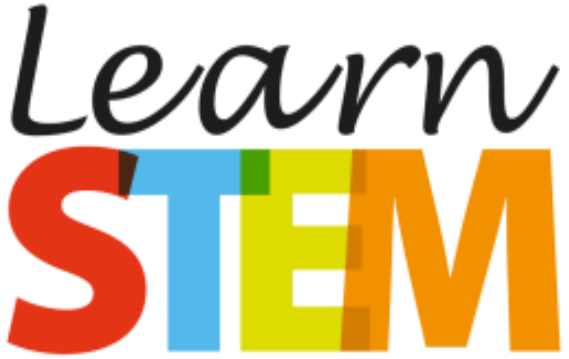
Learn STEM Online Course



Week 2: Learner-centred STEM Education

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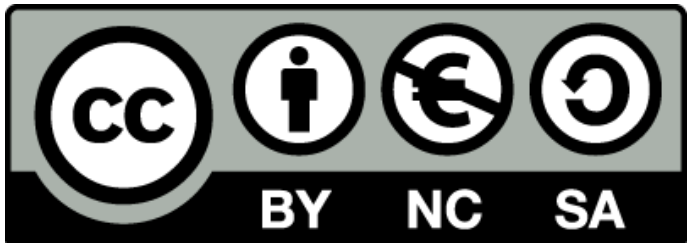

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Week 2: Learner-centred STEM Education

1. Analysing the four phases for learners
2. Discussing projects of learner-centred STEM education
3. Testing innovative instruments and tools

1. Analysing the four phases for learners

Overall structure for Learn STEM phases

Overall structure:

Phases for the **learners**

- Iterative cycles:
- Discover - Explore - Apply - Reflect and then improve (going back)

Discussion of the Learn STEM phases

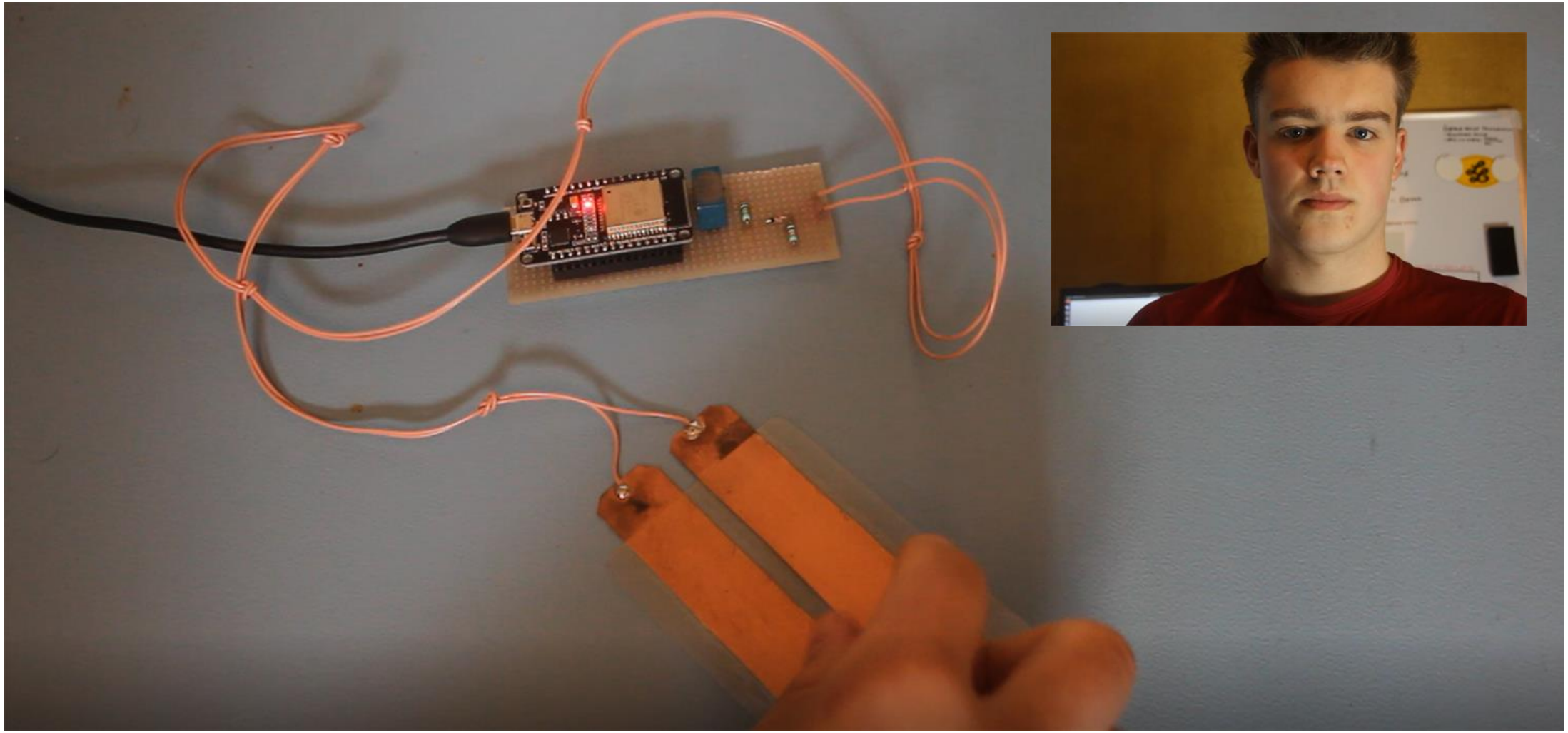
What do you think?

