



Seasons around the globe

2024S Development spaces

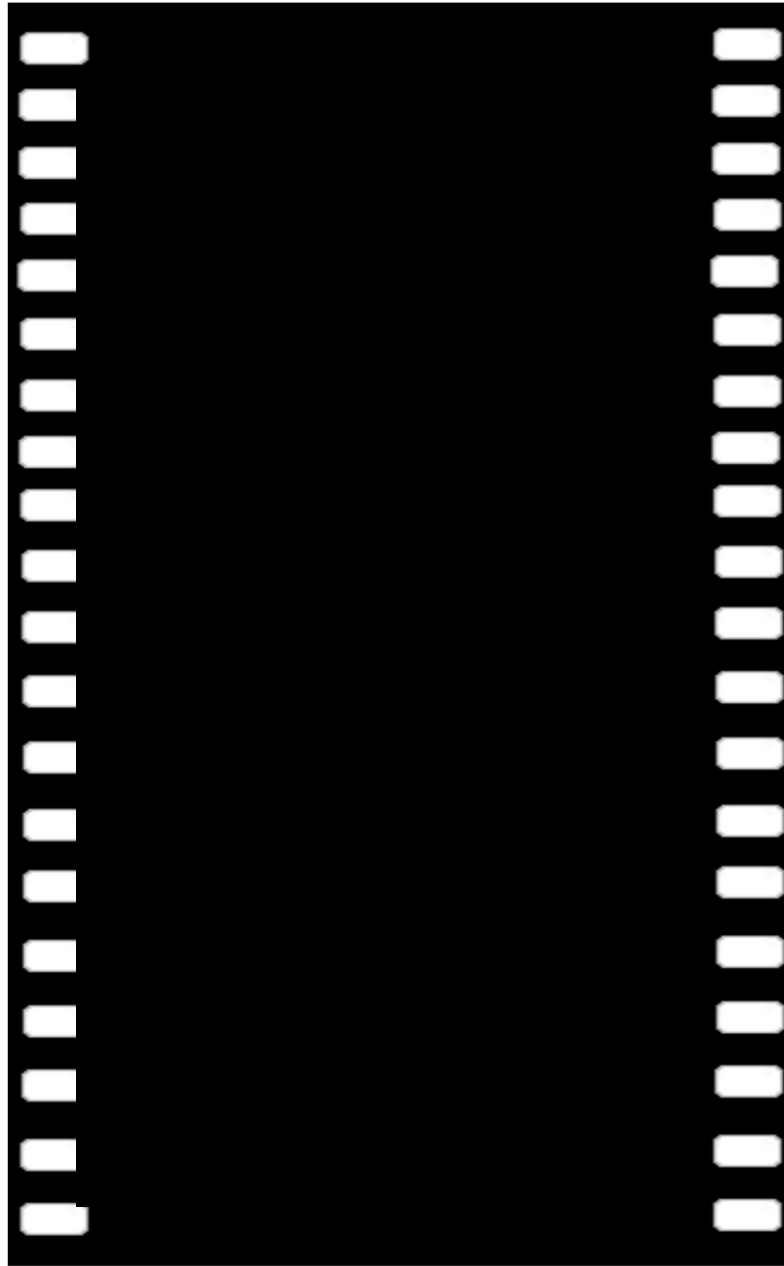
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Overview

- Digital story
- Implementation in the curriculum
- Goals and objectives
- Lesson plans
- How we track learning
- Final product



Digital story



Sources:

*Bing AI Image Creator for the Image of Santa Claus.
All other audio and video material was made by the
project creators*



Implementation in the curriculum

- Physics, Geography
- 2. Class middle school
- Age of pupils: 11-12 years
- Competence referring the curriculum:
"The pupils should be able to demonstrate the formation of day and night, seasons and moon phases through motion sequences and lighting conditions in our solar system, either scenically or with models"
- <https://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=Bundesnormen&Gesetzesnummer=20007850>

