General Resources for All Disciplines

- Freely available Data Sets:
    - https://portal.brain-map.org/ - Neuroscience
    - https://www.usgs.gov/products/data-and-tools/science-datasets - Population genetics, Ecology, Geosciences
    - Ecological/Conservation Data: http://lila.science/
- Interactive Quizzes for all: https://www.softschools.com/quizzes/
- JOVE Journal of Visual Experiments: https://www.jove.com/journal
- Models: https://www.explorelearning.com/index.cfm?method=Controller.dspFreeGizmos
- PHET https://phet.colorado.edu/ offers interactive simulations for Physics, Chemistry, Biology, Earth Science & Math that allows students to vary parameters. Simulations can be embedded in your course in Blackboard. E.g. Build an Atom. Here students can build an atom out of protons, neutrons, and electrons, and see how the element, charge, and mass change. They can then play a game to test their work.
- Using Case studies for Student Projects: https://sciencecases.lib.buffalo.edu/
- Virtual Labs for different topics: https://learningcenter.nsta.org/mylibrary/collection.aspx?id=ldPT0QtbY/w_E
- Simulations in Math and Science: http://www4.esc13.net/instructional-technology/virtual-sims/
- Video Tutorials
    - ⋆ YouTube has a large library of video tutorials
    - ⋆ Khan Academy also has a large library of video tutorials and interactive practice exercises: https://www.khanacademy.org/

Virtual Labs: Biology, Physiology, Computer Programing, Virtual Urchin, Chemistry, Microbiology, Earth Science, Anatomy & Physiology
https://www.merlot.org/merlot/materials.htm?keywords=virtual+labs&sort.property=relevance

Other Discipline Specific Links

Astronomy

Virtual Labs: https://astro.unl.edu/vlabs/
OER

- ⋆ Text, Videos, Websites: https://openstax.org/details/books/astronomy

Biology

- http://onlinelabs.in/biology From microscopy to Population dynamics and animal behavior
- More introductory Biology Labs : http://bio.rutgers.edu/~gb101/virtuallabs_101.html
- Comparative Anatomy : http://www.eskeletons.org/
- Different Labs and Lesson Plans: https://www.labxchange.org/explore
- Bio Libre: Text, Virtual Labs, Downloadable homework files, Worksheets https://bio.libretexts.org/

Chemistry

- Virtual Lab provides lessons with lab simulations and short quizzes that focus on Chemistry topics. Example:
http://www.mrpalermo.com/virtual-lab-precision-and-significant-figures.html
- Nuclear Chemistry Virtual Lab: Lab manual, worksheet and simulation.
https://www.uccs.edu/vgcl/nuclear-chemistry
- chemistry simulations.
https://www.physics-chemistry-interactive-flash-animation.com/

- Interactive Quizzes
    - ⋆ https://www.softschools.com/quizzes/chemistry/
    - ⋆ https://education.jlab.org/elementflashcards/
- OER
    - ⋆ Lumen Learning: Text and Exercises

https://courses.lumenlearning.com/suny-introductory-chemistry/

⋆ Chem Libre: Text, Virtual Labs, Downloadable homework files, Worksheets https://chem.libretexts.org/Courses/University_of_Arkansas_Little_Rock/Chem_1403%3A_General_Chemistry_2

- Video Tutorials: YouTube has a large library of video tutorials.
  - ⋆ The Organic Chemistry Tutor is one of the best on YouTube: https://www.youtube.com/channel/UCEWpbFLzoYGPfuWUMFPSaoA
  - ⋆ Tyler Dewitt is one of the best on YouTube: https://www.youtube.com/channel/UCj3EXpr5v35g3peVWnVLoew

Engineering

- Simulations - Use drop down menu on right top for picking topic of interest http://engineertech.org/courses/ac-circuit-analysis/?submit=view
- https://virtuallabs.merlot.org/engineering/index.html

Geology

- Online simulations - earthquake, dating, river https://www.sciencecourseware.org/GLOL/
- Resources for different simulations and models:
  - ⋆ https://serc.carleton.edu/NAGTWorkshops/online/lab_activities.html
  - ⋆ http://onlinelabs.in/geology

Mathematics

- Some simulations and exercises: http://onlinelabs.in/math

Physics

- OER
  - ⋆ Physics Libre: Text, Virtual Labs, Downloadable homework files, Worksheets https://phys.libretexts.org/
- Virtual Labs: https://phet.colorado.edu/en/simulations/category/physics
- Physics simulations.

https://www.physics-chemistry-interactive-flash-animation.com/

Psychology

- Demonstrations and simulations: https://opl.apa.org/
- Cognitive Psychology: https://psych.hanover.edu/JavaTest/CLE/Cognition/Cognition.html
- More demonstrations in Psychology: https://psych.hanover.edu/Krantz/tutor.html