Disseminating A Toolkit for NGSS

Aligning the Science Teacher Education Pathway: A Networked Improvement Community

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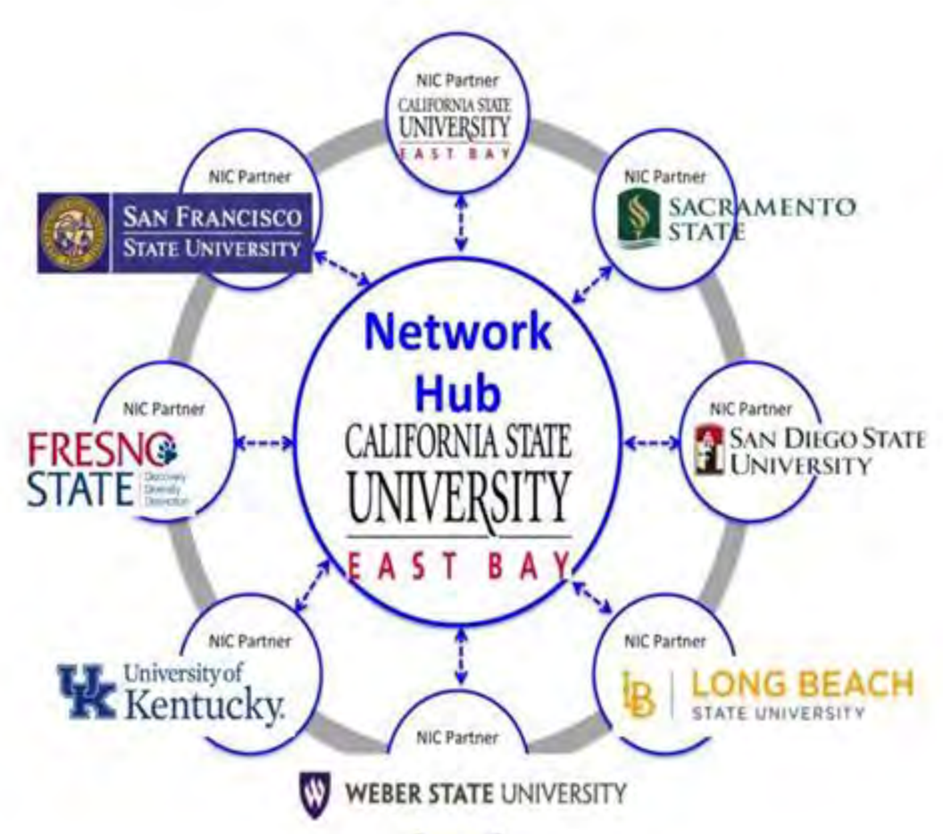
The NIC

The project, Aligning the Science Teacher Education Pathway (A-STEP): A Networked Improvement Community (NIC) was formed to address gaps in teacher training. It is an Implementation and Improvement Study proposal within the Teaching Strand of the DRK-12. **This NIC is a vehicle to bridge gaps** across four identified steps along the science teacher training and development pathways within local contexts of **8 participating universities** (NIC sites) (See "Steps in ASTEP").



The "STEPS" in ASTEP

The **ASET Toolkit was designed** in a prior project (DRL####) to **provide a common set of scaffolds for discourse** and **implemented across 4 steps of a pathway** on which teachers are trained that we identified.

THE A-STEP PROJECT FOCUSES ON ALIGNMENT ACROSS FOUR KEY STEPS OF THE SCIENCE TEACHER EDUCATION PATHWAY.

STEP 1: UNIVERSITY SCIENCE TEACHING METHODS COURSES

The ASET Toolkit is used to foster discussions in the science methods courses of how to design and enact NGSS aligned lessons

STEP 2: CREDENTIAL CANDIDATE FIELDWORK EXPERIENCES

Collaborate with university supervisors and cooperating teachers to implement use of the ASET Toolkit to better align classroom instruction with the goals of NGSS and to facilitate post observation discussions around this alignment

STEP 3: INDUCTION PROGRAMS

Collaborate with district level induction programs and training within the first 3 years of entry into the profession to include use of the ASET Toolkit to bridge the lessons from these credential programs into these district level trainings

STEP 4: DISTRICT PROFESSIONAL DEVELOPMENT

Collaborate with local school districts to implement use of the ASET Toolkit as part of the existing professional development (PD) efforts for inservice science teachers

Our initial goals for dissemination included the following:

- **Presentations** at state and national conferences (remotely and face to face).
- Sharing of practitioner-based tools and training to support science teacher planning during **professional development**
- **Manuscripts** for science teacher educator journals or NSTA journals.

