



## Vocabulary Builder Reference from...

*Rolf Landua: What happened to antimatter? | TED Talk*

[https://www.ted.com/talks/rolf\\_landua\\_what\\_happened\\_to\\_antimatter](https://www.ted.com/talks/rolf_landua_what_happened_to_antimatter)

### Advanced Words Only

#### IMPORTANT

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## Session 1: Word List

### antimatter

*n.* matter made up of antiparticles, which have the same mass as regular matter but opposite electrical charges

*synonym*: anti-substance, anti-nucleus, antiparticle

(1) **antimatter** propulsion, (2) **antimatter** production

Scientists are studying the properties of **antimatter** to gain a deeper understanding of the universe.

### joule

*n.* the unit of measurement for energy in the International System of Units (SI), equal to the work done by a force of one newton when its point of application moves one meter in the direction of the force

*synonym*: calorie

(1) measure energy in **joules**, (2) **joule** heating

A 60-watt light bulb uses 60 **joules** of energy per second.

### antiparticle

*n.* a subatomic particle that has the same mass and opposite charge as its corresponding particle (e.g., a positron is the antiparticle of an electron)

*synonym*: opposite, antimatter, anti-substance

(1) **antiparticle** physics, (2) **antiparticle** collisions

When an **antiparticle** meets its corresponding particle, the two annihilate.

## proton

*n.* a very small particle with a positive charge equal to the negative charge of an electron that forms part of the nucleus of all atoms

(1) **proton** decay, (2) **proton** conductivity

The solar wind is composed almost entirely of electrons and **protons**.

## collide

*v.* to hit something violently when moving

*synonym*: clash, slam, contradict

(1) **collide** head-on, (2) **collide** in midair

The interests of the two countries **collide**.

## positron

*n.* an antiparticle of the electron with a positive charge that has the same mass as the electron but an opposite charge

*synonym*: antielectron, antiparticle, positronium

(1) **positron** emission, (2) **positron** annihilation

**Positron** emission tomography, or PET, is a medical imaging technique.

## spaceship

*n.* (especially in science fiction) a spacecraft designed to carry a crew into interstellar space

*synonym*: starship, rocket, spacecraft

(1) a **spaceship** to survey the moon, (2) alien **spaceship**

They launched a crewless **spaceship** into space.

## asymmetric

*adj.* lacking symmetry or balance; not corresponding in size, shape, or degree; characterized by an uneven or unequal distribution or arrangement

*synonym*: uneven, lopsided, unbalanced

(1) **asymmetric** warfare, (2) **asymmetric** information

The **asymmetric** design of the building made it stand out in the city skyline.

## Session 2: Spelling

1. ant\_\_\_\_\_er production *n.* matter made up of antiparticles, which have the same mass as regular matter but opposite electrical charges
2. po\_\_\_\_\_on emission *n.* an antiparticle of the electron with a positive charge that has the same mass as the electron but an opposite charge
3. alien sp\_\_\_\_\_ip *n.* (especially in science fiction) a spacecraft designed to carry a crew into interstellar space
4. co\_\_\_\_\_e head-on *v.* to hit something violently when moving
5. asy\_\_\_\_\_ic warfare *adj.* lacking symmetry or balance; not corresponding in size, shape, or degree; characterized by an uneven or unequal distribution or arrangement
6. ant\_\_\_\_\_er propulsion *n.* matter made up of antiparticles, which have the same mass as regular matter but opposite electrical charges
7. jo\_\_e heating *n.* the unit of measurement for energy in the International System of Units (SI), equal to the work done by a force of one newton when its point of application moves one meter in the direction of the force
8. asy\_\_\_\_\_ic information *adj.* lacking symmetry or balance; not corresponding in size, shape, or degree; characterized by an uneven or unequal distribution or arrangement

ANSWERS: 1. antimatter, 2. positron, 3. spaceship, 4. collide, 5. asymmetric, 6. antimatter, 7. joule, 8. asymmetric

9. co\_\_\_\_\_e in midair *v.* to hit something violently when moving
10. measure energy in jo\_\_es *n.* the unit of measurement for energy in the International System of Units (SI), equal to the work done by a force of one newton when its point of application moves one meter in the direction of the force
11. a sp\_\_\_\_\_ip to survey the moon *n.* (especially in science fiction) a spacecraft designed to carry a crew into interstellar space
12. po\_\_\_\_\_on annihilation *n.* an antiparticle of the electron with a positive charge that has the same mass as the electron but an opposite charge
13. ant\_\_\_\_\_cle physics *n.* a subatomic particle that has the same mass and opposite charge as its corresponding particle (e.g., a positron is the antiparticle of an electron)
14. ant\_\_\_\_\_cle collisions *n.* a subatomic particle that has the same mass and opposite charge as its corresponding particle (e.g., a positron is the antiparticle of an electron)
15. pr\_\_\_n conductivity *n.* a very small particle with a positive charge equal to the negative charge of an electron that forms part of the nucleus of all atoms
16. pr\_\_\_n decay *n.* a very small particle with a positive charge equal to the negative charge of an electron that forms part of the nucleus of all atoms

ANSWERS: 9. collide, 10. joule, 11. spaceship, 12. positron, 13. antiparticle, 14. antiparticle, 15. proton, 16. proton

ANSWERS:

## Session 3: Fill in the Blanks

1. Scientists are studying the properties of \_\_\_\_\_ to gain a deeper understanding of the universe.
  - n.* matter made up of antiparticles, which have the same mass as regular matter but opposite electrical charges
2. The interests of the two countries \_\_\_\_\_.
  - v.* to hit something violently when moving
3. \_\_\_\_\_ emission tomography, or PET, is a medical imaging technique.
  - n.* an antiparticle of the electron with a positive charge that has the same mass as the electron but an opposite charge
4. The solar wind is composed almost entirely of electrons and \_\_\_\_\_.
  - n.* a very small particle with a positive charge equal to the negative charge of an electron that forms part of the nucleus of all atoms
5. When an \_\_\_\_\_ meets its corresponding particle, the two annihilate.
  - n.* a subatomic particle that has the same mass and opposite charge as its corresponding particle (e.g., a positron is the antiparticle of an electron)
6. They launched a crewless \_\_\_\_\_ into space.
  - n.* (especially in science fiction) a spacecraft designed to carry a crew into interstellar space
7. The \_\_\_\_\_ design of the building made it stand out in the city skyline.
  - adj.* lacking symmetry or balance; not corresponding in size, shape, or degree; characterized by an uneven or unequal distribution or arrangement

ANSWERS: 1. antimatter, 2. collide, 3. Positron, 4. protons, 5. antiparticle, 6. spaceship, 7. asymmetric

8. A 60-watt light bulb uses 60 \_\_\_\_\_ of energy per second.
- n.* the unit of measurement for energy in the International System of Units (SI), equal to the work done by a force of one newton when its point of application moves one meter in the direction of the force

ANSWERS: 8. joules