

VIDEO SUMMARY

Virtual Labs

Resource person: PhET Interactive Simulations team | Research-based simulation project at the University of Colorado Boulder | Curated from PhET Simulations
Virtual Labs | Blended Learning and MOOCs | technology

PhET creates free interactive simulations for science and mathematics. The models let learners change a variable, observe a response, and move among representations such as motion, force arrows, graphs, equations, particles, and measurements. This makes relationships visible and supports rapid exploration.

A useful virtual-lab task begins with a question or prediction. Students choose what to vary, hold other conditions steady, record observations, and build an explanation from the pattern. Well-designed prompts leave room for exploration while directing attention to the target concept. A simulation can also prepare students for physical apparatus or extend a lab where equipment is scarce.

Teachers should introduce controls briefly, then spend time on the science. Ask students to explain evidence, compare models with real phenomena, and identify the assumptions built into the simulation. Check device access, language, keyboard operation, and available alternative descriptions before assigning it. A virtual lab earns its place when the interaction produces evidence and reasoning that the learning outcome actually requires.