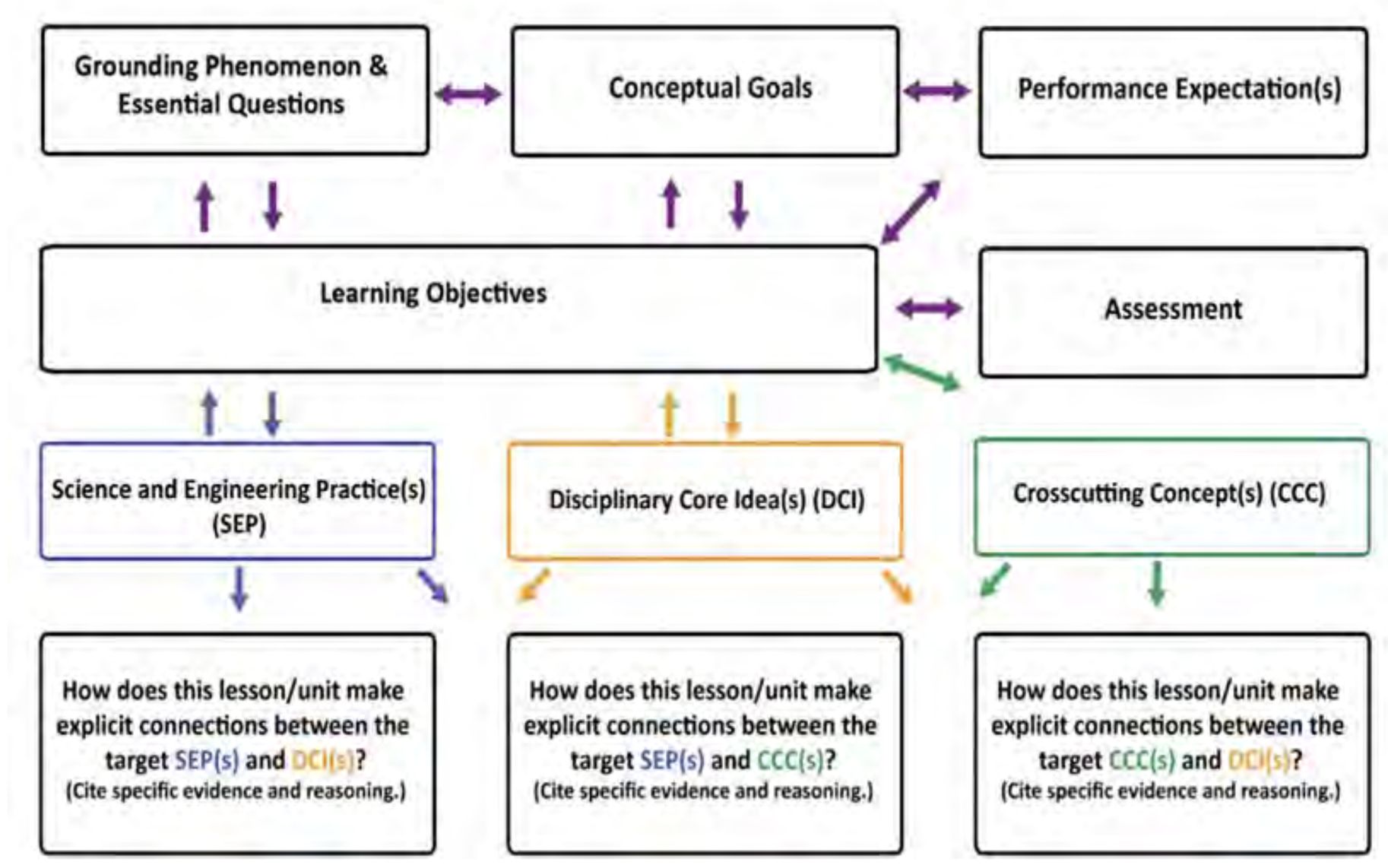
Our website lists our many accomplishments along these lines.

We realized we needed to **reach classroom practitioners** and **science teacher educators** with a variety of **visual and accessible outcomes** and examples of applications of our Toolkit.

What is in our Toolkit?

