of Handheld VR devices, reflecting on their surroundings/needs. They will then plan and create their own sustainable zoo using CoSpaces.

Prior Knowledge

- Students have some background knowledge in using VR technologies (Handheld Virtual Reality devices), including proper VR Safety practices.
- Students know how to scan QR codes of VR experiences and view them on headsets. If not, the teacher is advised to run an introductory session.
- Students are familiar with CoSpaces and have had an introductory lesson on how to:
 - navigate elements,



- insert items from the library and
- simply animate items.

Resources

Hardware

- Student Laptops
- HHVR Headsets
- Mobile Devices
- Presentation Screen

Apps

- CoSpaces
- YouTube

VR Videos

▶ Best of Wild Animals in VR 2021 | Wildlife in 360 VR (5:22)

A fast paced collage of videos that will engage students most

▶ Return from the Okavango in 360 - Ep. 4 | The Okavango Experience (6:20)

Lions, Elephants, Giraffes, Lechwes, Baboons, Wild Dogs, Hippos

▶ Elephants on the Brink (360 Video) (2:49)

A herd of African elephants investigating its surroundings

▶ Elephant Encounter in 360 - Ep. 2 | The Okavango Experience (6:13)

Come face to face with a migrating herd of elephants

▶ 360° Antarctica - Journey Through The Ice | National Geographic (1:59)

Crash through a frozen ocean in Antarctica to see local penguins

▶ Endangered Penguins of South Africa - 360 | National Geographic (3:07)

Observe this population of African penguins and their rehabilitation

▶ Rehabilitating Baby Sloths in Costa Rica - 360 | National Geographic (3:36)

Witness the recovery and release of wildlife at the Toucan Rescue Ranch

▶ Grandpa's Reef - 360 | National Geographic (2:42)

Dive down to some of the world's most beautiful reefs

Websites

CoSpaces Edu

Teaching Materials

📄 Teaching Deck - Animals in their Environments

📄 Student Journal - Animals in their Environments

📄 VR Videos QR Codes - Animals in their Environments - .pdf

Teacher Preparation

Reminders

- All hardware has been charged and sanitised.
- Student Devices have the most recent updated version of CoSpaces installed.
- Scan QR codes of VR videos beforehand to ensure they work, and the content is appropriate to your site and cohort of students.
- Experiment with Block Coding in CoSpaces to be able to lead students through on-screen instructions.

Tasks

- View the [Teaching Deck - Animals in their Environments](#) and adjust to best suit your context.
- Distribute QR codes either digitally or by printing the codes.
- Digitally assign [Student Journal - Animals in their Environments](#), or alternatively print the resource.
- Divide students into pairs or groups (depending on how many devices are available). A suggested rotation cycle may be:

Group	Rotation 1	Rotation 2	Rotation 3	Rotation 4
Group 1	HHVR	Research	CoSpaces	Block Coding
Group 2	CoSpaces	Block Coding	HHVR	Research
Group 3	Block Coding	HHVR	Research	CoSpaces
Group 4	Research	CoSpaces	Block Coding	HHVR

This may differ based on student numbers and number of IMVR headsets/ devices.

Learning Sequence

1

Introduction (10 mins)

Open up the [Teaching Deck - Animals in their Environments](#) and talk through the learning intentions for this lesson on slide 2.

Discuss the following questions with students:

- What do you think this little cow needs to survive?
- Where do you think it would like to live?
- Discuss with a partner and be ready to share.

Reveal the main 5 needs as water, food, oxygen, space and shelter (slide 3).



Explain today's plan/goal (slide 4).

2

Explanation of Stations (10 mins)

Introduce the four stations students will engage in by reading the on-screen prompts in the Teaching Deck (slide 5)

Read through the more detailed station guides with students to explain each station. Students will also have a copy of this in their

📄 **Student Journal - Animals in their Environments** for reference:

- **HHVR** – 360' Youtube videos (slides 8 – 11)
Students will scan a variety of QR codes provided to them to observe animals in their natural habitat. They will answer 4 reflection questions in their Student Journal about what they discovered.
- **Augmented Digital Creation** – 360' Zoo (slide 12)
Students are to follow the steps provided to remix a zoo template on CoSpaces. They will independently design their own zoo by inserting animals, and relating objects, from the library.
- **Teacher Led - Block Coding** with CoSpaces (slide 13)
Students will follow their teacher's lead to learn how to Block Code on CoSpaces. Teacher can provide coding challenges (i.e. make your animal walk around the borders of their enclosure), or allow students to code their animals freely.
*Depending on students' experience in coding, this station may need to be heavily scaffolded for students so please ensure educators are ready to lead this lesson.
- **Research/Reflection** – Needs of Living Things (slide 14 – 15)
Students will use this station to reflect on their learning, or prior knowledge if it is their first station. They will also utilise this time to conduct some research about their animal's needs and habitats.

Development (40 mins)

Display rotation schedule (slide 6). If the lesson is conducted over 2 separate 60 minute lessons, explain to students that they will partake in two stations today, and the remaining two stations during the next session.

Run through a quick VR safety reminder (slide 7).

Allocate a station per group and send students off to get organised.

Inform students that their Student Journals will also have the station explanations, as well as any links or workbooks, required.



