

Lesson Five: Chemistry

Passage

*Listen to the following words, focusing on meaning and the use of the words in **bold**.*

We are looking for the **underlying** cause of the **chemical reaction** in our **research** project. After first measuring the **concentration** of a **specified** solution we hope to **alter**, we will increase the **exposure** of our **modified compound**. Our **hypothesis** is that there will be a **nuclear bond** showing **considerable stability** in the chemical once the reaction is **induced**, but our **equipment** has yet to provide **visible** or **empirical** evidence. In **contrast**, the **formulae** and **equations** we have **generated** are supported by **conventions** in our field. Perhaps our outcome is a result of an **error** in our **methods** or **procedures**.

Stop the audio now and complete Exercises 1 and 2.

Exercise 1 — Identifying Word Stress

For each of the following words from the above passage, identify the stressed syllable by underlining it. The first item is done for you.

- | | |
|--------------------|-----------------|
| 1. <u>chemical</u> | 9. stability |
| 2. reaction | 10. empirical |
| 3. research | 11. contrast |
| 4. concentration | 12. formulae |
| 5. modified | 13. conventions |
| 6. compound | 14. methods |
| 7. nuclear | 15. procedures |
| 8. considerable | |

Note the following difference:

(v) If x **affects** y, then x causes a change in y.

(n) An **effect** is an event that is caused by a different event.

Exercise 2 – Writing Sentences

After each sentence, write an additional sentence that adds to the original and shows you understand the meaning of the word in **bold**. If a word has multiple meanings, use the same meaning as in the above passage.

1. My professor wants me to explain the **underlying** theory.

Even though I can explain how the chemical reaction works, she wants me to prove I understand the formulae behind the experiment.

2. I need to **alter** our plans for this evening.

3. I have to **specify** my thesis topic by tomorrow.

4. My cat is **visible** right now.

Exercise 3 – Transcribing Words and Identifying Syllables

Listen to the audio and write out each word, separating each syllable. Next to the word, write the number of syllables in it.

Ex.	con•clu•sion	3
1.	_____	_____
2.	_____	_____
3.	_____	_____
4.	_____	_____
5.	_____	_____

Definitions

Listen to the following definitions on the audio.

considerable

(adj) A considerable amount, time or degree is a fairly large or important one.

(v) **consider**; (n) **consideration**; (adv) **considerably**

constraint

(n) A constraint is a limit or confinement.

(v) **constrain**

exposure

(n) If x has exposure to y, x is not hidden or protected from y.

(v) **expose**

hypothesis

(n) A hypothesis is a guess about what will happen, usually in scientific experiments.

(v) **hypothesize**; (adj) **hypothetical**

interval

(n) An interval is a distance in space or in time.

outcome

(n) An outcome is the result of a situation or action.

procedure

(n) A procedure is a particular way of doing something.

(adj) **procedural**; (adv) **procedurally**; (v) **proceed**

stable

(adj) If something is stable, it is unlikely to move or change.

(v) **stabilize**; (n) **stabilization**; (n) **stabilizer**; (n) **stability**

Stop the audio now and complete Exercises 4 and 5.

Exercise 4 — Using Words Correctly

Fill in the following blanks with one of the words defined above. Use the appropriate form or part of speech of the word. Please provide all possible answers.

1. Due to time _____, we were unable to complete our experiment.
2. By detailing our experimental _____, we were able to replicate our results in a much larger study.
3. Although I don't know for sure, I _____ that the combination of these two chemical compounds will result in a precipitate.
4. Be sure to check your experiment at frequent and regular _____ so you will be aware of any changes.
5. Due to a dangerous reaction, you should only _____ sodium to water in a controlled environment.
6. Extremely radioactive elements have such a low _____ that they are incredibly difficult to study in their natural state.
7. Due to the _____ number of elements on the periodic table, I still have to look up most of the higher numbered elements.
8. Because the _____ of our experiment was unexpected, we received a grant to perform it again in a larger scale.

Exercise 5 — Greek Word Roots

Many scientific English words come from Greek. Given the following words of Greek origin, guess the meaning of the original Greek root.

asterisk, astronomy

astr _____ star _____

meter, thermometer, barometer

meter _____

biography, biology

bio _____ life _____

neologism, neon

neo _____

chronic, chronology, chronometer

chron _____

exodus, odometer

odo _____

bicycle, cycle, cyclone

cycl _____

parallel, parameter

para _____

euphoria, euthanasia

eu _____

horoscope, stethoscope

scop _____

telegram, graphic

gram/graph _____

telegram, telescope, television

tele _____

heterogenous, heterosexual

hetero _____

thermometer, thermodynamics

therm _____

idiom, idiosyncrasy

idio _____

zoo, zoology, zodiac

zo _____

Pronunciation – Reviewing Primary and Secondary Stress

In English, many longer words (three or more syllables) will have more than one stress. The main stress is referred to as the *primary* stress, and any others are referred to as *secondary* stresses.

Listen to the following words and mark the stressed syllables in each. Underline the primary stress with two lines and the secondary stress with one.

Ex. consideration

1. concentration
2. manipulation
3. minimizes
4. substitution
5. underlying