PhET simulations (see http://phet.colorado.edu) are an innovative way to teach challenging concepts to students. They are free and easy to use. The simulations animate what is often invisible to the eye and also encourage quantitative exploration by providing measurement instruments similar to those students are familiar with in class. Simulations allow for students to view multiple representations of concepts.
5E Definition Example of PhET Use

Engage The Engage is not a question but an action or event that stimulates students to have questions that they can’t wait to have answered and therefore can’t wait for you to start the explore part of the lesson.
Use a sim to show interesting phenomena. Examples: Balloons and Static Electricity, Gravity and Orbits and Projectile Motion.

Explore Under the guidance of the teacher, students experience a common set of experiences that helps them clarify their own understanding of major concepts and skills. The students can investigate, develop awareness/practice skills, design, and plan, build models, and collect data. They can also test predictions and form new predictions.
Use Balloons and Buoyancy within a lab on hot air balloons to reveal what happens on the molecular level inside a hot air balloon.

Explain Students explain their understanding of the concepts and processes they are learning if not done in the Explore. Teachers help students clarify their understanding and introduce information related to the concepts to be learned.
Allow students to explain their understanding by using the PhET sims as evidence.

Elaborate The Elaborate is an activity that challenges students to apply what they have learned and extend their knowledge and skills. Students connect what they have learned to the real world.
Use the different environments available on the Masses and Springs PhET to extend a hands-on spring lab.

Evaluate Evaluation activities allow teachers to evaluate their students’ progress. The assessment includes open-ended questions that clearly identify what the student has learned.
Use screenshots to create analysis questions.

FAQs
Q: Where can UTeach’s lessons be found?
A: outreach.uteach.org/programs/phet/resources

Q: How can I use PhET sims in my classroom?
A: Sims can be used in many stages of the learning process. See inside of brochure for examples.

Q: What standards do the PhET sims address?
A: Sims cover physical, life and earth science topics. Math sims are currently being developed.

Q: Will sims work on my iPad?
A: No, unfortunately, an iPad’s device platform does not fully support Java or Flash.