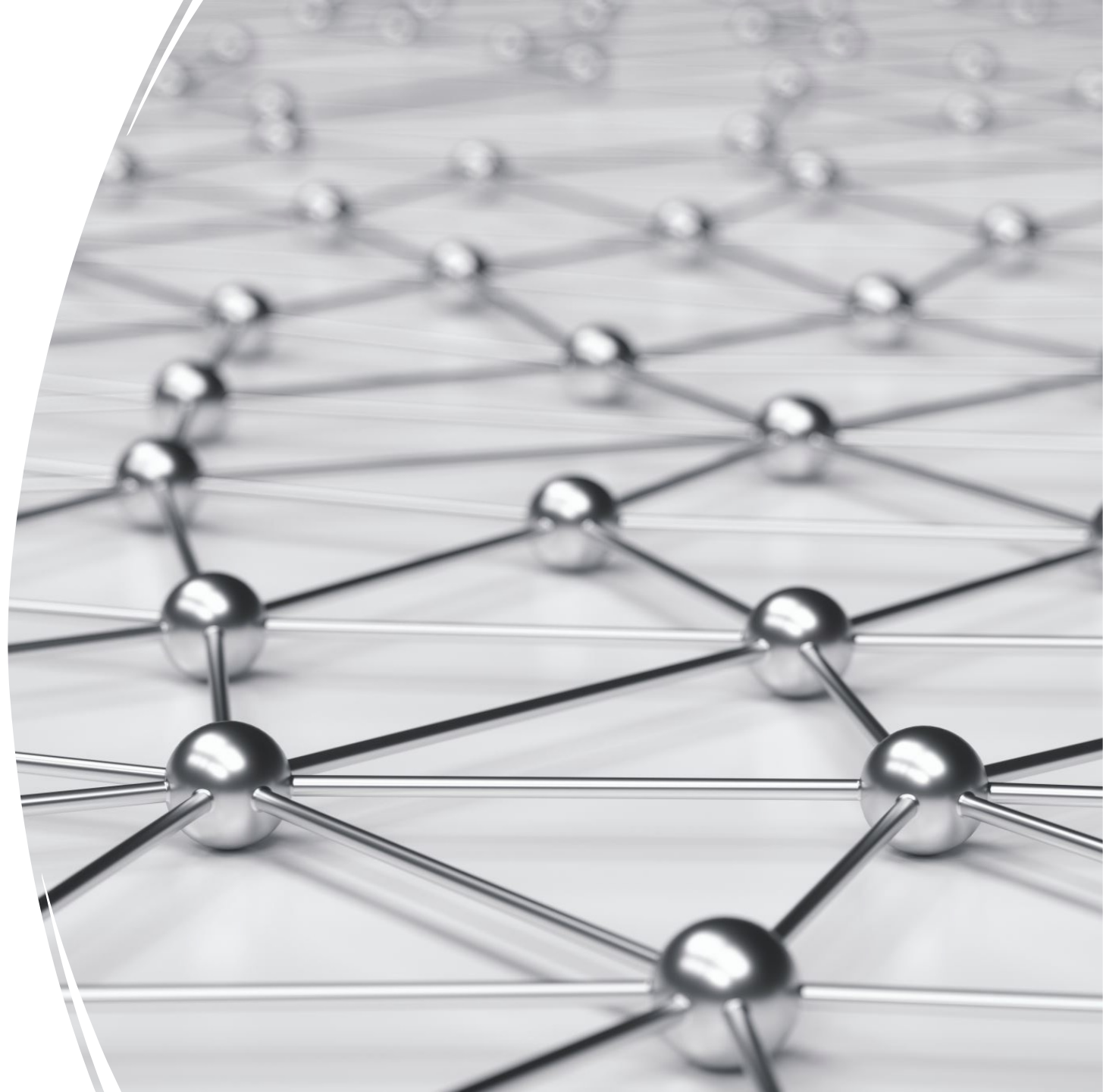
Task overview

- The students are assigned to build and code a rotating globe with the help of LEGO mindstorm and iPads. With this model they will be able to visualize the phenomenon.
- They can choose themselves wich materials they want to use for building the globe.
- Main idea is that they make it tilted and rotating.