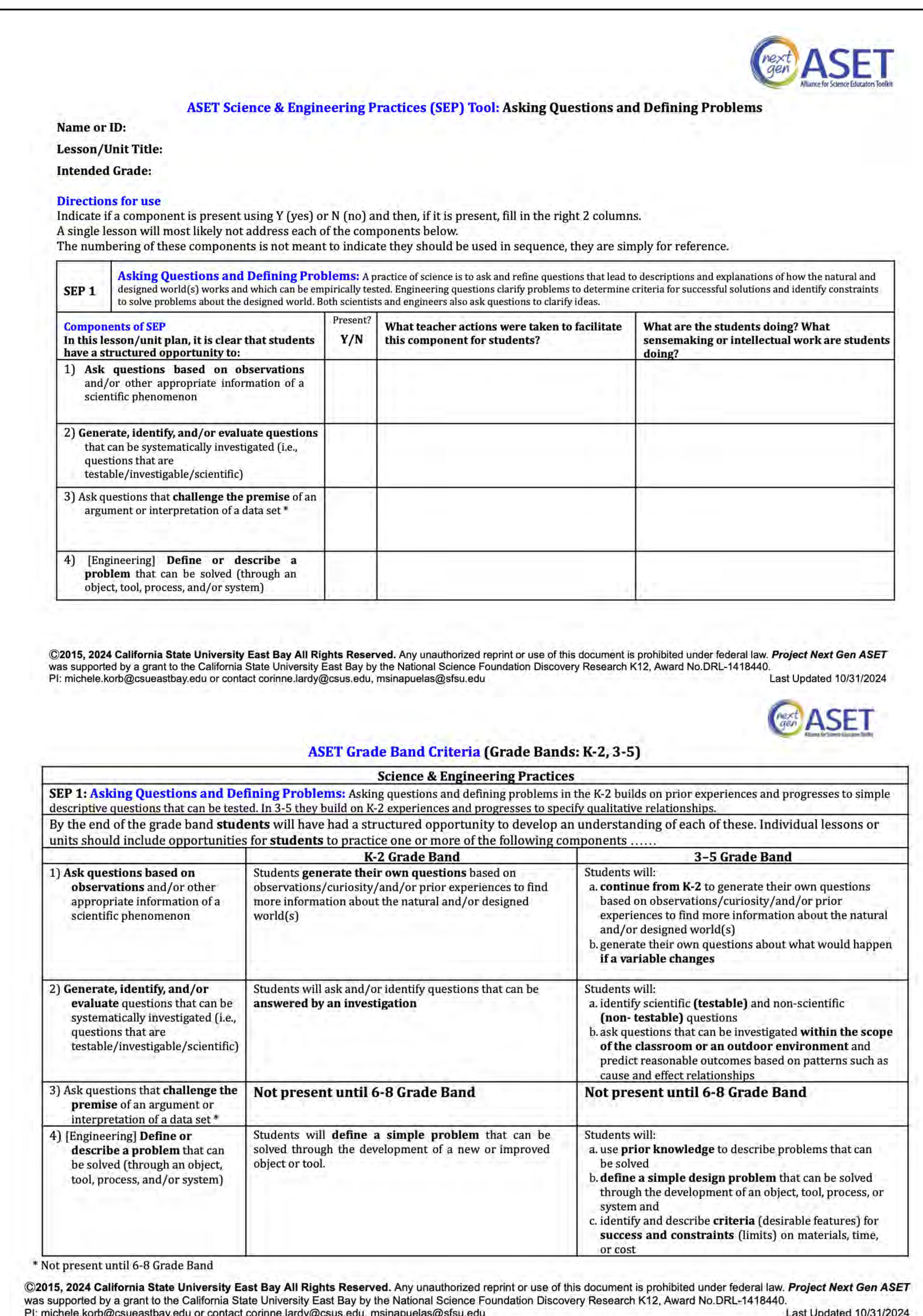
3-Dimensional Mapping Tool (3D Map)

Visual scaffold for planning or unpacking NGSS curriculum, making