VR Biome Unit - Biomes and food security Future of Food

Essential Question/s
How can we ensure food security for future generations?
What is a threat to your biome? How can we ensure food production in the future in this biome?

Plan 2.0
Pre work: Students to navigate and 'play' with VR systems for 3 sessions at the end of term 2 before commencing this unit of work.
PART A – 3 weeks, 4 hours per week
Students have the choice to work independently or in pairs
PHASE ONE: GLOBAL BIOMES
Start with any biome (photos provided) 360 degree photo (anywhere in world)

BIOMES
➔ Marine: Great Barrier Reef
➔ Freshwater: Nile River
➔ Savanna: Africa (South Africa)
➔ Tropical rainforest: Amazon (Brazil)
➔ Temperate rainforest: Olympic National Park (USA)
➔ Taiga: Siberia

STUDENTS TO INLCUDE INFORMATION INTO BIOME FEATURES INCLUDE:
➔ soil
➔ climate
➔ native vegetation (including what foods are typically farmed here)
➔ animals

PHASE TWO: MAPPING
Where this biome exists in the world (coloured map with names)

PHASE THREE: VR
Create content in 360 photo

PHASE FOUR: ASSESSMENT PRESENTATIONS AND TASK
Presentations to class of VR program and Classifying Task
PART B – 7 weeks, 4 hours per week
Students have the choice to work independently or in pairs
PHASE ONE: EXCURSION TO MURRAY BRIDGE
Student will do:
➔ Take 360 photos
➔ Make video explaining vegetation found
➔ Soil samples

➔ Climate graph analysis
➔ Photos of surrounding farmland with captions of what is being grown
➔ Choose three- five animals that exist in this biome and explain their role in a food web, a food chain and ecosystem.

EXTENSION: Compare old photos → before and after extension. Students to take photos of the locations with old photos on the internet.

PHASE TWO: COLLATION and CREATION OF BIOME ON VR

➔Students put all information into VR create their own biome.

➔Students to connect scenes through a story

➔Incorporate map task into VR program

PHASE THREE: HUMAN THREATS TO THE BIOME

⇨ Students will need to address human interactions on Biome. (To be done in VR).

⇨ They will need to address: How does human interaction affect
  o Native landscape
  o Food systems
  o Ecology

⇨ Extension task: Research how these threats have been dealt with overseas. Suggest solutions that could be implemented into South Australia.

PHASE FOUR: ASSESSMENT: Presentations

⇨ Students will set up a stall and invite Cycle 3 children to visit. Students will host a second session to invite parents. Siobhan and Toni to assess during session 1.

Achievement Standards

Content Descriptors – Science / HASS

Geography

KNOWLEDGE AND UNDERSTANDING:

- Distribution and characteristics of biomes as regions with distinctive climates, soils, vegetation and productivity

- Human alteration of biomes to produce food, industrial materials and fibres, and the use of systems thinking to analyse the environmental effects of these alterations

- Environmental, economic and technological factors that influence crop yields in Australia and across the world

- Challenges to food production, including land and water degradation, shortage of fresh water, competing land uses, and climate change, for Australia and other areas of the world

- The capacity of the world's environments to sustainably feed the projected future global population

KEY SKILLS

- Develop geographically significant questions and plan an inquiry that identifies and applies appropriate geographical methodologies and concepts

- Evaluate sources for their reliability, bias and usefulness and select, collect, record and organise relevant geographical data and information, using ethical protocols, from a range of appropriate primary and secondary sources

- Apply geographical concepts to synthesise information from various sources and draw conclusions based on the analysis of data and information, taking into account alternative points of view

- Present findings, arguments and explanations in a range of appropriate communication forms, selected for their effectiveness and to suit audience and purpose; using relevant geographical terminology, and digital technologies as appropriate (ACHGS070 - Scootle)

- Reflect on and evaluate findings of an inquiry to propose individual and collective action in response to a contemporary geographical challenge, taking account of environmental, economic, political and social considerations; and explain the predicted outcomes and consequences of their proposal