Goals and Objectives

- Basic coding
- Problem solving
- Group Work

- The students should get an understanding on how the inclination of the earth effects the seasons and its difference between the northern and southern hemisphere



1. Action plan

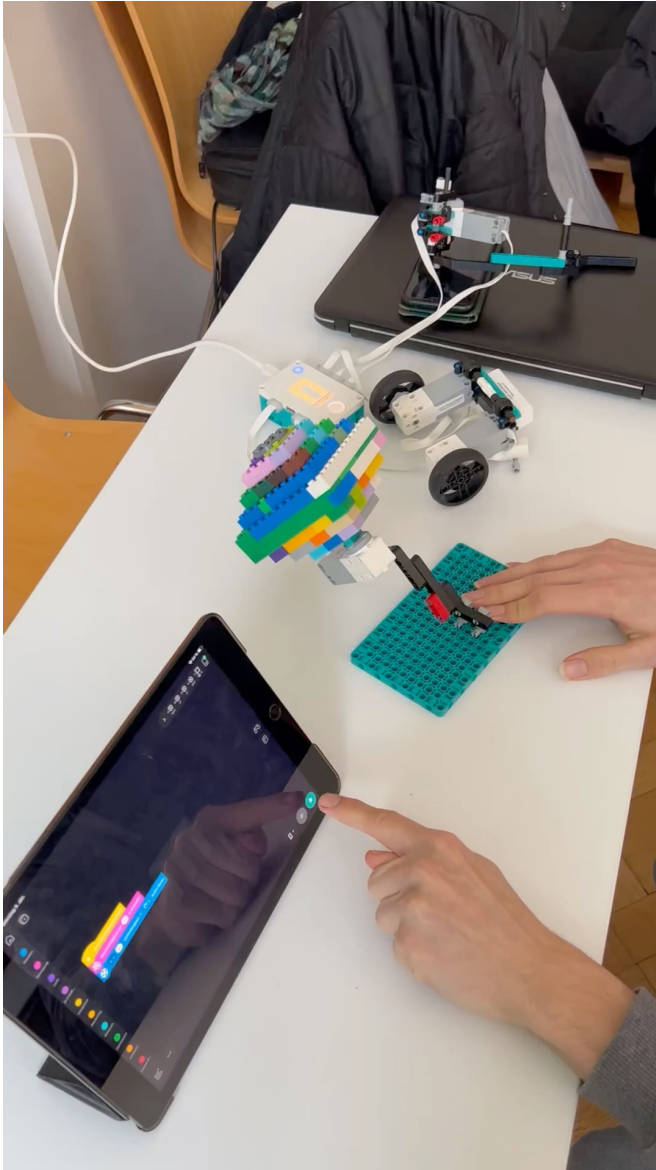
Time frame	Procedure	Interaction format	Materials
~ 5 min	Introduction: watching the digital story	Frontal instruction	Video
~ 30 min	Research behind the project. What the earth looks like, where is Europe and Australia in the globe?	Single Work	iPads
~ 60 min	Revisioning LEGO Mindstorm. The class goes through the app, robots and coding together. Students work with their own table groups (max. 4 students)	Group Work	LEGO sets, iPads
~ 30 min	Students start creating their codes with the app and building the Earth -model	Project Work	LEGO sets, iPads

2. Action plan

Time frame	Procedure	Interaction format	Materials
~ 60 min	Finishing the codes and the Earth -model	Project Work	LEGO sets, iPads
~ 60 min	Showing the results in class. Having discussion about the process of making the project	Group Work	LEGO sets
~ 15 min	Students answer three questions regarding the topic	Single Work	Papers with Questions on it
~ 30 min	Final discussion in class	Project Work	