clear connections to a phenomenon



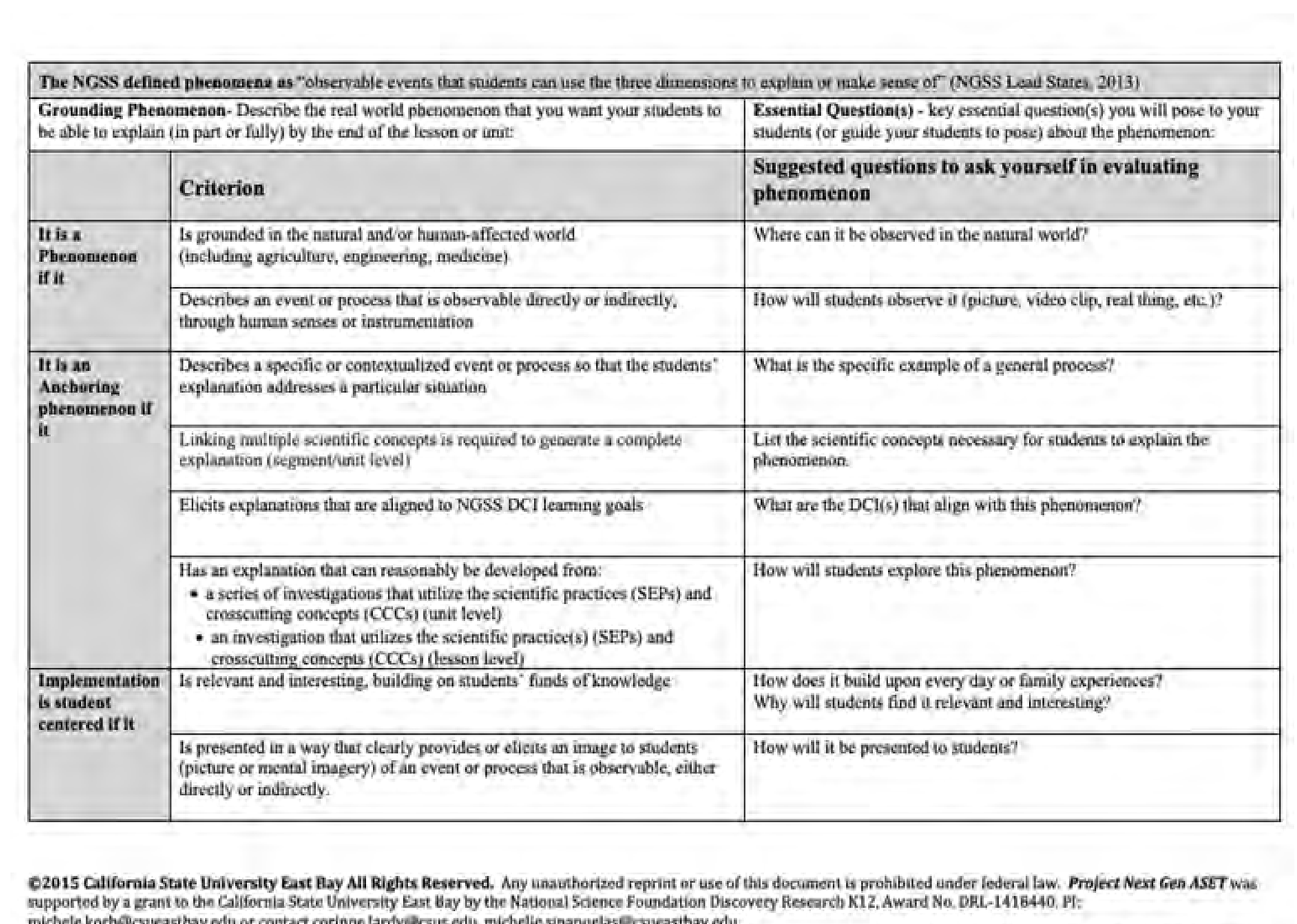
Science and Engineering Practices (SEP) Toolkit (sample)

