Logging Opportunities in Online Programs in Science

Can technology supply teachers and students with timely data that provides insights into student learning?

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"With the LOOPS model, I can better use student work to lead class discussions."

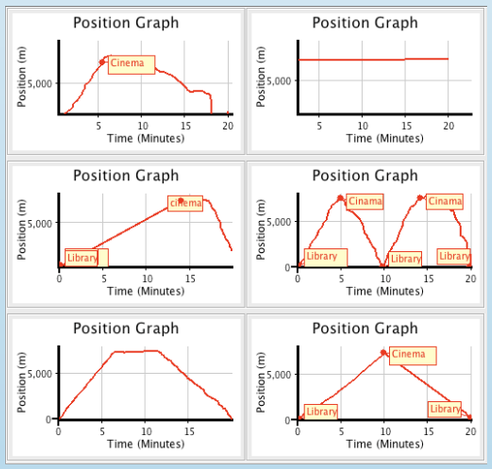
— CA teacher

"Viewing student work, particularly when there is a graph and an explanation, gives me insight into how they are thinking."

— CA teacher

Curriculum is being developed for middle school science: force & motion and chemistry.

Materials are being piloted in CA and MA classrooms.

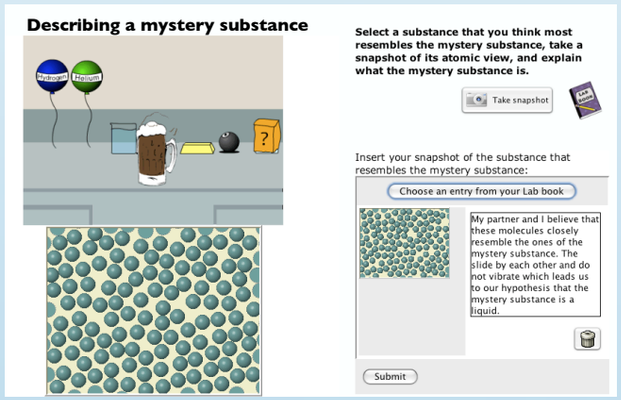


Using LOOPS, students' prediction graphs may be selected by the teacher and presented for class discussion. Students then test their predictions using motion probes.

Inquiry activities can be logged.

Students interact with:

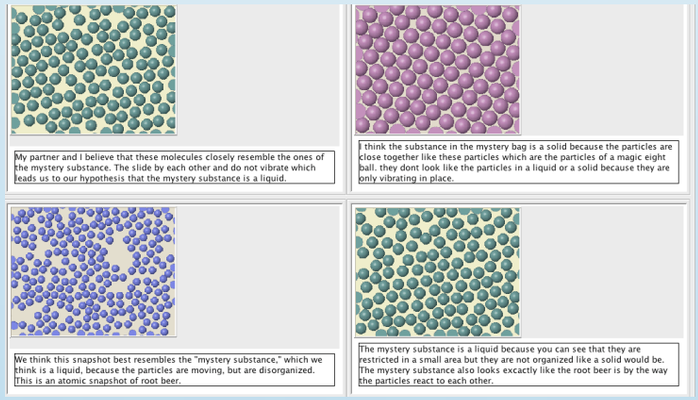
- **Computational models**
- **Sensors**
- **Graphs**
- **Drawing tools**



Students explore the atomic view of substances, then submit to the teacher a snapshot of a substance matching the mystery substance.

Teachers can use feedback to tailor instruction.

- **During class**
- **Between class meetings**
- **Between uses of curriculum units**



The teacher picks several student answers to project in the classroom and on each student's machine.

Logged activities can provide feedback to teachers and students.

- **Student progress: What activities has each student completed?**
- **Polls: Which student answers are most common?**
- **Pick-N: Which N student answers are good examples to share with the class?**
- **Inquiry index: Which student actions provide insight into learning?**
  What, for example, does systematic exploration of a model reveal?

Research questions

- **What LOOPS data gives insight into student learning?**
- **What is the impact of LOOPS on instructional practice?**
- **What is the impact of LOOPS on student learning?**

Technology

Based on SAIL
(Scalable Architecture for Interactive Learning)

- **Developed in NSF-sponsored TELS project**
- **Delivers interactive learning materials and persistent learner data**
- **Activities available via loops.concord.org and wise4.telscenter.org**

The Concord Consortium is a nonprofit educational research and development organization.

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