(40 mins)

Station based learning (Rotation 1 and 2)

Allow 15-20 min interval rotations with adequate transition time.

Ensure all students have begun engaging with their tasks before beginning to guide the *Block Coding* station.

Give students a 2minute warning before transitioning to their next station.

If completing this lesson across 2 days, pack students up and remind them that they will continue their rotations next time. If completing this as a double lesson, consider a body break before the third rotation.

Station based learning (Rotation 3 and 4)

If completing the third rotation on a secondary day, you may wish to refresh everyone on the four stations and how to correctly operate the technology.

You may wish to begin this second session with a sharing round (feedback/tips) from students about the stations they have experienced thus far.

At the end of the final rotation, ask students to collaboratively pack up their station and return resources accordingly.

3

Conclusion (10 mins)

*Students may require additional lessons to complete their zoo creations or finish coding more items.

Gather students together and complete the task reflection (found in Teaching Deck slide 16), verbally as a group.

Inform students that when their zoos are completed, they will be able to share their creation with peers and can view their creation via the HHVR devices.

Modifications

Adaptations

- Students can also view the 360 YouTube experiences in 'gyro mode' without the headsets using the mobile devices.
- Student journals/VR QR codes could be printed and distributed as hard copies.

Extension Ideas

- Students can research and include factual information to their CoSpaces zoos to communicate their learnings about animals in captivity vs suitable habitats.

Curriculum Connections

Australian Curriculum	SA Curriculum	NSW Curriculum	VIC Curriculum
<p>Version 9 Year 4</p> <p><u>HASS – Geography</u> AC9HS4K05 <i>The importance of environments, including natural vegetation, to animals and people.</i></p> <p><u>Science – Biology</u> AC9S4U01 <i>Explain the roles and interactions within a habitat.</i></p> <p><u>Technologies – Digital</u> AC9TDI4P02 <i>Follow and describe algorithms involving sequencing, comparison operators and iteration.</i></p>	<p>To be updated upon release.</p>	<p><u>Stage 2 Science</u> Living World ST2-4LW-S <i>Compares features and characteristics of living and non-living things.</i></p> <p><u>Stage 2 Geography</u> Knowledge GE1-1 <i>Describes features of places and the connections people have with places.</i></p> <p><u>Stage 2 Technology</u> Skills ST2-3DP-T <i>Defines problems, describes and follows algorithms to develop solutions.</i></p>	<p><u>Level 3/4 Science</u> Biological Sciences VCSSU058 <i>Different living things have different life cycles and depend on each other and the environment to survive.</i></p> <p><u>Level 3/4 Geography</u> Geographical knowledge VCGGK082 <i>The importance of environments to animals and people, and different views on how to do this sustainably.</i></p> <p><u>Level 3/4 Technology</u> Digital Technology VCDTCD023 <i>Define simple problems and follow a sequence of steps to solve them (algorithms).</i></p>



Cross-Curriculum Priorities

- X Aboriginal and Torres Strait Islander Histories and Cultures
- X Asia and Australia's Engagement with Asia
- ✓ Sustainability

Capabilities

- ✓ Literacy
- X Numeracy
- ✓ ICT Capability
- ✓ Critical and Creative Thinking
- X Personal & Social Capability
- ✓ Ethical Understanding
- ✓ Intercultural Understanding

Assessment Rubric

If the teacher is using this as an assessment task, here is a suggested rubric:

Criteria	Developing	Competent	Advanced
Explore and response to VR Experiences.	<p>Student required substantial support to navigate VR devices.</p> <p>Student showed minimal engagement with content.</p>	<p>Student followed guides to navigate VR devices.</p> <p>Student showed good engagement with content and recorded responses.</p>	<p>Student independently navigated VR devices and supported peers in this.</p> <p>Student showed in depth engagement with content and recorded thoughtful responses.</p>
Create a virtual zoo using CoSpaces.	<p>Student required substantial support to log into CoSpaces, add items, navigate their screen.</p> <p>Student showed minimal understanding of the requirements of the task.</p>	<p>Student followed guides to log in to CoSpaces, add items, navigate their Screen.</p> <p>Student created suitable enclosures with some animals, vegetation and signs.</p>	<p>Student expertly navigated through the features of CoSpaces to add items and Animations.</p> <p>Student created creative enclosures with thoughtful animals, vegetation and signs.</p>
Block Coding to add further engagement for the visitors of their zoo.	<p>Student required substantial support attach simple code blocks.</p> <p>Student showed minimal knowledge in problem solving when block codes were not successful.</p>	<p>Student followed teacher guide to attach simple code blocks.</p> <p>Student showed an understanding of the trial and error process, and could problem solve when block codes were not successful.</p>	<p>Student followed teacher guide to attach code blocks, and applied this learning to their own creative codes.</p> <p>Student showed an in depth understanding of the trial and error process, and expertly problem solved block codes that were not successful.</p>
Design and plan suitable enclosures through personal knowledge and research.	<p>Student required support to draw on their personal knowledge and plan out their zoo.</p> <p>Student required support in researching and locating relating information.</p>	<p>Student independently drew on their personal knowledge and planned out their zoo effectively. Student was able to research and locate information online.</p>	<p>Student drew on their extensive knowledge and planned out a well set out zoo.</p> <p>Student was able to critically research and locate information online.</p>