WHAT THE AMAZON CAN'T DELIVER: LESSONS LEARNED FROM VIRTUAL REALITY-BASED SUSTAINABILITY EDUCATION

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Learning in Virtual Reality

- VR offers engaging, immersive and meaningful learning opportunities [1−4]

- But: VR difficult to facilitate in classroom setting [5−7]

- Research often lacks anchoring in curricula [4, 8, 9]

- How do we incorporate VR into classrooms?

Learning in Virtual Reality

- Generative learning tasks tie in with interactivity of VR [10−12]

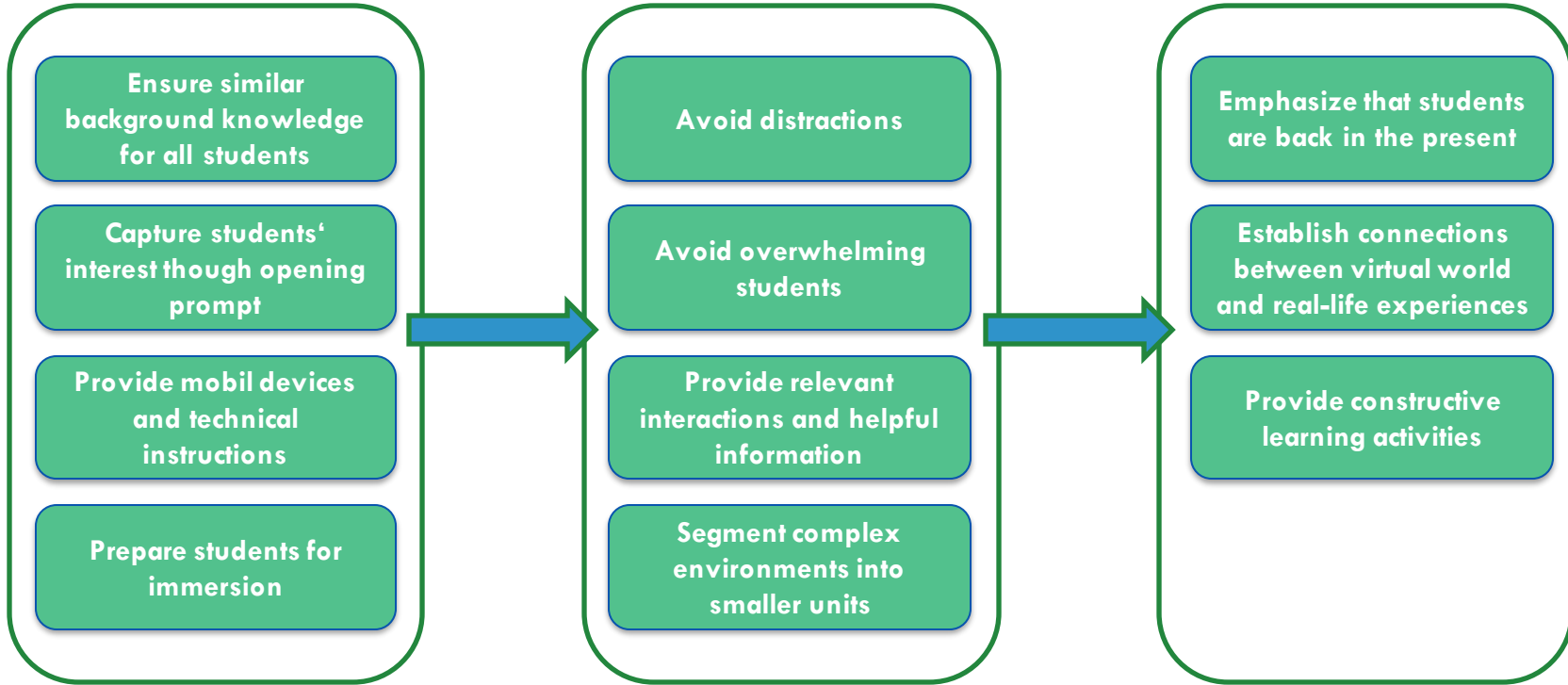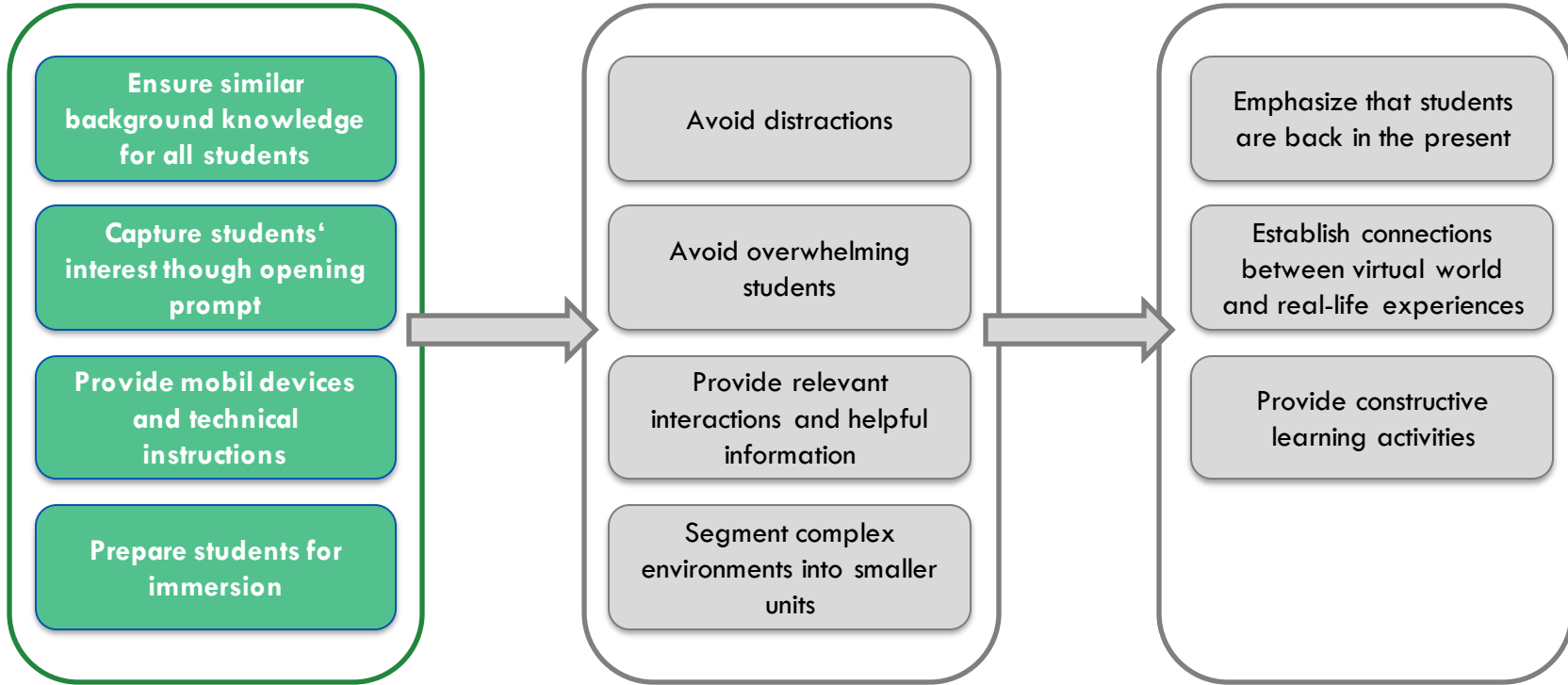- Tasks in three phases of instruction:

Briefing
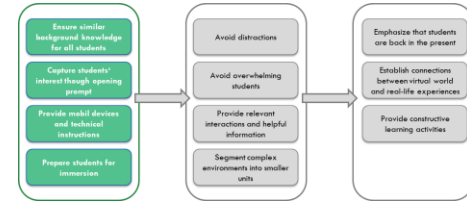
VR Experience

Debriefing

Learning in Virtual Reality

Ensure similar background knowledge for all students

Capture students' interest though opening prompt

Provide mobil devices and technical instructions

Prepare students for immersion

Avoid distractions

Avoid overwhelming students

Provide relevant interactions and helpful information

Segment complex environments into smaller units

Emphasize that students are back in the present

Establish connections between virtual world and real-life experiences

Provide constructive learning activities

Briefing Phase

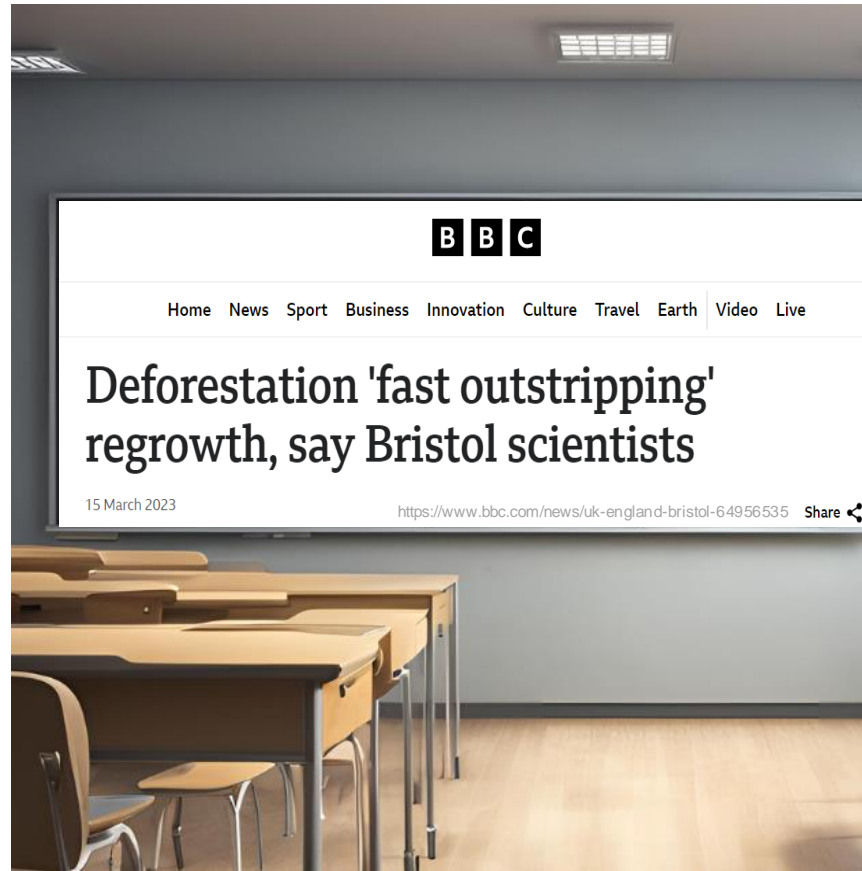|		
Ensure similar background knowledge for all students	Avoid distractions	Emphasize that students are back in the present
Capture students' interest though opening prompt	Avoid overwhelming students	Establish connections between virtual world and real-life experiences
Provide mobil devices and technical instructions	Provide relevant interactions and helpful information	Provide constructive learning activities
Prepare students for immersion	Segment complex environments into smaller units	

Briefing Phase

- Activate prior knowledge [2−4]