2. Discussing projects of learner-centred STEM education

Video 1: The Pine Race

Video 2: The Tiny House

Video 3: Microcomputer Programming



Discussing learner-centred projects

Think about your own learner-centred projects developed or used in your STEM education: What are good examples from your lesson plans and learning tasks for your pupils?

Please select & upload good learner-centred projects with interesting samples of learning activities and tasks from your learner-centred STEM education.

Or describe them using our Case template from week 1.

3. Testing innovative instruments and tools

Testing innovative instruments & tools

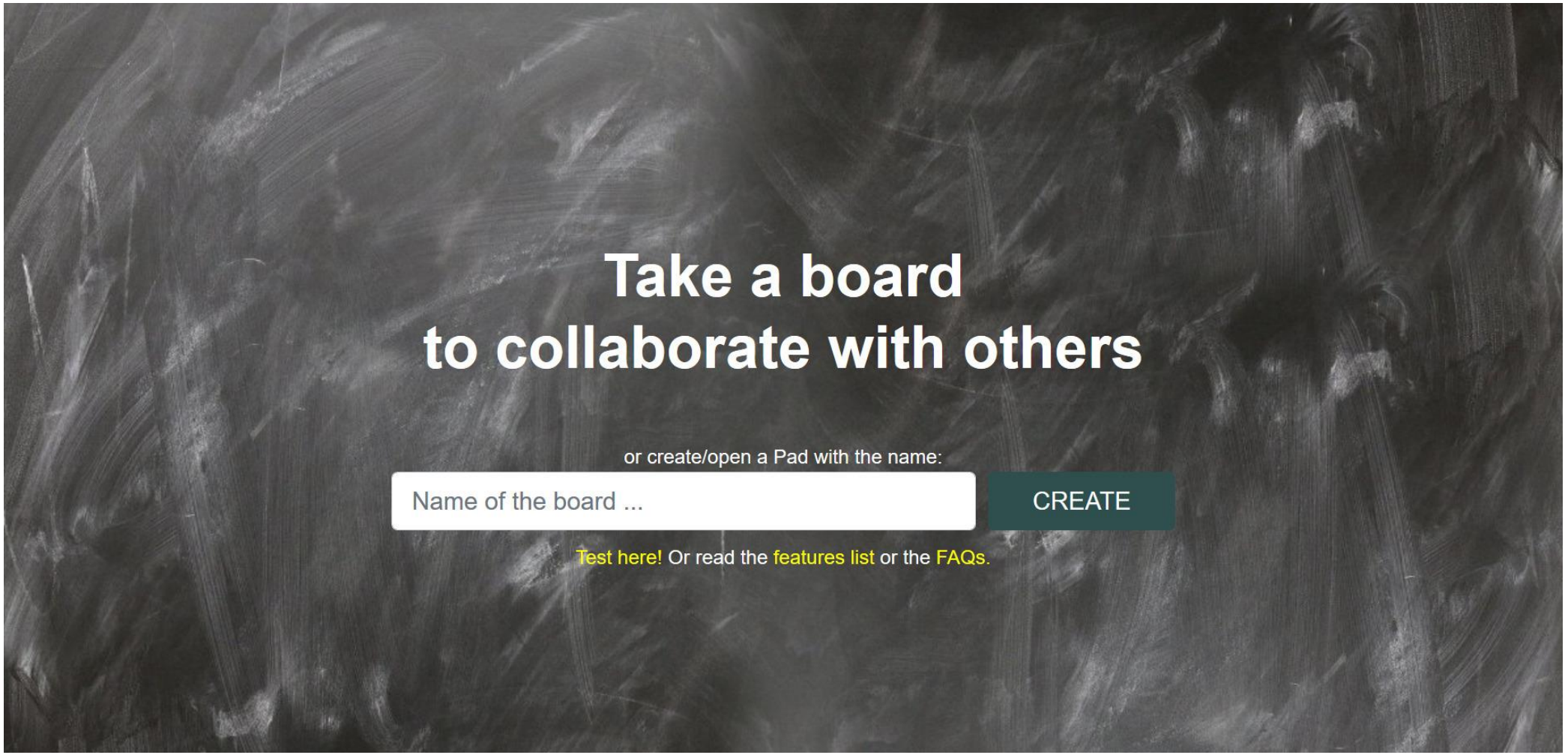
1. Our Inquiry Learning Package
2. Online boards for collaboration
3. Online tools for creating videos
4. Collections of different tools

