

*Learn*  
**STEM**

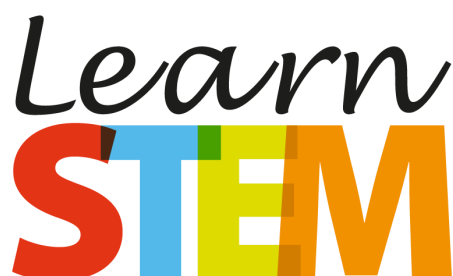
**The Design of  
the Online Course  
Innovative Pedagogy  
for STEM Education**



# Learn STEM

Innovative STEM learning in schools

## The Design of the Online Course Innovative Pedagogy for STEM Education



<http://www.learn-STEM.org>

**Coordinator:**

Open University of the Netherlands (OUNL)

**Project Partners:**

Agora, Roermond (Agora), Kaunas Science and Technology Park (KSTP),  
Kaunas Simonas Daukantas Progymnasium (KSDP), Association Effebi (Effebi),  
Technical University of Applied Sciences Wildau (TUASW), Madan Park (Madan),  
Group of Schools Emidio Navarro (GSEN), Eekhout Academy (Eekhout)

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# Learn STEM

## The Design of the Online Course Innovative Pedagogy for STEM Education

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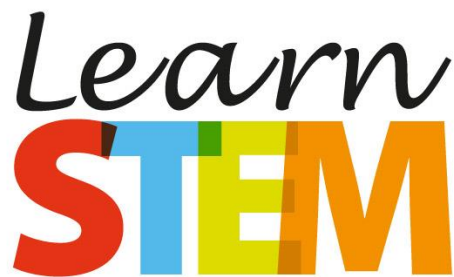
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# Learn STEM

# Learn STEM MOOC Introductory Weeks



<http://www.Learn-STEM.org>

Based on:

<Stracke, C. M. (2018). *MOOC Design Template*. [Online available at [www.mooc-quality.eu](http://www.mooc-quality.eu)]>

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<b>Introductory Weeks</b> (from 12th March 2020 to 25th March 2020)	<b>Introduction to the MOOC Learn STEM:          "Innovative Pedagogy for STEM Education"</b>	
<b>Responsible: OUNL</b>		
<b>Learning objectives:</b> <ul style="list-style-type: none"> <li>• To reflect the structure of the Online Course and your own intentions</li> <li>• To get to know the other online learners</li> <li>• To explore the online learning environment</li> </ul>	<b>Learning activities:</b> <ul style="list-style-type: none"> <li>• To read the introductory text</li> <li>• To discover the content and videos</li> <li>• To fulfil the tasks and assignments</li> <li>• To check the references if interested in further reading</li> </ul>	
<b>Topics of this week, the topic experts and their availability:</b> <ul style="list-style-type: none"> <li>• Introduction to the Online Course and other learners</li> <li>• Your own expectations and intentions for the Online Course</li> <li>• Functionalities and features of the online learning environment</li> </ul>		
<b>Timeplan for this week:</b> <ul style="list-style-type: none"> <li>• Introductory video - no live event</li> </ul>		
<b>Tasks and assignments for this week:</b> <ul style="list-style-type: none"> <li>• Introducing yourself in the discussion forum</li> <li>• Completing our anonymous survey</li> <li>• Getting familiar with the online course platform</li> </ul>		

Subsection 1:

**Start of Introductory weeks**

Unit 1:

**Start of Introductory weeks**

The Introductory weeks starts on 12th of March 2020.

Enjoy the introductory weeks!

## Subsection 2:

### Course structure

#### Unit 1:

### Overview

Our course "Learn STEM: Pedagogical innovations for STEM education" follows a simple structure:

It consists of four weeks with the same format plus an introduction (this section) and an outlook at the end.

Each of the four weeks contains:

1. An introductory text for this week
2. An introductory video for this week
3. The learning objectives of this week
4. The learning activities and tasks of this week for you
5. The optional group work

We are looking forward to our discussion!

On the next page, you can see our introductory video for this week:

If it is not shown automatically, then click on this link:

[http://bit.ly/LearnSTEM2020\\_Introduction](http://bit.ly/LearnSTEM2020_Introduction)

Subsection 3:

**Introductory video**

Unit 1:

**Introductory video**

Introductory Weeks: [www.youtube.com/watch?v=OQieaBmD8EU](http://www.youtube.com/watch?v=OQieaBmD8EU)

Video integrated



## Subsection 4:

### **Learning activities and tasks**

#### Unit 1:

### **Introduction of learning activities and tasks**

We have carefully designed learning activities and tasks for you:

In each week, you will find the learning activities and tasks after the introduction and the video of the week.