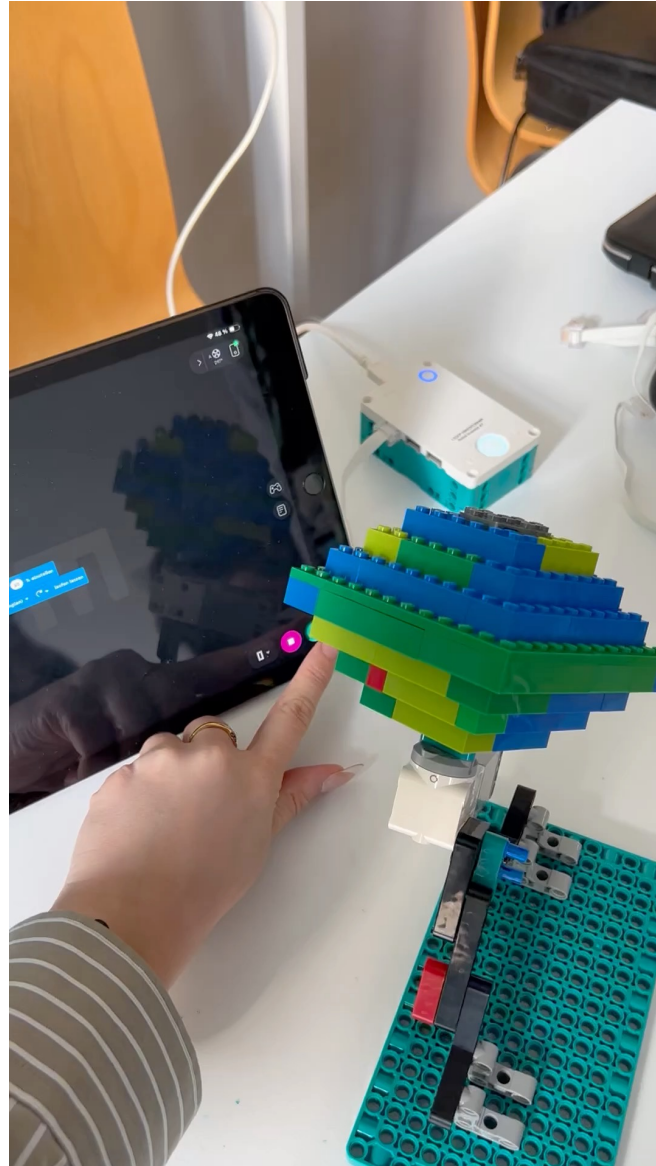
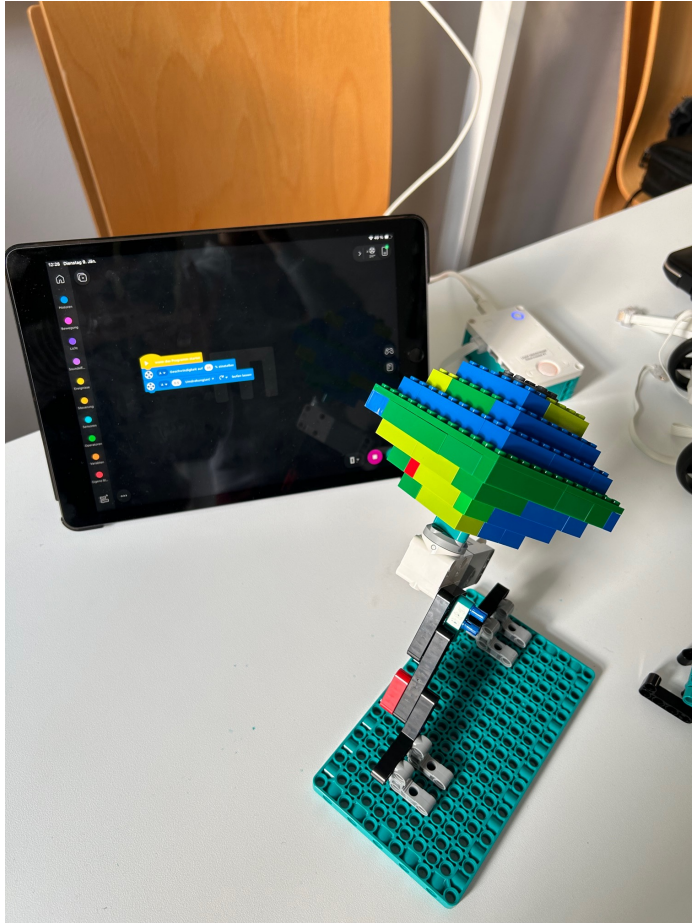
How can we track students' learning?

- Observing students' working process
- During and after the project the students should be able to answer following question:
 - Why is the inclination important for our climate?
 - How would no inclination of the earth effect the seasons?
 - Explain the different climate zones and why the temperatures differ so much between them



Prototype

- Earth spinning way too fast
- Not stable
- Colors are not realistic
- No sunlight



The Final product

- Spinning as wanted
- Stable
- Realistic colors, Australia and Austria marked