1. Our Inquiry Learning Package

1. Our Inquiry Learning Package

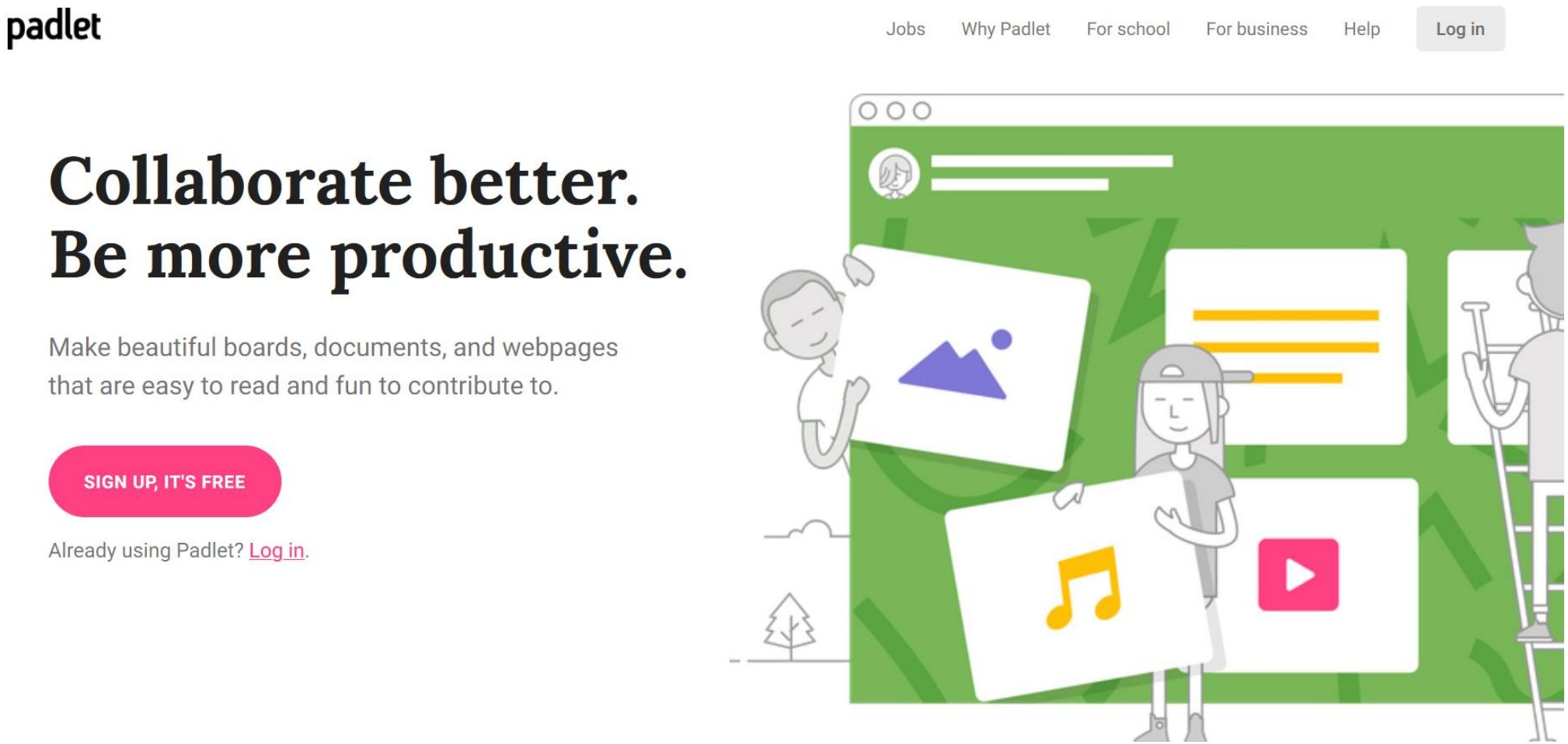
The Inquiry Learning Package provides
12 tools and examples
for Innovative STEM Learning and Teaching
and in particular for the application of Learn STEM
Online available at www.Learn-STEM.org/Model

