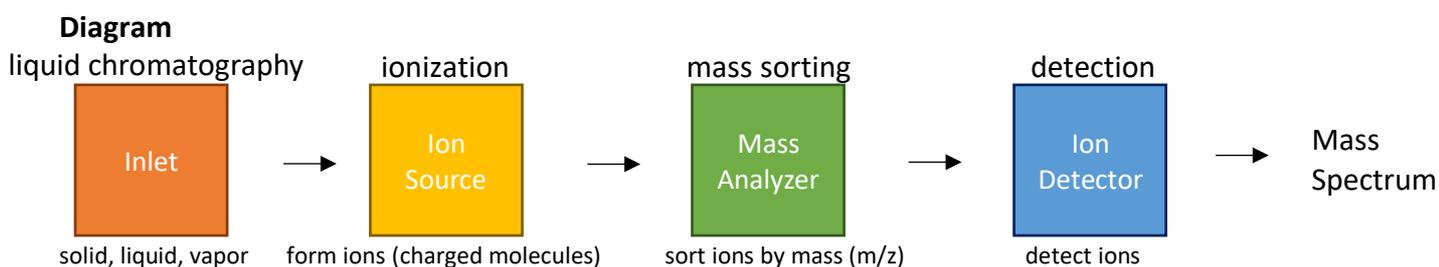


## For Teachers

### Activity Overview:

The activity is for students to finish on their own. The activity aims to give students an opportunity to understand liquid chromatography mass spectrometry (LC-MS). Through completing following activity, the students will be able to fully grasp the concept behind how LC-MS works.

Below is a brief diagram of how LC-MS works. Using the diagram and the word bank below, please fill in the blank.



### Word Bank

affinity      greater      ion detector      ionizes      liquid chromatography  
mass      mass analyzer      mass spectrometry      mass-to-charge      mobile  
slower      stationary      timing

### LC-MS

LC-MS combines [liquid chromatography](#) and [mass spectrometry](#) to separate and identify chemical molecules.

### Liquid Chromatography

The separation of the inlet depends on the interactions of the sample with the mobile and [stationary](#) phases. The [affinity](#) of the components inside the sample for the mobile phase determines the [timing](#) that the molecules will be ejected from liquid chromatography. If a compound has [greater](#) affinity to the stationary phase than other compounds in the sample, then this compound would be eluted from the chromatography column [slower](#) than other compounds would.

### Mass Spectrometry

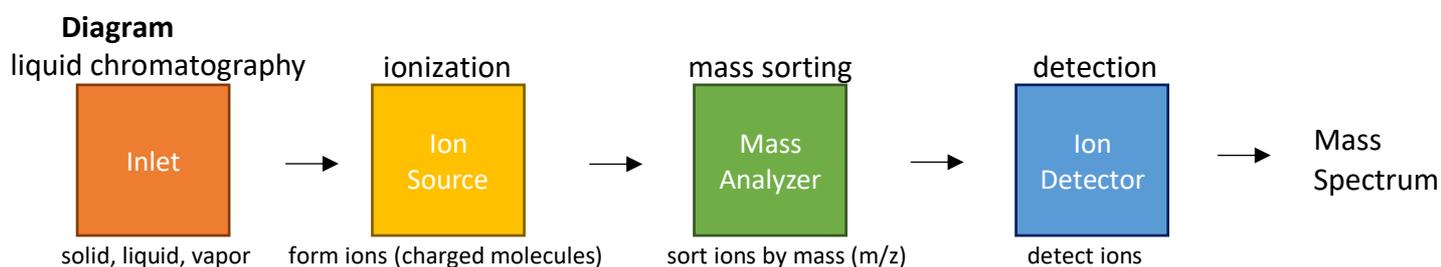
When the molecules are eluted from liquid chromatography column as liquid, they are passed through an interface. The interface detaches the [mobile](#) phase used in liquid chromatography and [ionizes](#) the molecules to be analyzed by mass spectrometry. The ionized molecules then are transferred to [mass analyzer](#). After the ions are sorted by [mass](#), they are transferred to [ion detector](#). The [mass-to-charge](#) data is moved to a computer for a graphical representation.

## For Students

### Activity Overview:

The activity is for students to finish on their own. The activity aims to give students an opportunity to understand liquid chromatography mass spectrometry (LC-MS). Through completing following activity, the students will be able to fully grasp the concept behind how LC-MS works.

Below is a brief diagram of how LC-MS works. Using the diagram and the word bank below, please fill in the blank.



### Word Bank

affinity	greater	ion detector	ionizes	liquid chromatography
mass	mass analyzer	mass spectrometry	mass-to-charge	mobile
	slower	stationary	timing	

### LC-MS

LC-MS combines \_\_\_\_\_ and \_\_\_\_\_ to separate and identify chemical molecules.

### Liquid Chromatography

The separation of the inlet depends on the interactions of the sample with the mobile and \_\_\_\_\_ phases. The \_\_\_\_\_ of the components inside the sample for the mobile phase determines the \_\_\_\_\_ that the molecules will be ejected from liquid chromatography. If a compound has \_\_\_\_\_ affinity to the stationary phase than other compounds in the sample, then this compound would be eluted from the chromatography column \_\_\_\_\_ than other compounds would.

### Mass Spectrometry

When the molecules are eluted from liquid chromatography column as liquid, they are passed through an interface. The interface detaches the \_\_\_\_\_ phase used in liquid chromatography and \_\_\_\_\_ the molecules to be analyzed by mass spectrometry. The ionized molecules then are transferred to \_\_\_\_\_. After the ions are sorted by \_\_\_\_\_, they are transferred to \_\_\_\_\_. The \_\_\_\_\_ data is moved to a computer for a graphical representation.