Divides each SEP into components for accessible discourse, planning and unpacking NGSS curriculum. (K-2, 3-5, 6-8 and 9-12 grade bands).



Phenomenon Tool

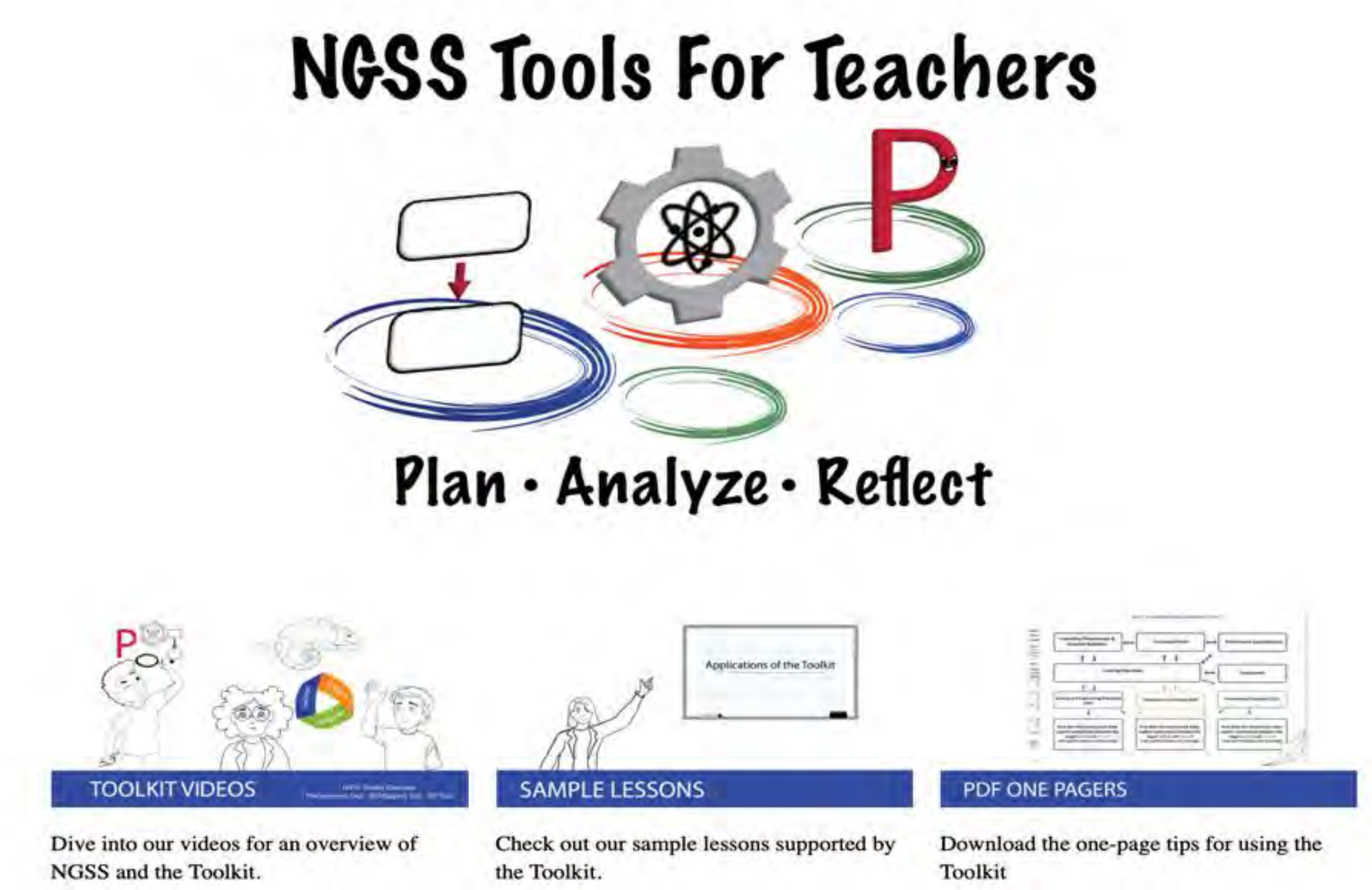
Scaffolds the identification of a clear and accessible phenomenon statement to anchor unit/ lesson structures



