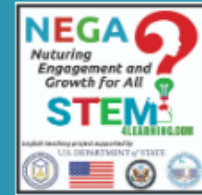


What is STEM - Video Lessons



A collection of short videos explaining the core concepts of STEM including the science and engineering practices and cross-cutting concepts.



This is a series of 17 videos produced in 2020 as part of a project supporting a growing STEM program at School #12 in Bukhara, Uzbekistan. Each video is approximately five minutes long, and they are organized into 6 modules. Each lesson was recorded in English and Russian, however the slide content is identical in both versions (apologies for my less than perfect Russian!). All videos have been uploaded to youtube and can be accessed for playback with the links below. Anyone is welcome to download the English videos, they are available as .mp4 files through the Teachable online education platform and can be found at stem4learning.teachable.com (you will need to join the free course for access).

[Course Overview PDF](#) - provides a short synopsis of each module's videos

Module 3 The 7 Cross Cutting Concepts

With so much content to teach in STEM, these videos are designed to explore the big ideas that should be the focus of your STEM teaching, in the Next Generation Science Standards we call these the cross cutting concepts. They are patterns, cause and effect, scale, proportion and quantity, systems and system models, energy and matter, structure and function, and stability and change.

С таким большим количеством контента для обучения STEM, эти видеоролики предназначены для изучения больших идей, которые должны быть в центре вашего обучения STEM. В научных стандартах нового поколения мы называем это сквозными концепциями. Это закономерности, причина и следствие, масштаб, пропорция и количество, системы и модели систем, энергия и материя, структура и функция, стабильность и изменение.

Big Ideas:

- **Intro to 7 Crosscutting Concepts**
- **What are the 7 Concepts**
- **How would we model these?**
- **What questions help students start to learn these?**
- **Какие вопросы помогают учащимся начать их изучать?**
- **Введение в 7 сквозных концепций**
- **Что представляют собой 7 концепций**
- **Как можно было бы их смоделировать?**

English Versions

- [3A - Concepts via Models \(5:59\)](#)
- [3B - Questions for Concepts \(9:56\)](#)

Русские версии

- [3А — Концепции через модели \(7:43\)](#)
- [3В - Вопросы для понятий \(9:17\)](#)