- Capture students' interest

- Provide necessary technical devices [5, 13, 14]
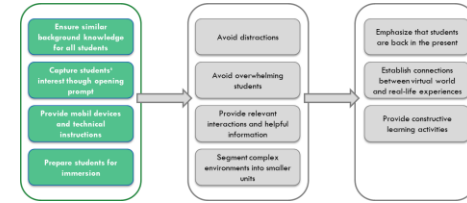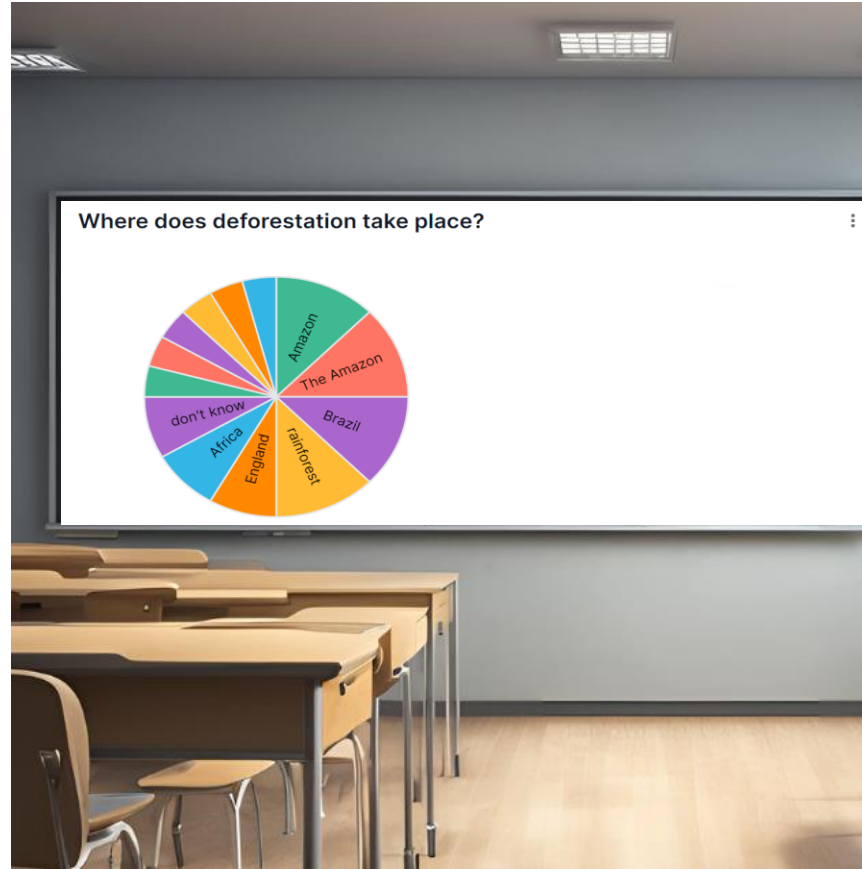
- Prepare students to immerse themselves
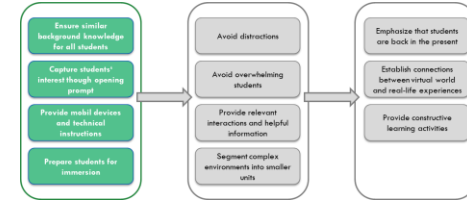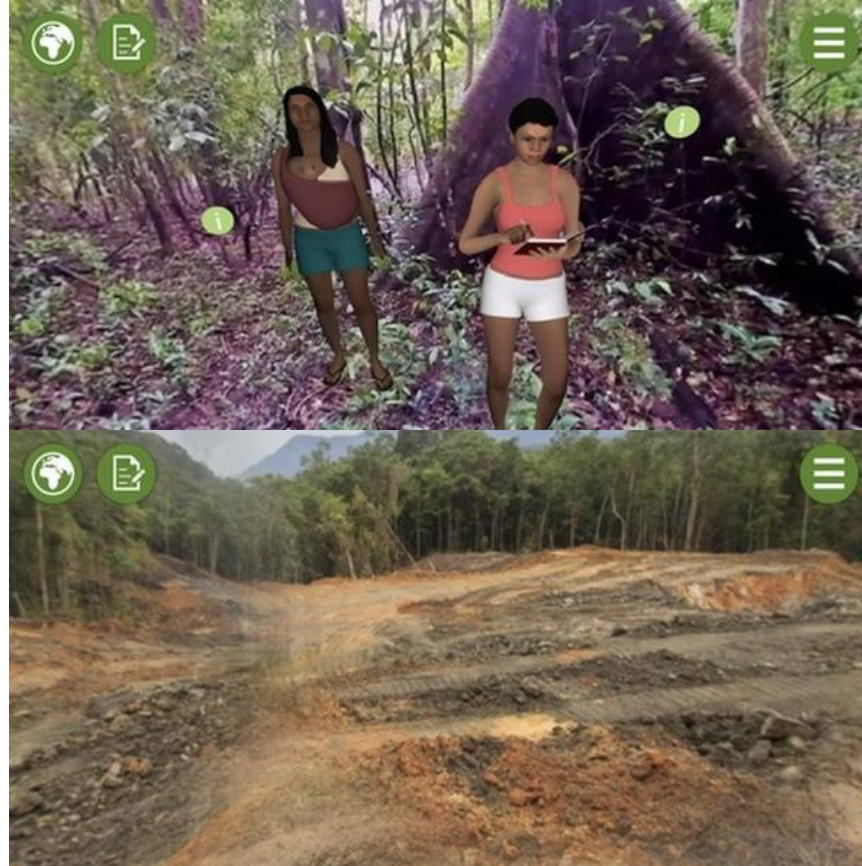