2. Online boards for collaboration



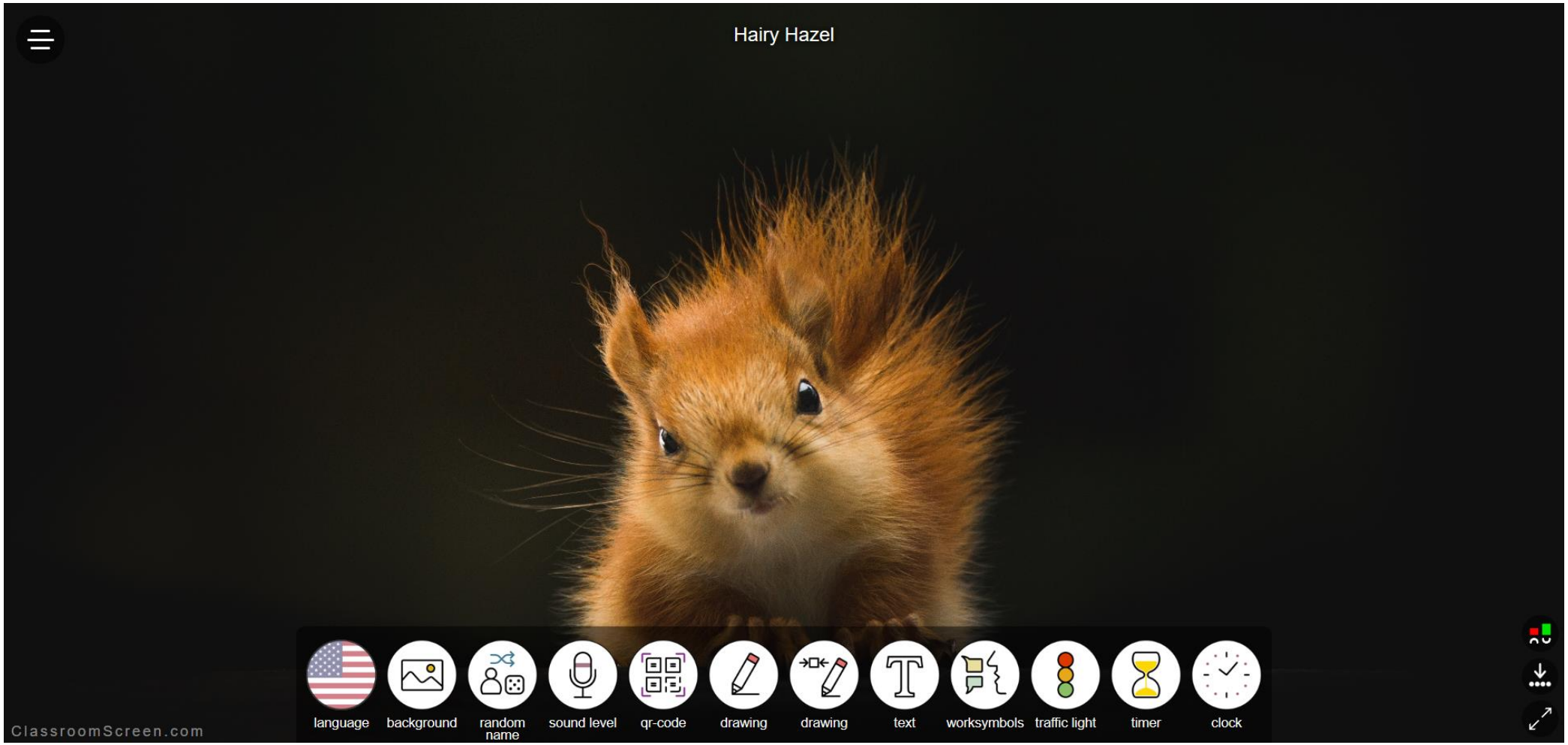
http://board.net

2. Online boards for collaboration



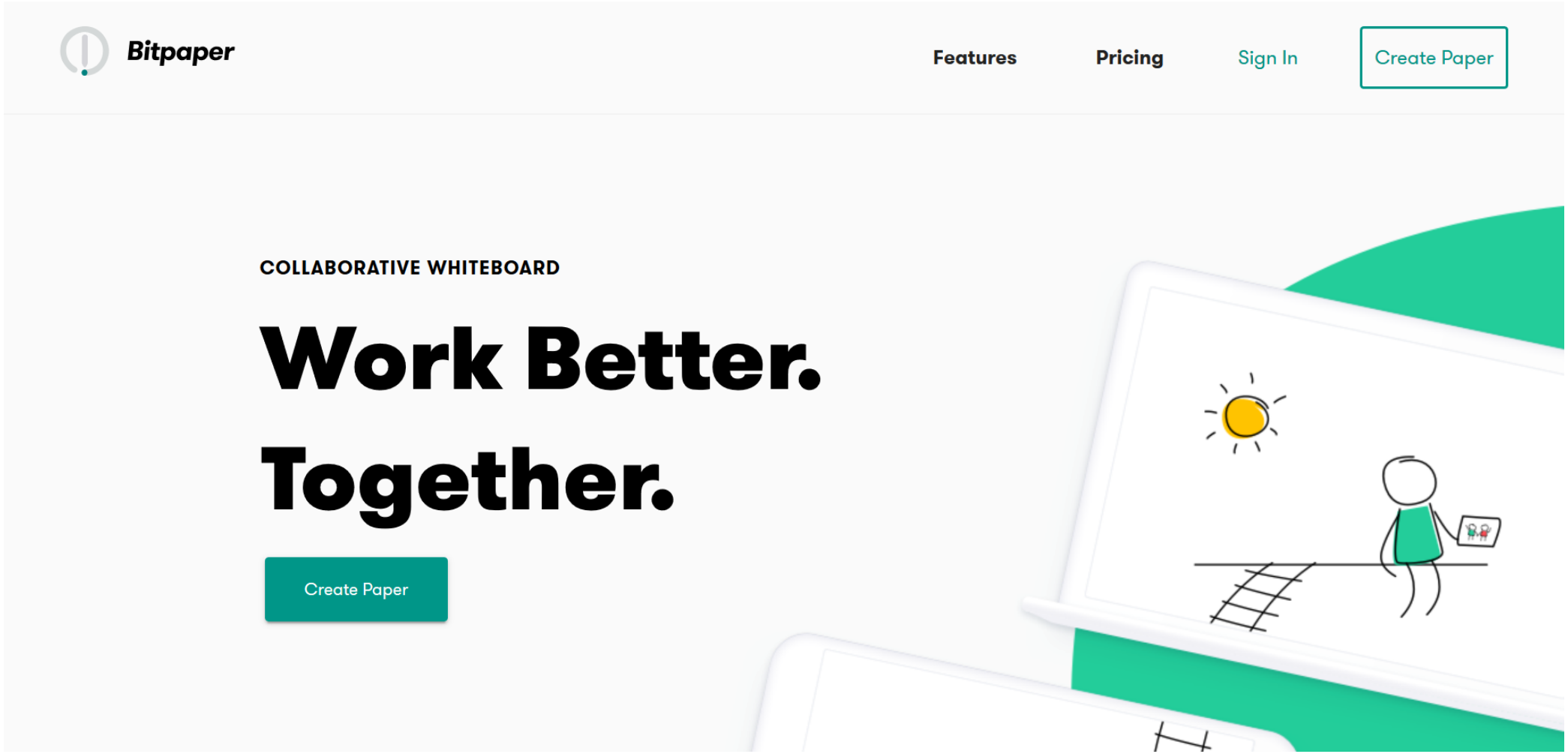
http://padlet.com

2. Online boards for collaboration



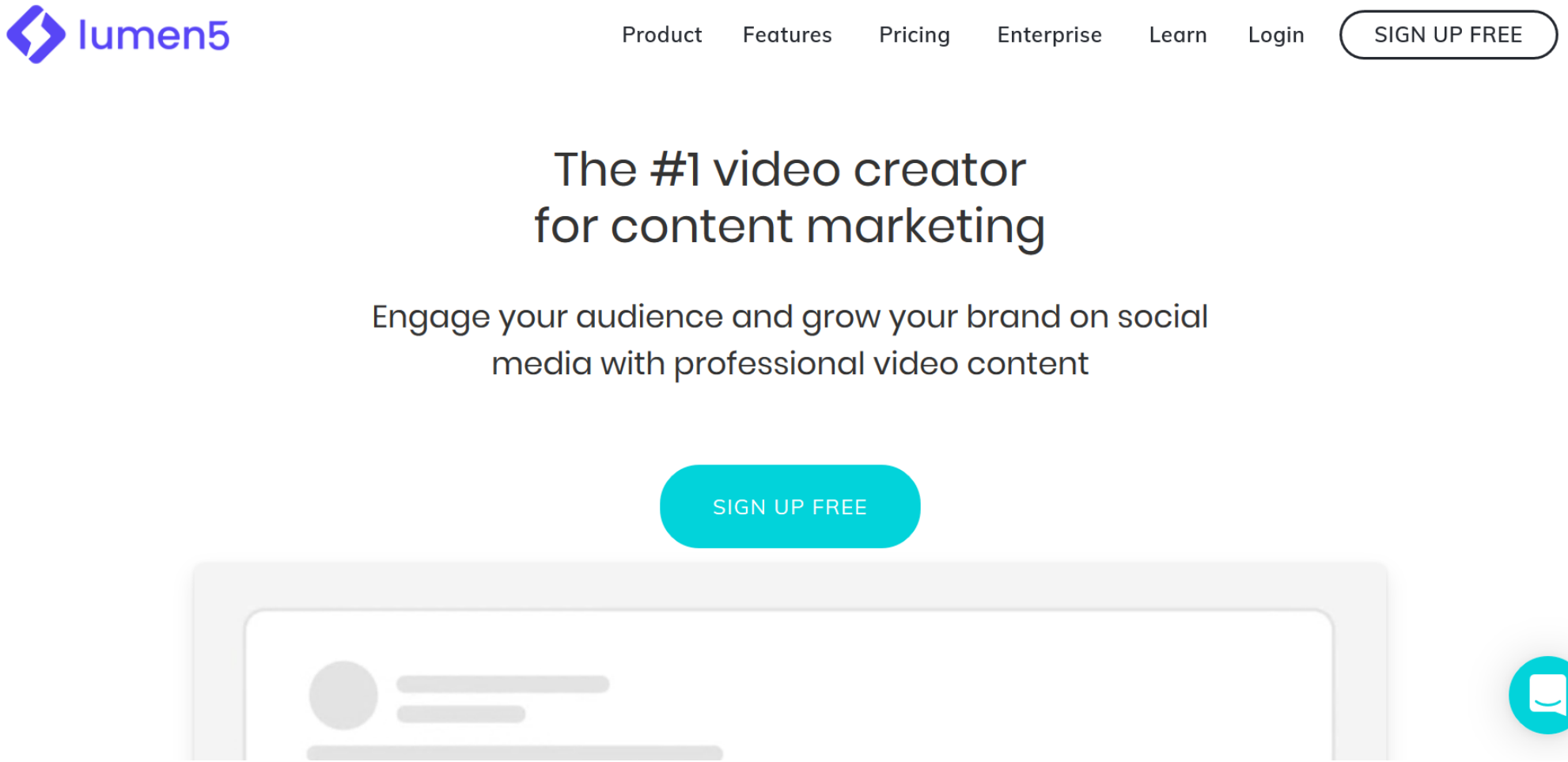
http://classroomscreen.com

2. Online boards for collaboration



https://bitpaper.io

3. Online tools for creating videos



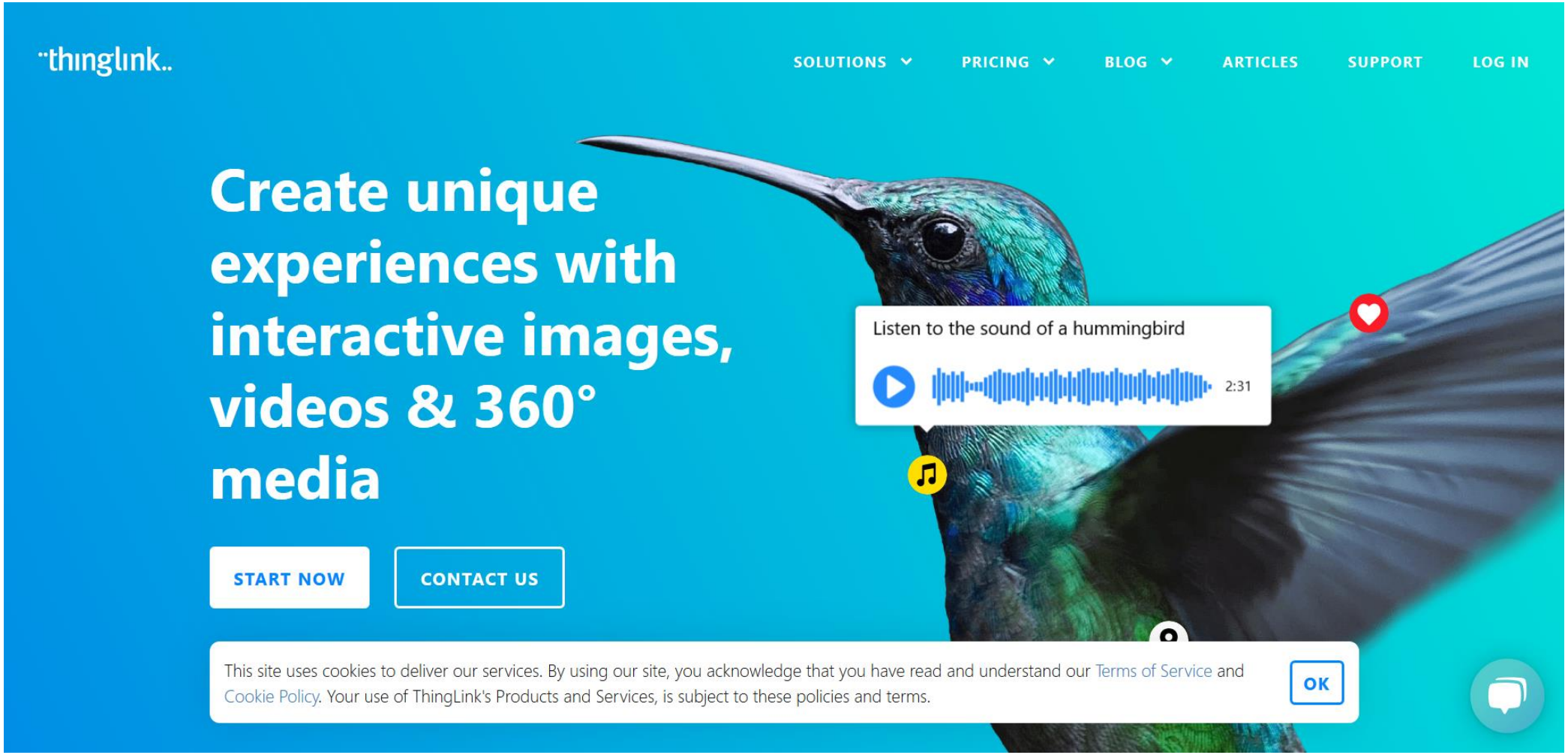
https://lumen5.com

3. Online tools for creating videos

TextingStory

http://textingstory.com

3. Online tools for creating videos

