

COMPARE & CONTRAST PARAGRAPH

Objective: By the end of this lesson, you will be able to compare two engineering technologies, organize your ideas clearly, and write a 100-word compare/contrast paragraph. A good paragraph should: *introduce the topic *show similarities and differences * use linking expressions *give specific information *finish with a clear closing sentence.

GET STARTED: THINK LIKE AN ENGINEER

1. What do solar panels and wind turbines have in common?
2. How are they different?
3. What factors should an engineer compare before choosing a system?

READ & FIND INFORMATION Adapted from <https://www.teach-this.com/academic-english-worksheets-activities/compare-and-contrast-essays>

Wind is a primary choice for clean energy that can significantly reduce pollution and has minimal operational costs. It can also help reduce our reliance on oil and gas. Wind energy can provide electrical power for homes and utility grids and can be stored in batteries and used to pump water. A major benefit of wind energy is that it can enable households and businesses to generate and store their own electricity onsite. Also, it gives them backup power if the traditional utility grid fails. Wind power is generated by taking the air that flows through turbines, converting this kinetic energy into mechanical power. There are two categories of wind power. The first is utility scale wind which uses wind turbines larger than 100 kilowatts to provide energy to entire regions via utility companies. Land-based utility scale wind is one of the cheapest energy sources available today and promises to become even more affordable as the technology develops. The second is distributed wind which makes use of turbines smaller than 100 kilowatts to provide power to homes and small businesses directly.

Solar power is a leading source of clean, renewable, and increasingly affordable energy that can help us break our dependence on fossil fuels as a reliable source of energy. Home owners can easily install solar panels on their roofs and enjoy energy bill savings. In some countries, users can also qualify for tax breaks or energy rebates for any excess energy they produce that is delivered to the utility grid. Rooftop solar panels also provide a useful source of backup energy. Solar power's energy is captured from the sun's rays and then converted into thermal or electrical energy. There are three types of solar energy. The first is photovoltaic which generates energy from sunlight through an electronic process used to power small electronic devices, road signs, homes and small businesses. The cost of residential photovoltaic solar power has dropped from \$0.50 per kilowatt hour in 2010 to \$0.128 per kilowatt hour in 2020. The second type is solar heating and cooling which uses the sun's heat to provide homes with hot water and to provide space heating and cooling. The final form is concentrated solar power that uses the sun's heat to run traditional turbines that generate electricity for utility grids.

Complete these definitions with words from the text.

1. Amounts of money that are paid back to you...
2. Describing something that is concerned with movement....
3. A unit of measuring power or energy that is equal to 1,000...
4. An area that has only houses and not offices or factories...
5. Describing the process of creating electrical energy from light...
6. Describing something that relates to or is caused by heat ...
7. Located in the place people live or work and not elsewhere...
8. A service, such as an electricity or gas supply, that is used by the public...
9. To put a machine or a piece of equipment into position, and make it ready to use...
10. Machines with a wheel that is driven by the movement of liquid or gas...

Complete the comparison chart.

Aspect	Solar Energy	Wind Energy
Energy source	_____	_____
Typical location	_____	_____
Main equipment	_____	_____
Energy production depends on	_____	_____
Installation	_____	_____
Possible limitation	_____	_____

LANGUAGE TOOLKIT

COMPARE / SHOW SIMILARITY	CONTRAST / SHOW DIFFERENCE
Both ... and ...	However, ...
Similarly, ...	While ..., ...
Likewise, ...	Whereas ..., ...
	In contrast, ...
	Unlike ...

BUILD THE PARAGRAPH: ORDER & CONNECT

Identify the function: **I = Introduction S = Similarity D = Difference C = Conclusion**

- A. _____ Wind energy is often more effective in locations with sufficient wind, whereas solar energy is most beneficial in sunny regions.
- B. _____ While wind and solar energy have different advantages and challenges, they can both contribute to a sustainable energy future.
- C. _____ Wind energy and solar energy play significant roles in the transition to clean, renewable energy sources.
- D. _____ Solar energy captures sunlight through panels and can provide electricity for homes and businesses.
- E. _____ Both energy sources can reduce carbon emissions and dependence on fossil fuels.
- F. _____ Wind energy harnesses kinetic energy from moving air through turbines and can generate electricity when wind conditions are suitable.

Complete the sentences with the best linking expressions. Two expressions are extra.

Both • Similarly • On the one hand • On the other hand • However • In contrast • Likewise • In conclusion

1. _____ wind energy and solar energy play significant roles in the transition to clean, renewable energy sources.
2. _____, both energy sources can reduce carbon emissions and dependence on fossil fuels.
3. _____, solar energy captures sunlight through panels and can provide electricity for homes and businesses.
4. _____, wind energy harnesses kinetic energy from moving air through turbines and can generate electricity when wind conditions are suitable.
5. _____, their effectiveness depends on different geographical conditions: solar energy is more suitable for sunny areas, whereas wind energy requires locations with sufficient wind.
6. _____, wind and solar energy have different advantages and challenges, but they can both contribute to a sustainable energy future.

Read the text again and choose the title that best summarizes its main idea.

- A. How Engineers Build Modern Wind Turbines**
- B. The Environmental Problems of Solar Energy**
- C. Champions of Clean Energy: Wind and Solar Power**
- D. The Cost of Producing Renewable Electricity**

A compare/contrast paragraph explains how two subjects are similar and/or different. For a short engineering paragraph, use a point-by-point organization.

PART	WHAT TO DO
1. Topic sentence	Introduce the two technologies and the main focus of the comparison.
2. Similarity	Explain one important thing they have in common.
3. Difference 1	Compare the same aspect for both technologies.
4. Difference 2	Compare another aspect.
5. Difference 3	Add another relevant difference or similarity.
6. Closing sentence	Summarize the comparison or give an engineering consideration.

Planning point	Possible notes
Topic sentence	Solar and wind energy are two renewable technologies used to generate electricity.
Similarity	Both can generate renewable electricity and reduce dependence on fossil fuels.
Difference 1: energy source	Solar uses sunlight; wind uses moving air.
Difference 2: location / installation	Solar can be installed on rooftops or in sunny areas; wind turbines need suitable open areas.
Difference 3: production / limitation	Solar production depends on sunlight; wind production depends on wind conditions.
Closing sentence	Engineers need to consider location and operating conditions when selecting a renewable-energy system.

Now, write the complete paragraph using linking words and you will have a model for your writing.

WRITING CHALLENGE. Time to plan your paragraph