

## Simulations & Manipulatives

### PhET

PhET (<https://phet.colorado.edu/>) is an online website that provides physics, chemistry and a few biology and earth science simulations that demonstrate microscopic or abstract science concepts. There are also math simulations made by PhET. Sims can be sorted by grade level or topic. If you sign up for a free teacher account, there are lots of teacher created resources available too. The HTML 5 simulations can be used on tablets, but Adobe Flash ones must be used on a desktop/laptop. The simulations are suitable for middle years-high school level. Check out this page for a brief introduction to PhET and helpful tutorial links: <https://phet.colorado.edu/en/teaching-resources>

### Desmos

Desmos (<https://www.desmos.com/>) is more than just an online graphing calculator. Desmos has created activities and quizzes that can be customized by the teacher and used in conjunction with the online graphing calculator, scientific calculator or geometry tools (they also have an app). They have built in tutorials with each of the programs they offer (<https://learn.desmos.com/>)

### Math Playground

Math Playground is a free (the ad-free version is paid) website with a variety of math manipulatives and games to practice math skills. It is suitable for elementary level and manipulatives can be sorted by grade. There are helpful tips and links to essential math skills under each manipulative. ([https://www.mathplayground.com/interactive\\_hundreds\\_chart.html](https://www.mathplayground.com/interactive_hundreds_chart.html))

### Virtual Math Manipulatives

This is a resource produced by McGraw Hill that offers a variety of math manipulatives and tools (free for Pre-K – Grade 8). It requires the student to manipulate the object on the screen, so might be better for the older age range. The help menu (question mark) provides general instructions, instructions for each of the tools (i.e. ruler, protractor, etc.) and manipulatives (i.e. base ten blocks, geoboard, calendar) with images to support learners and teachers.