Beyond Pubs, Presentations and "Steps"

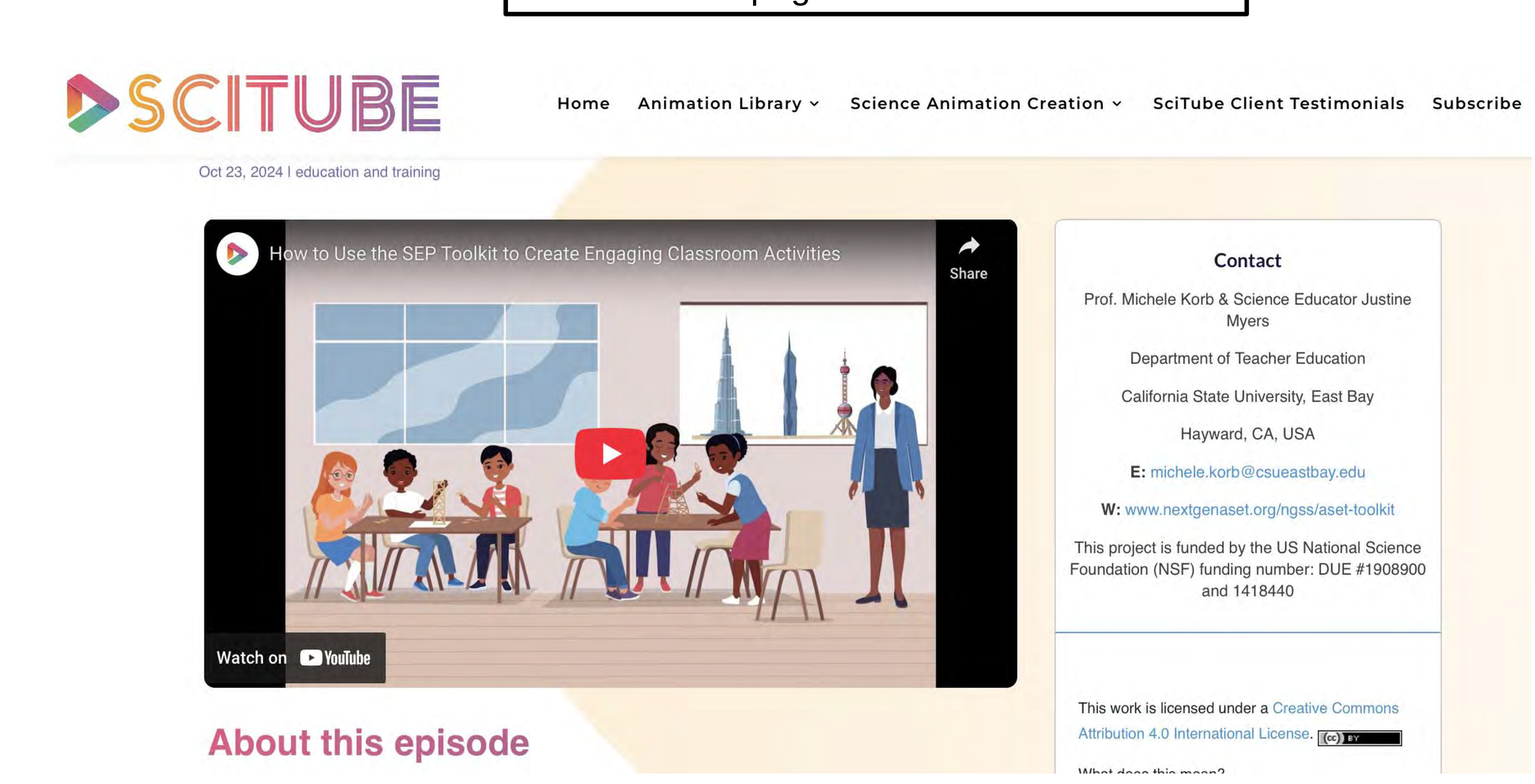
Website and YouTube Channel

New dissemination modalities stemming from research, work with preservice teachers, university supervisors and science classroom practitioners

