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# GRAMMAR AND COMPOSITION

## The Parts of Speech

A **noun** names a person, place, thing, or idea.

A **pronoun** replaces a noun.

An **adjective** describes a noun or pronoun.

A **verb** shows action or state of being.

An **adverb** modifies a verb, adjective, or other adverb.

A **conjunction** links words, phrases, or clauses.

A **preposition** marks the relationship between one word and another.

An **interjection** expresses excitement or emotion.

The **article** is sometimes treated as a separate part of speech, but it can be classed as an adjective since it modifies a noun.

## Groups of Words

A **sentence** expresses a complete thought.<sup>6</sup>

A **phrase** is a group of words, containing neither a subject nor a verb, used as a single unit.

A **clause** is a group of words that has a subject and verb. Independent clauses can stand alone as sentences (complete thoughts); dependent clauses cannot.

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<sup>6</sup> Many grammar programs give more restrictive definitions involving subjects and predicates, but I stand by the claim that “No!” is a complete sentence.

## Major Historical Periods

The periods listed here are the ones that most students in North America will encounter in their textbooks and other reading, but as they get older, they should be made aware that historical periodization depends on what is being assessed: political events, technological innovations, migrations, intellectual shifts, artistic movements, and so on. The periodization scheme usually taught in North America shows a marked bias toward political events and social changes in Europe and western Asia. It is not absolute by any means.

Period	Starting Date	Description of Precipitating Event
Prehistory	250,000 ya	Evolution of modern human beings (Homo sapiens)
Ancient	10,000 BCE	Agricultural Revolution
Medieval	476 CE	Fall of Rome
Early Modern	1492 CE	Arrival of European colonizers in the Americas
Modern	1815 CE	Battle of Waterloo
Contemporary	1989 CE	Fall of the Berlin Wall

ya=years ago

BCE=Before Common Era

CE=Common Era

## Multiplication Table and Properties of Multiplication

x	0	1	2	3	4	5	6	7	8	9	10	11	12
0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8	9	10	11	12
2	0	2	4	6	8	10	12	14	16	18	20	22	24
3	0	3	6	9	12	15	18	21	24	27	30	33	36
4	0	4	8	12	16	20	24	28	32	36	40	44	48
5	0	5	10	15	20	25	30	35	40	45	50	55	60
6	0	6	12	18	24	30	36	42	48	54	60	66	72
7	0	7	14	21	28	35	42	49	56	63	70	77	84
8	0	8	16	24	32	40	48	56	64	72	80	88	96
9	0	9	18	27	36	45	54	63	72	81	90	99	108
10	0	10	20	30	40	50	60	70	80	90	100	110	120
11	0	11	22	33	44	55	66	77	88	99	110	121	132
12	0	12	24	36	48	60	72	84	96	108	120	132	144

Bold numbers in the body of the multiplication table are **square numbers** that students should recognize.

Commutative property of multiplication:  $a \cdot b = b \cdot a$

Associative property of multiplication:  $(a \cdot b) \cdot c = a \cdot (b \cdot c)$

Multiplicative identity:  $a \cdot 1 = a$

9 ← **multiplicand**

x3 ← **multiplier**

27 ← **product**

In the equation  $27 = 9 \times 3$ , 9 and 3 are **factors** of 27.

## CHEMISTRY

### Parts of an Atom

An atom has a **nucleus**, made up of **protons (+)** and **neutrons** and surrounded by an **electron (-) cloud**.

### Symbols for Common Elements

Element	Symbol	Element	Symbol
Hydrogen	H	Aluminum	Al
Helium	He	Silicone	Si
Carbon	C	Chlorine	Cl
Nitrogen	N	Iron	Fe
Oxygen	O	Copper	Cu
Sodium	Na	Silver	Ag
Potassium	K	Gold	Au

### Common Chemical Compounds

Water:  $H_2O$

Salt:  $NaCl$

Carbon Dioxide:  $CO_2$

Hydrogen Peroxide:  $H_2O_2$

### Solutions

A **solution** is formed when a substance (the **solute**) is dissolved in another substance (the **solvent**).