

# Modelling a Healthy Classroom

Veit Berger, Hans-Martin Hilbig



# Agenda

- STEM Education for a Sustainable World
- Why “Modelling”?
- - Video: The CO2 House model

## “Homework” for your break:

- While you are enjoying the break after the presentation, please send us your Top 3 attributes of what “Quality Education” means for you to the panelists via the Chat Window. Thank you!



# STEM Education for a Sustainable World

- Establish a solid, practical knowledge fundament
- Discovery-based learning:
  - Develop new concepts
  - Conduct experiments as a proof-of-concept
- Important thinking skills to develop and train (just to name a few):
  - Critical thinking
  - Logical thinking
  - Abstract thinking
  - Empathic thinking
  - Lateral thinking
- Complexity and latency are the biggest challenges

# Why “Modelling”? (1)

- Modelling is a tool to make sense of the world around us
- Modelling is used to gain knowledge
  
- Representational models (e.g. the CO2 model house)
- Abstract models (e.g. mathematical, computer simulation)
- Figurative models (e.g. map, circuit diagram)
  
- Important methods used in modelling:
  - Simplification (Make complex things simpler)
  - Down-/up-scaling (Make big things smaller and vice versa)
  - Time-scaling(Pressing the “time lapse” or “slo-mo” buttons)

# Why “Modelling”? (2)

- Models are a simplified image of the reality around us
- Potential weaknesses of models:
  - They may not be accurate
  - They rely on the expertise of the people making them
  - Different people may interpret them in different ways
- There is no ‘right’ or ‘wrong’ model
  - Models are suitable or not suitable
  - Models are bound to conditions and have a validity boundary
  - Models are suitable to make predictions

# A Healthy Classroom

- 3/26/2020: Project idea – Improve the climate of a classroom

Objective: Get aware about how the micro-climate in a room populated by a group of people changes over time and how it can be improved

- Summer 2020: Everyone talks about COVID Traffic Light
- November 2020: “A Healthy Classroom” project documentation is released on T3 Europe:  
[https://resources.t3europe.eu/t3europe-home?resource\\_id=3127](https://resources.t3europe.eu/t3europe-home?resource_id=3127)
- February 2021: COVID lockdown continues –  
“Modelling a Healthy Classroom” was born

# Video: The CO2 House Model



The CO2 Model House: <https://youtu.be/HWbzh-h24CE>

# Helpful links

- TI Education Technology Homepage, Documentation  
<https://education.ti.com/>  
<https://education.ti.com/en/guidebook/search/ti-nspire-cx>
- T<sup>3</sup> Europe – Webinars live and on-demand, Documentation, Material Database  
<https://www.t3europe.eu/en/t3-europe/webinars/on-demand>  
<https://ti-unterrichtsmaterialien.net/materialien>
- Python Online-reference with tutorials  
<https://www.python-kurs.eu/>    <https://www.python-course.eu/>
- Gymnasium Löbau – computer science homepage  
<https://gsg-loebau.de/fachbereiche/naturwissenschaften/informatik>
- ... or simply shoot us an email with questions, suggestions, feedback to:  
[hm-hilbig@web.de](mailto:hm-hilbig@web.de)    [v.berger@gmx.de](mailto:v.berger@gmx.de)