

## PhET's Goals

**PhET's Goals for Students:** PhET's simulations and suggestions for simulation use are designed to support the following objectives.

Students will ...

- See science as accessible, understandable, and enjoyable
  - Identify as a scientist (a person that uses scientific reasoning)
  - Develop further interest in science
  - Experience the joy of inquiry and discovery
- Make connections to everyday life (e.g. science to the real world)
- Achieve conceptual learning
  - Identify cause-effect relationships
  - Make meaning of visual and mental models, and use them to make sense of scientific phenomena
  - Develop facility with commonly-used scientific representations and measurement tools (e.g. visual models, vectors, graphs, formulas, ruler, ...)
  - Coordinate across scientific representations, science models, and real world situations
- Engage in scientific exploration with multiple, positive learning outcomes
  - Formulate and ask questions
  - Make predictions
  - Test emerging ideas and design experiments
  - Use evidence to support ideas
  - Monitor and reflect on their own understanding (e.g. through self-checking with simulation feedback, discussing with a partner, or teacher-led checks for understanding).
- Take and sense ownership of their learning experience
  - Direct their own learning through exploration
  - Persist through intellectual challenges
  - Feel a sense of accomplishment

**PhET's Goals for Teachers:** PhET's simulations, activity design guidelines, and strategies for facilitation aim to support teachers' achievement of the following objectives.

Teachers will ...

- Create a student-centered classroom by ...
  - Hearing and valuing student ideas
  - Promoting student agency – students actively driving their learning
  - Encouraging and guiding student inquiry
  - Being a co-participant in the inquiry process
  - Building on students' prior knowledge
- Foster a supportive, goal-oriented learning environment by ...
  - Valuing and addressing multiple goals - content, process, habits of mind, interest, etc.
  - Being prepared to address common student ideas/thinking and confusions
  - Adapting activities to their environment and their students (e.g. for varying learning goals and education levels)
  - Implementing 'checks for understanding' in order to assess student learning and drive instruction
  - Being responsive by flexibly adapting to emergent student ideas
- Bring their experience, professionalism, and knowledge of their students to designing, implementing, and improving activities, implementation, and sim design.