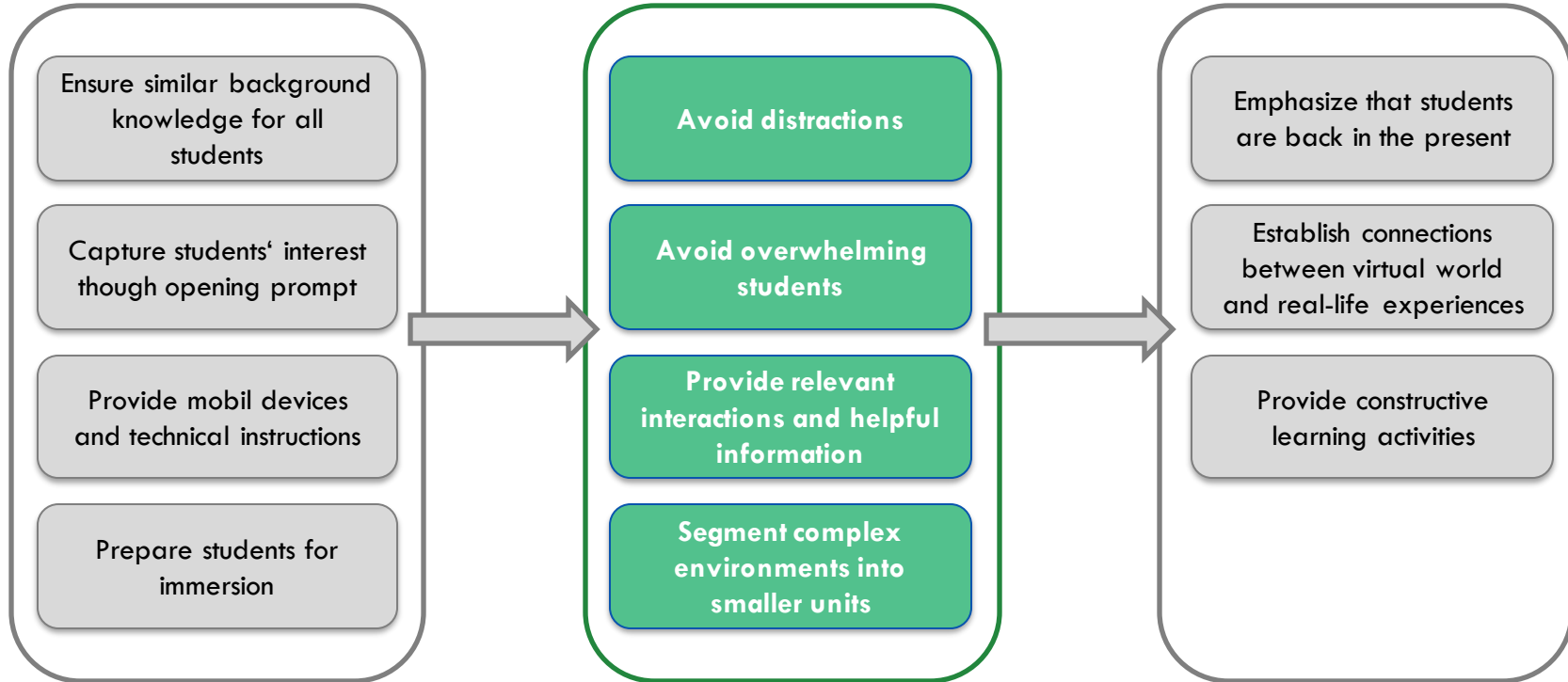# Briefing Phase: Example 1
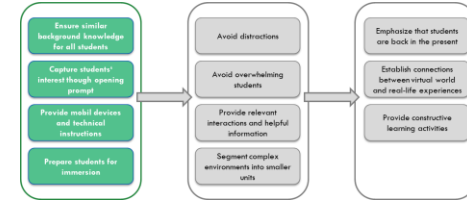
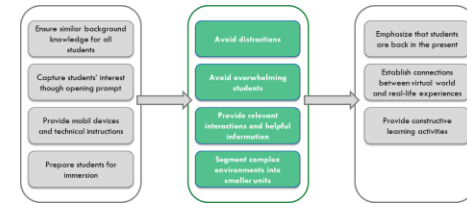# Briefing Phase: Example 1
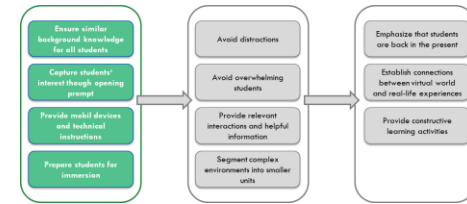
Briefing Phase: Example 1

