



## 1 Technical Requirements

1. The PhET simulations can be run online or downloaded to your computer.
2. Link for checking System requirements for using PhET Simulations: <https://phet.colorado.edu/en/help-center/running-sims>

## 2 File Types

1. The PhET simulations are available in HTML5 format and Java format
2. The HTML5 files are browser-based, so after downloading they can be directly opened using any browser like Firefox or Chrome.
3. Please install the latest version of Firefox/Chrome/Safari on your system.
4. To open PhET simulations which are in Java format, you need to install Java installed on your system.

## 3 Procedure to Check Whether Java is Installed on your System

1. To follow the installation procedure, you need to be connected to the Internet.
2. To check whether Java is installed on your system, do the following:
3. Procedure to open the Command Prompt in Windows:  
Open the Command Prompt by typing cmd in the search bar next to the Start menu.  
At the command prompt type, java -version and press Enter on your keyboard.
4. Procedure to open terminal in Ubuntu:  
Press Ctrl, Alt and T keys simultaneously to open the terminal.  
At the terminal type java -version
5. Procedure to open terminal in Mac:  
In the Finder, open the /Applications/Utilities folder, then double-click Terminal.  
At the terminal type java -version
6. It will show the version number of Java already installed on your system
7. If Java is not installed on your system, please follow the procedure to install Java on Windows, Ubuntu and Mac given in Section 4.
8. Please omit section 4 if Java is already installed on your system and proceed to section 5.

## 4 Procedure to Install Java

1. Java PhET simulations require Java installed in the system. Java can be installed using the links given below. <https://www.java.com/en/download/>

### 4.1 Procedure to Install Java on Windows

1. Open any web browser and go to <https://www.java.com/en/download/manual.jsp>
2. In the page click on the Windows Offline (64-bit) link to download java.
3. jre-8u461-windows-x64 exe file downloads to Downloads folder.
4. Double click on the file

5. User Account window pop up. Click Yes in the window.
6. Java setup- welcome window opens. Click Install in the window.
7. The installation of Java starts.
8. Click Close button after completing the installation

## 4.2 Procedure to Install Java on Linux OS

1. First, update the apt package index
2. Open the terminal by pressing Ctrl, Alt and T keys simultaneously.
3. At the prompt type, `sudo apt-get update` and press Enter.
4. Once the package index is updated, at the prompt type `sudo apt-get install default-jdk` and press Enter
5. If prompted, type Y and press Enter to continue and complete the installation.
6. To verify the installation:
  - (a) Open the terminal by pressing Ctrl, Alt and T keys simultaneously.
  - (b) At the command prompt type, `java -version` and press Enter key on your keyboard.
  - (c) It will show the version number of Java installed on your system..

## 4.3 Procedure to Install Java on Mac OS

1. Open any web browser and go to Java.com
2. Click on the Java Download button.
3. Download Java for Mac OS X page opens.
4. Read the license page. Click on Agree and Start Free Download button.
5. JRE.dmg file downloads to the Downloads folder.
6. From either the browser Downloads window or from the file browser, double-click the .dmg file to launch it.
7. A Finder window appears that contains an icon of an open box and the name of the .app file.
8. Double-click the Java 10.app icon to start the installation application.
9. The installation application displays the Welcome window.
10. Click the Open button. Give the system permission if prompted.
11. Click on the Install button in the Java installation window.
12. The software is installed and a confirmation window is displayed. Click on Close.
13. To verify the installation: Open the terminal.
  - (a) At the command prompt type, `java -version` and press Enter on your keyboard.
  - (b) It will show the version number of Java installed on your system.

## 5 Procedure to Use PhET Simulations in Online Mode

1. Go to the URL: <https://phet.colorado.edu/en/simulations/browse>
2. The Simulations page opens. You will see two tabs in the middle of the page: Browse and Filter.
  - (a) Under the Browse tab simulations are arranged subject-wise.
  - (b) Under the Filter tab, uncheck the HTML5 option, the simulations can be selected using Filters on the left panel.
3. To use the simulation click the desired simulation thumbnail. A new page with the simulation details opens.
4. To run the simulation click on the play icon on the player. The simulation interface opens and is now ready to use and explore.
5. Here there is also an option to download and save the simulation, to do so click on the DOWNLOAD button at the bottom-left of the simulation.

## 6 Procedure to Use PhET Simulations in Offline Mode

1. Simulation can be downloaded and run offline only on Windows OS and Mac OS.
2. The Offline download is currently not available for Linux OS.
3. The required simulations can be directly downloaded from the One at a Time section
4. Registration on the PhET website:
  - (a) To download the offline content you need to register on the PhET website.
  - (b) If you are a first time user, please register by clicking on the Sign In icon present at the top-right corner on the PhET homepage.
  - (c) Sign In dialog-box opens.
  - (d) Click on the Register link at the bottom of the dialog-box.
  - (e) Fill in the required details in the fields provided.
  - (f) You will receive an email with a link.
  - (g) Click on the link to confirm your registration.
  - (h) Use the registered email ID and password in the Sign In page while you are downloading the offline content.

### 6.1 Installation of PhET on Windows OS

1. Simulation can be downloaded and run offline only on Windows OS and Mac OS using the below link: <https://phet.colorado.edu/en/offline-access>
2. The offline access page opens.
3. Click on Windows App button
4. The phet-windows-app.exe file downloads to the Downloads folder
5. After the installation is complete the Index of Sims window opens with all the simulations.
6. A shortcut is created on the Desktop to open the Index of Sims window.

### 6.2 Installation of PhET on Mac OS

1. Simulation can be downloaded and run offline only on Windows OS and Mac OS using the below link: <https://phet.colorado.edu/en/offline-access>
2. The offline access page opens.
3. Click on macOS App button
4. Save dialog box opens, choose your desired location and click on Save button
5. The phet-mac-app.dmg file downloads to the Downloads folder
6. The file size is around 289 MB, please make sure you have enough storage space to save the file on your system.
7. The file size may change if new PhETs are added.
8. After the download is complete, double-click on the dmg file.
9. Phet simulations window opens
10. Drag and drop the PHET simulation icon into Applications folder.
11. Open the Applications folder, double-click PHET simulation icon.
12. Click Open button in the warning pop-window.
13. In the Index of Sims window, we can see three tabs: HTML5, JAVA and ALL.

## 7 Checking for Successful Installation

To check for successful installation:

1. In the Index of Sims window, we can see three tabs: HTML5, JAVA and ALL.

2. The HTML5 tab contains all the simulations in HTML5 format.
3. ALL tab contains all the simulations.
4. Click on any simulation to work with.