Project 4B: VR meets Maths

Description	Learners create their own Maths Mazes that require (mental) arithmetic skills
Objective(s)	Maths in German
CEFR	A1 – B2
Digital Skills	Using digital media to create learning products, using Google Translate for pronunciation practice
6C	Cooperation/Collaboration, Creativity, Critical Thinking (Problem Solving)
Time frame	4 hours
Potential topics	Addition, subtraction, multiplication, division etc.
You want to go further?	Modify the maze
Differentiation	Chain calculations throughout the maze; using equations; not giving the problems in writing but in an audio recording that plays when you click on an object; using only Maths-related vocabulary of whole sentences;
Devices	Production: PC/Laptop with Chrome browser (no smartphone since coding does not work on smartphones) Reception: tablet or smartphone with the CoSpaces Edu app; option to use a VR headset (Cardboard with CoSpaces Edu app or autonomous headset using the native browser that is WebVR-enabled)
Tutorials	Sign up for CoSpaces Edu https://youtu.be/qWXUMkauXp0 Project 4B: Step by step https://youtu.be/2ZoX6dDthVA

Preparation

Define

- Types of calculations to use
- CEFR level & Maths skills
- linguistic requirements
- differentiation options → mandatory and optional features

Students sign up for CoSpaces Edu and join the project (→ class code)*

* the class will be prepared and will contain a task with coding already prepared and a sample space

Example

- Types of calculations to use: addition, subtraction, multiplication, division
- CEFR level: A1 (1-100) | Maths skills: basic arithmetic
- linguistic requirements: Maths-related vocabulary
- differentiation:
    - mandatory
        - 1 problem per barrier
    - optional
        - chain calculation throughout the maze

Production I (1 hour)

Learners

- watch the relevant parts of the step-by-step tutorial and follow the instructions step by step
- look at the example
- come up with 10 Maths problems
    - optional: chain calculation throughout the maze
- team up with a partner, exchange their problems and write them down in German, including the solution

Production II (2 hours)

Learners

- log in to CoSpaces Edu, go to "Classes", join the appropriate class (if they haven't done so already when signing up), pick the project they are working on & choose task B
- watch the relevant parts of the step-by-step tutorial and follow the instructions step by step
    - in their scene
        - add their own problems and solutions (a1 – a20)
    - in their partner's scene
        - add one character to every barrier and activate coding
        - add a speech bubble or a text to the wall behind the character that says "Brauchst Du Hilfe?"
        - record their calculations of their partner's problems in German
        - program each character to play the recording (= listening comprehension)

Sharing (5 min)

Learners

- watch the relevant parts of the step-by-step tutorial and follow the instructions
- share their spaces (unlisted) and add their first names in the title
    - post their spaces on the Padlet in the appropriate column by copying the URL and sharing it as a link (not in the text of the post) and by adding the share code in the text of the post

Attention

- if the licenses available will be reassigned to different learners in the near future, it is recommended that teachers copy learners' tasks to the admin account and share them to the Padlet themselves because otherwise the shared spaces will no longer work once the learners have been deleted from the license plan

Reception & Feedback (Oral Production) (55 min)

Learners

- watch the relevant parts of the step-by-step tutorial and follow the instructions
- check out their peers' mazes
- pick at least one maze they want to give feedback to
    - write down the calculations in German using whole sentences
    - create a new post in the appropriate column of the Padlet
    - add their first name in the title & the share code and scene name in the text field
    - record the calculation using the audio recording feature

Tip: for pronunciation practice they can use Google Translate

As an option and for evaluation purposes learners may

- record feedback for the project in German any way they want (audio, video)
- write a little story in German using the calculations of any maze they have looked at and record the story as an audio file using the voice recorder Padlet provides

    & post them in the appropriate column of the Padlet following the guideline in the first post

Student checklist

Production I

☐ watch the relevant parts of the step-by-step tutorial and follow the instructions step by step
☐ look at the example
☐ come up with 10 Maths problems
    ☐ optional: link the problems to have one big chain calculation
☐ team up with your partner
☐ exchange your problems
☐ write the problems of your partner down in German, including the solution

Production II

☐ log in to CoSpaces Edu, go to "Classes", join the appropriate class (if you haven't done so already when signing up), pick the project you are working on & choose task B
☐ watch the relevant parts of the step-by-step tutorial and follow the instructions step by step
    ☐ in your scene
        ☐ add name to your game
        ☐ add your own problems and solutions (a1 – a20)
    ☐ in your partner's scene
        ☐ add one character to every barrier and activate coding
        ☐ add a speech bubble or a text to the wall behind the character that says "Brauchst Du Hilfe?"
        ☐ record your calculations of your partner's problems in German
        ☐ program each character to play the recording

Sharing

☐ watch the relevant parts of the step-by-step tutorial and follow the instructions
☐ share your space (unlisted) and add your first names in the title
☐ post your space on the Padlet in the appropriate column by copying the URL and sharing it as a link (not in the text of the post) and by adding the share code in the text of the post

Reception & Feedback

☐ watch the relevant parts of the step-by-step tutorial and follow the instructions
☐ check out your peers' mazes
☐ pick at least one maze you want to give feedback to
    ☐ write down the calculations in German using whole sentences
    ☐ create a new post in the appropriate column of the Padlet
    ☐ add your first name in the title & the share code and scene name in the text field
    ☐ record the calculation using the audio recording feature

Tip: for pronunciation practice you can use Google Translate

optional

☐ record feedback for the project in German any way you want (audio, video)
☐ write a little story in German using the calculations of any maze you have looked at and record the story as an audio file using the voice recorder Padlet provides

& post them in the appropriate column of the Padlet following the guideline in the first post