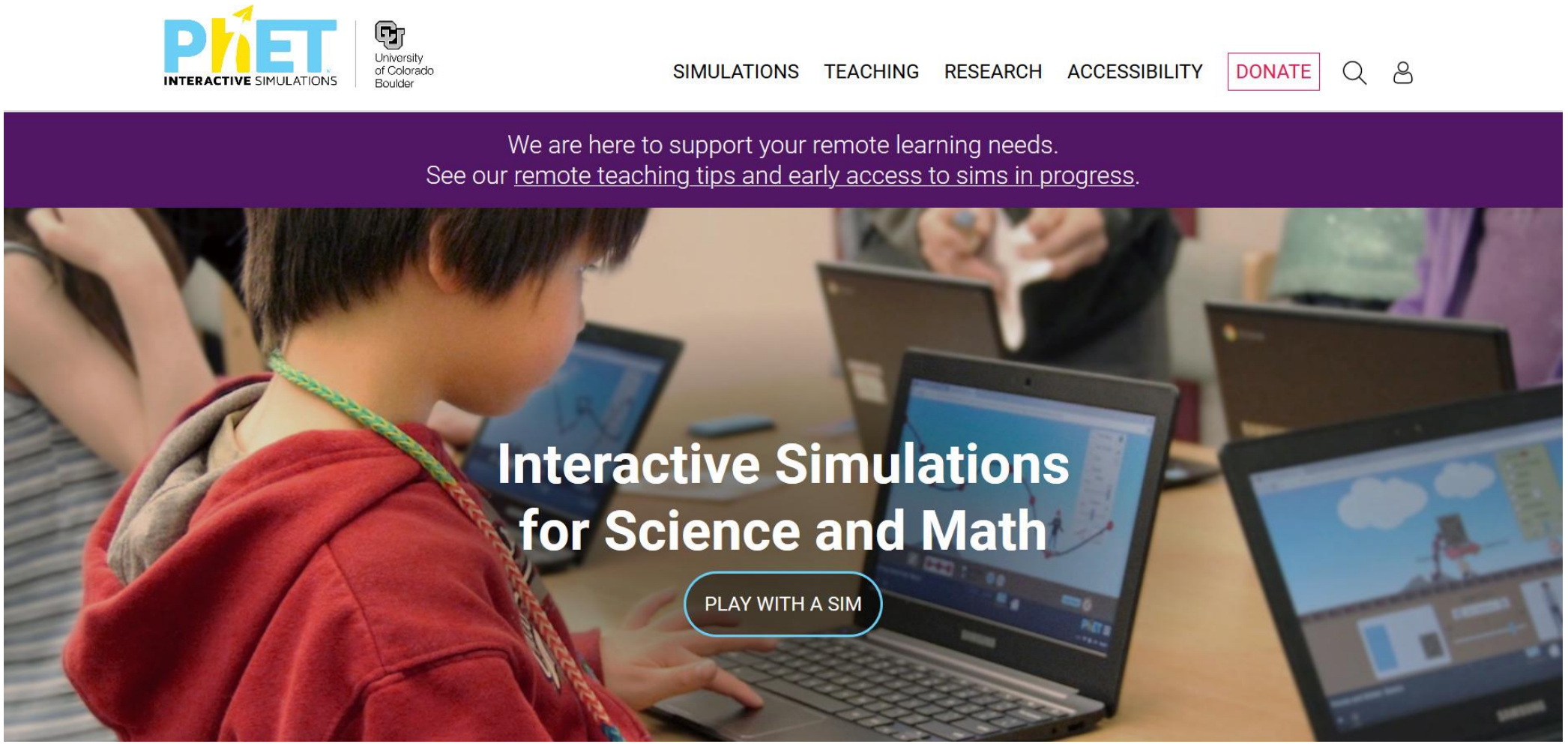


https://www.thinglink.com

3. Online tools for creating videos

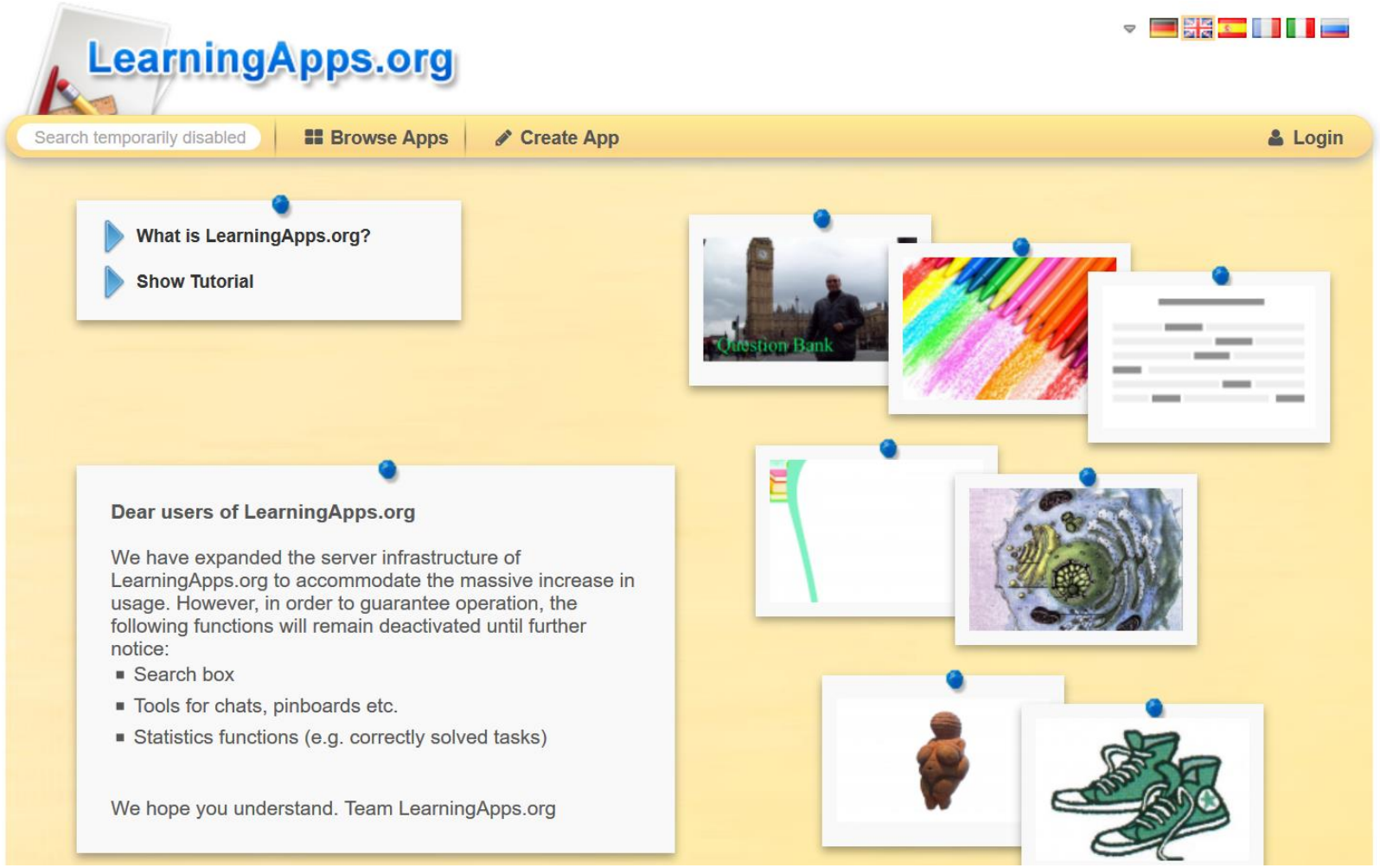
https://www.mysimpleshow.com

4. Collections of different tools



https://phet.colorado.edu

4. Collections of different tools



http://learningapps.org

4. Collections of different tools

http://plasq.com

Testing innovative instruments & tools

Our task for you:

Think about your own good practice examples and cases and your instruments and tools that you use for learner-centred STEM education.