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VR Experience Phase

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VR Experience Phase

- Avoid distractions [15]

- Avoid overwhelming students [16]

- Provide relevant interactions and helpful information

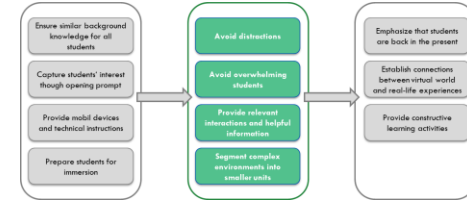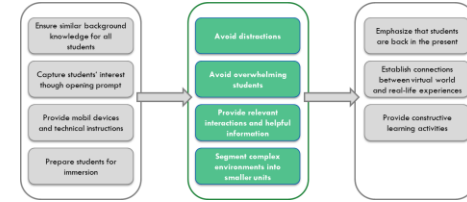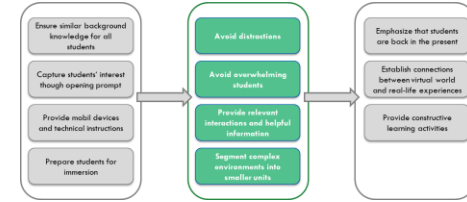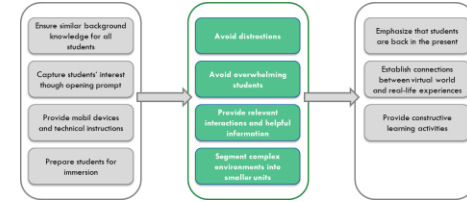- Segment complex virtual environments into smaller units