Biology

KEY KNOWLEDGE AND UNDERSTANDING

- Classification helps organise the diverse group of organisms (ACSSU111)

- Interactions between organisms, including the effects of human activities can be represented by food chains and food webs (ACSSU112)

- Ecosystems consist of communities of interdependent organisms and abiotic components of the environment; matter and energy flow through these systems (ACSSU176)

KEY SKILLS

Yr 7 and 8

Questioning and predicting: Identify questions and problems that can be investigated scientifically and make predictions based on scientific knowledge

Planning and conducting: Measure and control variables, select equipment appropriate to the task and collect data with accuracy

Processing and analysing data and information: Summarise data, from students' own investigations and secondary sources, and use scientific understanding to identify relationships and draw conclusions based on evidence

Evaluating: Use scientific knowledge and findings from investigations to evaluate claims based on evidence

Communicating: Communicate ideas, findings and evidence based solutions to problems using scientific language, and representations, using digital technologies as appropriate

Yr 9

Questioning and predicting: Formulate questions or hypotheses that can be investigated scientifically

Planning and conducting: Elect and use appropriate equipment, including digital technologies, to collect and record data systematically and accurately

Processing and analysing data and information: Use knowledge of scientific concepts to draw conclusions that are consistent with evidence

Evaluating: Critically analyse the validity of information in primary and secondary sources and evaluate the approaches used to solve problems

Communicating: Communicate scientific ideas and information for a particular purpose, including constructing evidence-based arguments and using appropriate scientific language, conventions and representations

Lesson = 1 hour approx.

Week		Lesson 1	Lesson 2	Lesson 3	Lesson 4
1	Part A	PHASE ONE: GLOBAL BIOMES Choose a biome + research biome	Choose a biome + research biome	PHASE TWO: MAPPING Mapping task	Mapping task
2		PHASE THREE: VR Create content in 360 photo	Create content in 360 photo	Create content in 360 photo	Create content in 360 photo
3		PHASE THREE: VR Create content in 360 photo	Create content in 360 photo	Create content in 360 photo	Create content in 360 photo

4		PHASE FOUR: ASSESSMENT PRESENTATIONS AND TASK Presentation preparation	Presentation preparation	Class Presentations/ Classifying task	Class Presentations/ Classifying task
5	Part B	PHASE TWO: EXCURSION TO MURRAY BRIDGE	PHASE TWO: EXCURSION TO MURRAY BRIDGE	PHASE TWO: COLLATION and CREATION OF BIOME ON VR	PHASE TWO: COLLATION and CREATION OF BIOME ON VR
6		PHASE TWO: COLLATION and CREATION OF BIOME ON VR	PHASE TWO: COLLATION and CREATION OF BIOME ON VR	PHASE TWO: COLLATION and CREATION OF BIOME ON VR	PHASE TWO: COLLATION and CREATION OF BIOME ON VR
7		PHASE TWO: COLLATION and CREATION OF BIOME ON VR	PHASE TWO: COLLATION and CREATION OF BIOME ON VR	PHASE TWO: COLLATION and CREATION OF BIOME ON VR	PHASE TWO: COLLATION and CREATION OF BIOME ON VR
8		PHASE THREE: HUMAN THREATS TO THE BIOME Build findings into VR	PHASE THREE: HUMAN THREATS TO THE BIOME Build findings into VR	PHASE THREE: HUMAN THREATS TO THE BIOME Build findings into VR	PHASE THREE: HUMAN THREATS TO THE BIOME Build findings into VR
9		PHASE THREE: HUMAN THREATS TO THE BIOME Build findings into VR	PHASE THREE: HUMAN THREATS TO THE BIOME Build findings into VR	PHASE THREE: HUMAN THREATS TO THE BIOME Build findings into VR	PHASE THREE: HUMAN THREATS TO THE BIOME Build findings into VR
10		PHASE FOUR: ASSESSMENT: Presentations Preparation of stall for expo	Preparation of stall for expo	Cycle 3 (years 4-6) Expo and assessment	Cycle 3 (years 4-6) Expo and assessment