Please share and upload them into the shared folder "Week 2 – Good practice examples and cases"

Literature and materials

Literature

- Stracke, C. M., van Dijk, G., Fasen, J., Lisdat, F., & Simoens, W. (2020). A Holistic Pedagogical Model for STEM learning and education inside and outside the classroom. In HCI International 2020 Conference Proceedings. Springer Lecture Notes in Computer Science (LNCS). (accepted, in print).
- Stracke, C. M. (2015). The Need to Change Education towards Open Learning. In C. M. Stracke & T. Shamarina-Heidenreich (Eds.), The Need for Change in Education: Openness as Default? (pp. 11-23). Berlin: Logos. doi:10.5281/zenodo.3735757 Retrieved from http://opening-up.education/publications/stracke-c-m-2015-the-need-to-change-education-towards-open-learning

Literature

And some recommendations for further reading:

- Harlen, W. (Ed.). (2015). Working with Big Ideas of Science Education. Trieste: Global Network of Science Academics (IAP) Science Education Programme. Retrieved from: www.ase.org.uk/bigideas .
- Schweisfurth, Michele (2019). Is learner-centred education 'best practice'? UNICEF Think Piece Series: Improving Classroom Practice. UNICEF Eastern and Southern Africa Regional Office, Nairo. Retrieved from https://www.unicef.org/esa/sites/unicef.org.esa/files/2019-08/ThinkPiece_9_LearnerCentredEducation.pdf
- Van Dijk, G., Delheij, A., French, M., Erin, H., Kodras, M., Miller, J., Wijnands, W. (2016). The Agile in Education Compass. Retrieved from: http://www.agileineducation.org

Materials

You can find all materials of week 2
in our shared online folder:

https://surfdrive.surf.nl/files/index.php/s/8s3SWzVIokWFBep

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