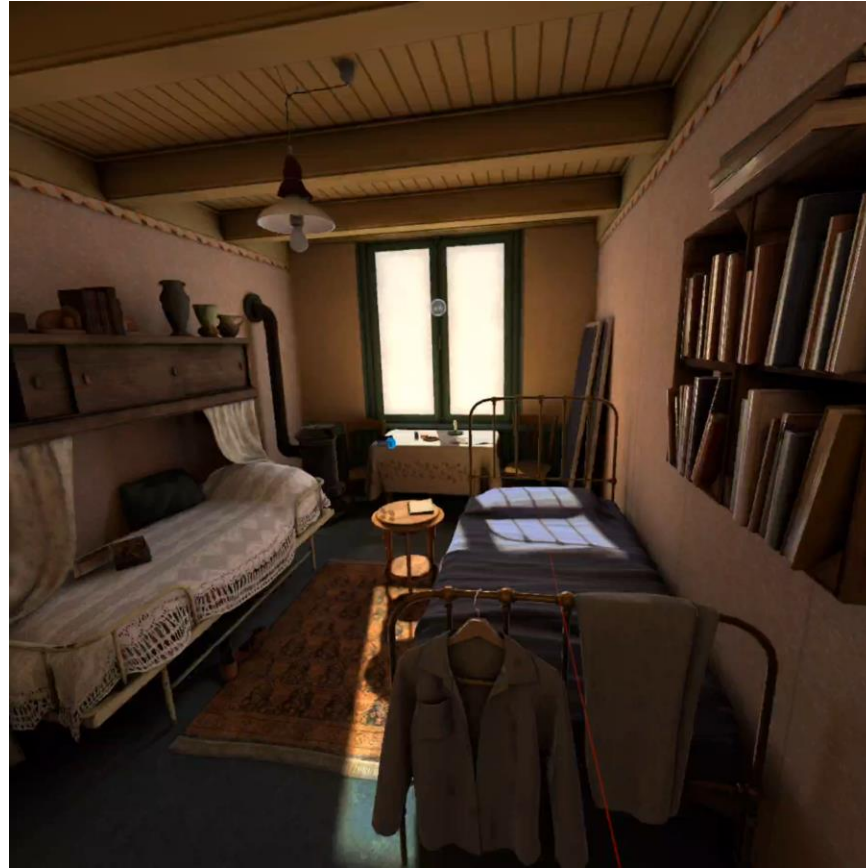# VR Experience Phase: Example 2

VR Experience Phase: Example 2

VR Experience Phase: Example 2

VR Experience Phase: Example 2

Debriefing Phase

Ensure similar background knowledge for all students

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Establish connections between virtual world and real-life experiences

Provide constructive learning activities

Debriefing Phase

- Emerse the students [17, 18]

- Establish connections between virtual world and real-life experiences

- Provide constructive learning activities to foster engagement beyond the virtual experience [10]

Debriefing Phase: Example 3

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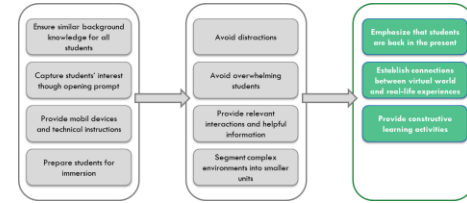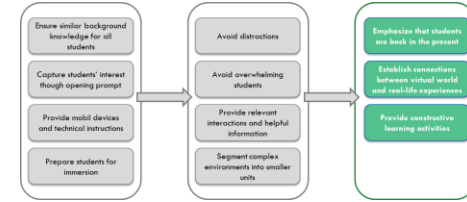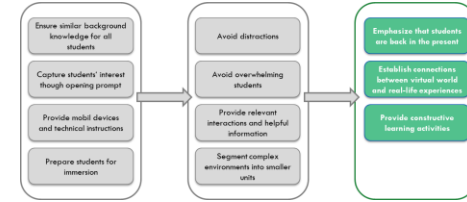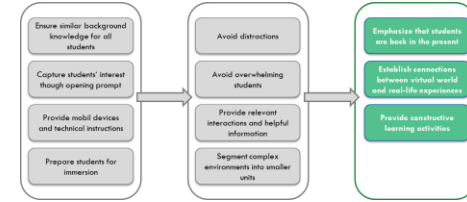# Debriefing Phase: Example 3

Briefing Phase: Example 1

Try to remember what you just learned about the size of red blood cells. How many red blood cells would you have to string together to reach the thickness of an average human hair (0.075 mm)?

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Pedagogical Implications

What VR can do	What VR can't do
Utilize ready-made applications with little need for preparation	Conjure sufficient number of devices
Foster both cognitive and affective learning	Develop ist full potential in students with little prior knowledge
Serve as starting point for larger topic	Relieve students from feeling overwhelmed
Challenge students' behavior	Accomplish actual change in behavior
Satisfy student demand	Convince teachers
Achieve higher satisfaction	Alleviate students' fatigue
…	…

Q & A

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THANK YOU FOR YOUR ATTENTION