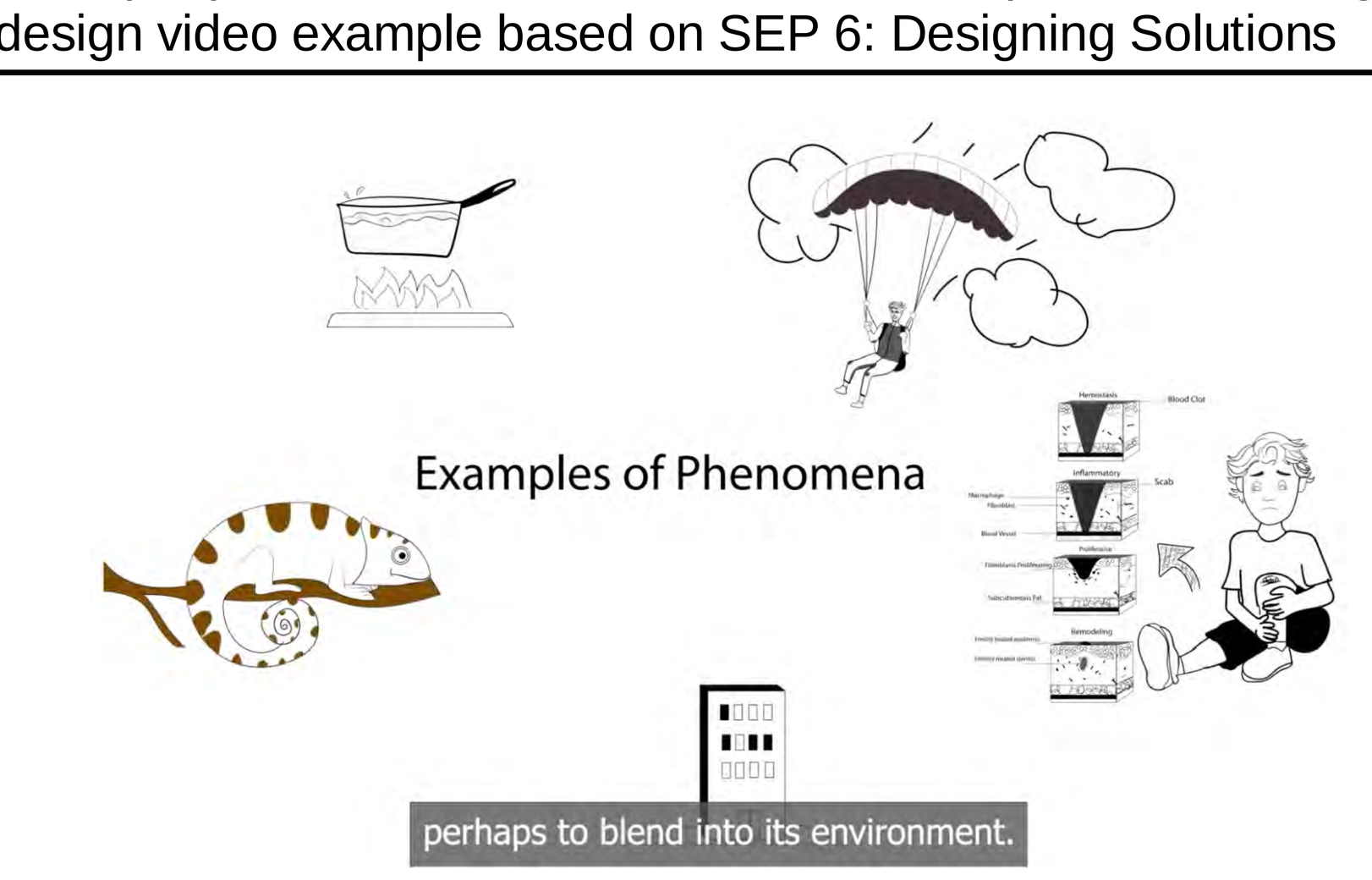


Website homepage

Website homepage: links to YouTube videos



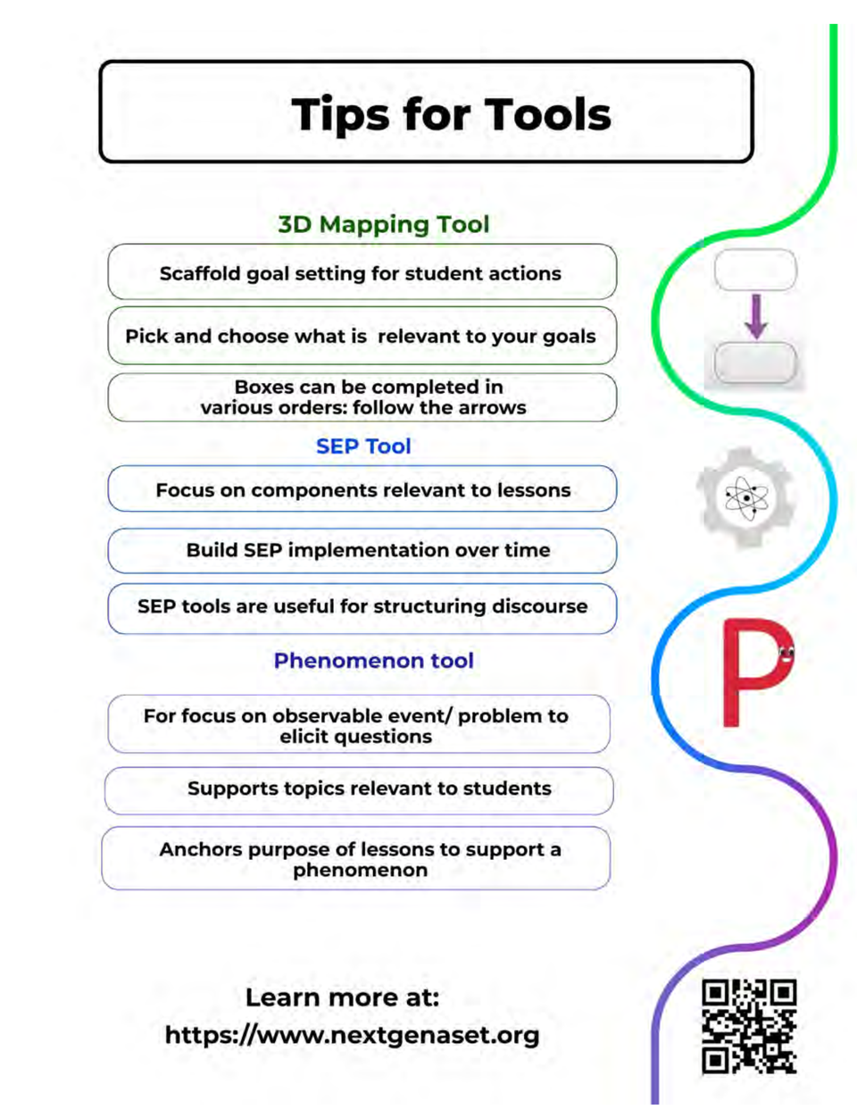
SciTube, a company from the UK, reached out to us to produce this engineering design video example based on SEP 6: Designing Solutions