Here are the learning activities and tasks for the introductory weeks:

After reading the introduction and watching the video, get involved and explore your learning environment and your peer learners!

For this purpose, we have designed three simple learning activities and tasks for you.

On the following pages, you will find these three learning activities and tasks to get started with your online course: Enjoy!

## Unit 2:

### **Learning Task 01: Introduce yourself!**

First, introduce yourself in the discussion forum.

Click on "Discussion" in the navigation above and select the discussion forum "My\_Introduction".

Add a new discussion item by clicking on the button "Add a Post". Use your name as title and tell us what made you interested in the topic of this course. explain your interest in this course. Share some information about yourself, your own experiences with STEM education and your course expectations. Share relevant information about your personal background, your experience with teaching, learning and technology as a student and as a teacher. And you can also attach a photo of yourself if you wish.

When you have finished writing your post, then click on the button "Submit" on the bottom of the page and ignore any error message that may be shown on the top of the page afterwards: If you click on "Discussion" and then select the discussion forum "My\_Introduction", you will see that your post was saved correctly.

And meet your co-learners: Are there a lot of common areas of interest, experience and expertise? Read contributions of other course participants and respond to those you find interesting. Try to distill commonalities and differences between participants.

We are looking forward to your personal introduction and our discussions!

**Add discussion:** Introductory Weeks - Learning Task 01: Introduce yourself!

### Unit 3:

#### **Learning Task 02: Complete our survey!**

Second, complete our anonymous survey:

We have carefully designed it to support you in your course preparation and self-reflection on your own expectations and goals.

Simply click on the following link and answer only a few questions:

<https://forms.gle/F4y1r2vQbryZmxpv9>

Thank you very much for your answers!

And you can directly see and compare the answers from all other learners afterwards.

**Add discussion:** Introductory Weeks - Learning Task 02: Complete our survey!

## Unit 4:

### **Learning Task 03: Get familiar!**

Third, get familiar with and explore the course platform here that we will use for demonstrations in the following weeks.

Have look on all navigation items and try them out: You can also create additional discussion threads or ask questions in the "General" discussion forum or a selected specific discussion forum.

**Add discussion:** Introductory Weeks - Learning Task 03: Get familiar!

## About Learn STEM, the European Alliance for Innovative STEM learning in schools:



We need innovative and better school education in Science, Technology, Engineering and Mathematics (STEM) as key sectors for our future life, work and society. The European Alliance **Learn STEM** focuses their interrelation and integration in cross-disciplinary and reflective STEM education and pedagogical methodologies. Main goal of **Learn STEM** is to improve the quality and efficiency of STEM learning in secondary schools. Consequently, **Learn STEM** is increasing the pupils' interest in STEM and building STEM competences. Therefore, **Learn STEM** designs and provides pedagogical methods and tools for secondary schools to explore and solve real life questions. Thus, **Learn STEM** supports and contributes to the key objective of the European Education and Training 2020 Strategy (ET 2020) that fewer than 15% of 15-year-olds should be under-skilled in reading, mathematics and science.

Moreover, the **Learn STEM** project also addresses the need to enhance knowledge of and about science as a precondition to prepare Europe's population to be actively engaged, responsible citizens as well as conversant with the complex challenges facing society. In the PISA study 2015, most students expressed a broad interest in science topics and recognised the important role that science plays in their world; but only a minority reported their participation in science activities. In addition, teachers still declare they need more professional development linked to tailoring, diversifying, and innovating teaching practices. Thus, **Learn STEM** is strengthening secondary schools' capacity to develop skills in subjects such as science, technology, engineering and mathematics through innovative and interactive pedagogical methods and approaches. Therefore, **Learn STEM** designs and provides practical instruments and online tools for secondary schools and their teachers and pupils to explore and solve real life questions.

Under the leadership of the coordinator Dr. Christian M. Stracke from the Open University of the Netherlands, **Learn STEM** brings together nine Partners from six European countries. They are collaborating for innovative STEM education and have developed the [Learn STEM Pedagogical Model](#), the [Inquiry learning package](#), a [teacher training programme](#) and an [online course](#). These instruments are tested, evaluated and continuously improved in close cooperation with hundreds of STEM experts and school teachers. All **Learn STEM** results and achievements are openly and freely available on the **Learn STEM** website online:

<http://www.Learn-STEM.org>

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**Erasmus+**

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