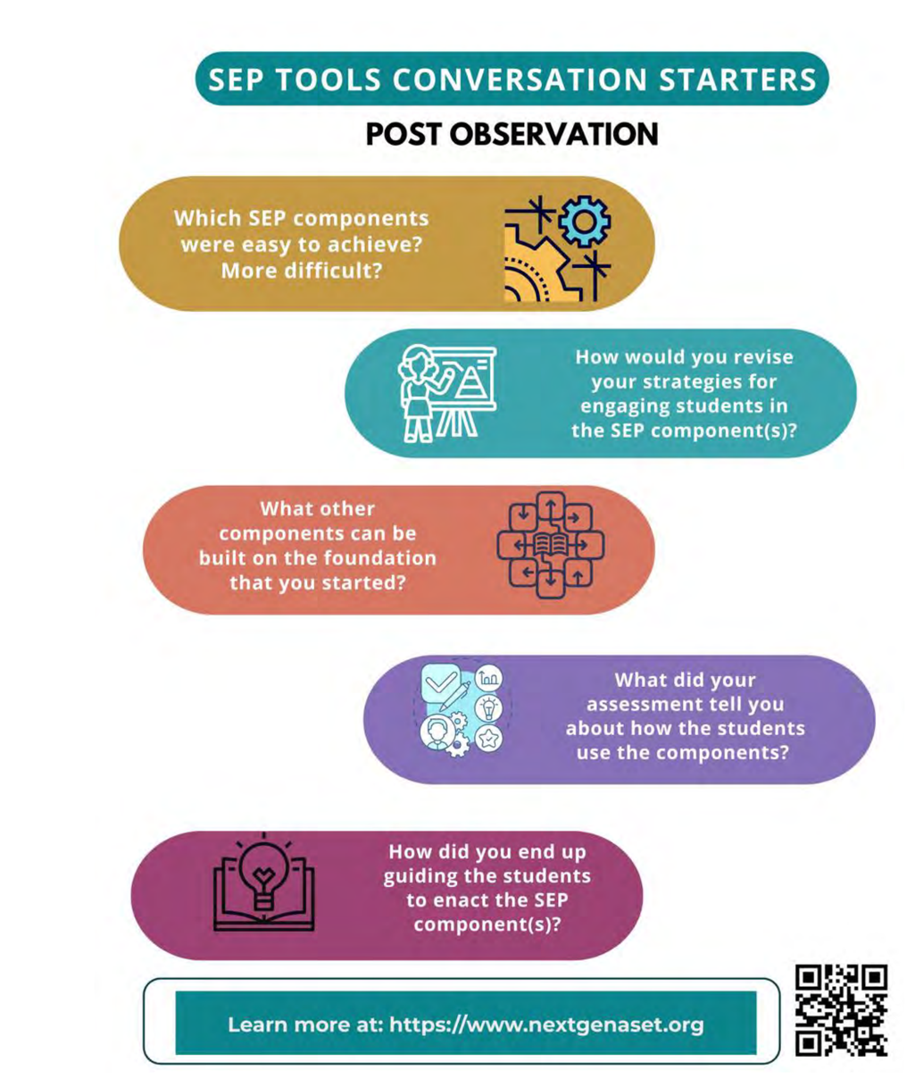


Sample scene from one of our 5 videos that unpack the NGSS, the Toolkit, the 3D map, the SEP Tools and the Phenomenon Tool.

Lessons learned and next steps

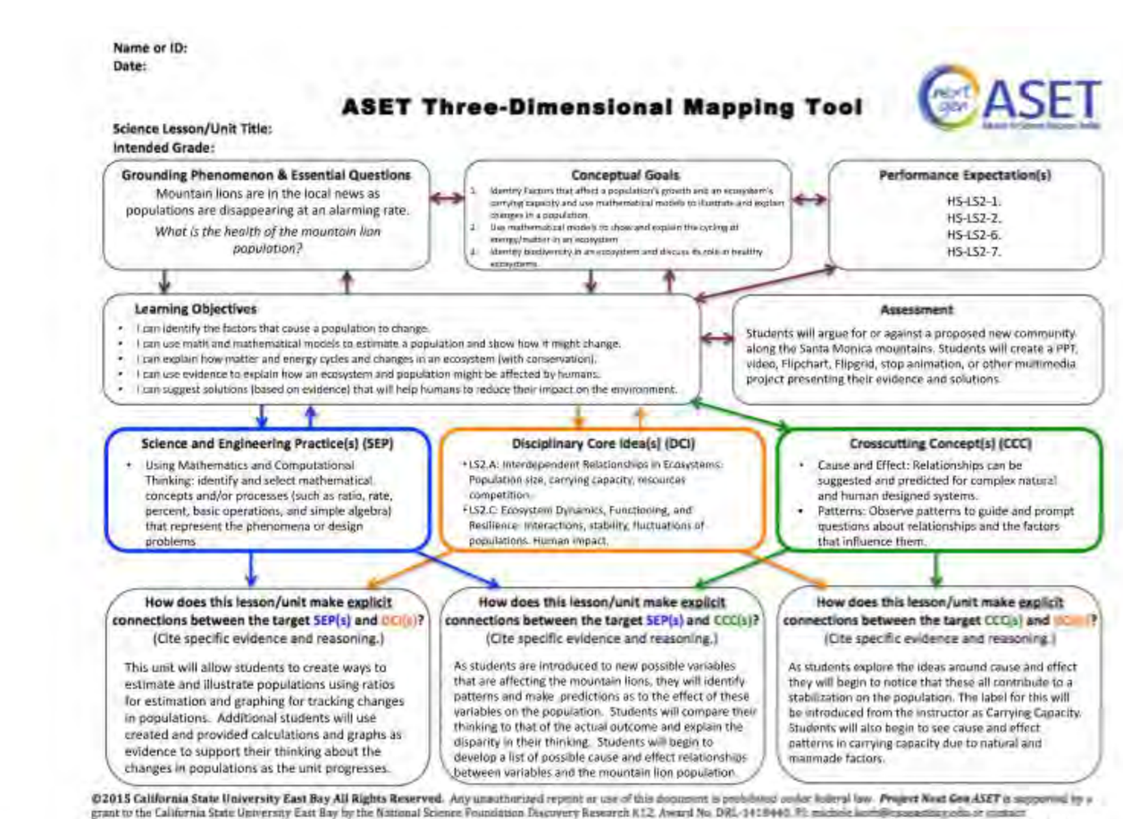
ASTEP activities contribute to the **unpacking and enactment** of 3-dimensional teaching and learning as outlined in the NGSS. **Our digital product options are increasing!**





Sample one-pager overviews of how to use the Toolkit.
Some are designed for university supervisors or for professional development.
We have others – check out the website to find more.

Taking what we have learned from classroom teachers and teacher educators **to reach more educators**: a digital presence is part of our ongoing efforts to show how the Toolkit supports and provide **sample lessons and phenomena/ storylines** to be posted on our website.



Sample lessons will include storylines or phenomena devised by preservice teachers, classroom teachers or professional development storylines.
Here we feature a storyline and 3D map regarding the plight of the Santa Monica Mountain Lion.

FIND US ONLINE!

Take one of our cards or stickers!

https://www.nextgenaset.org/

Notable NIC Publications

https://www.nextgenaset.org/research/