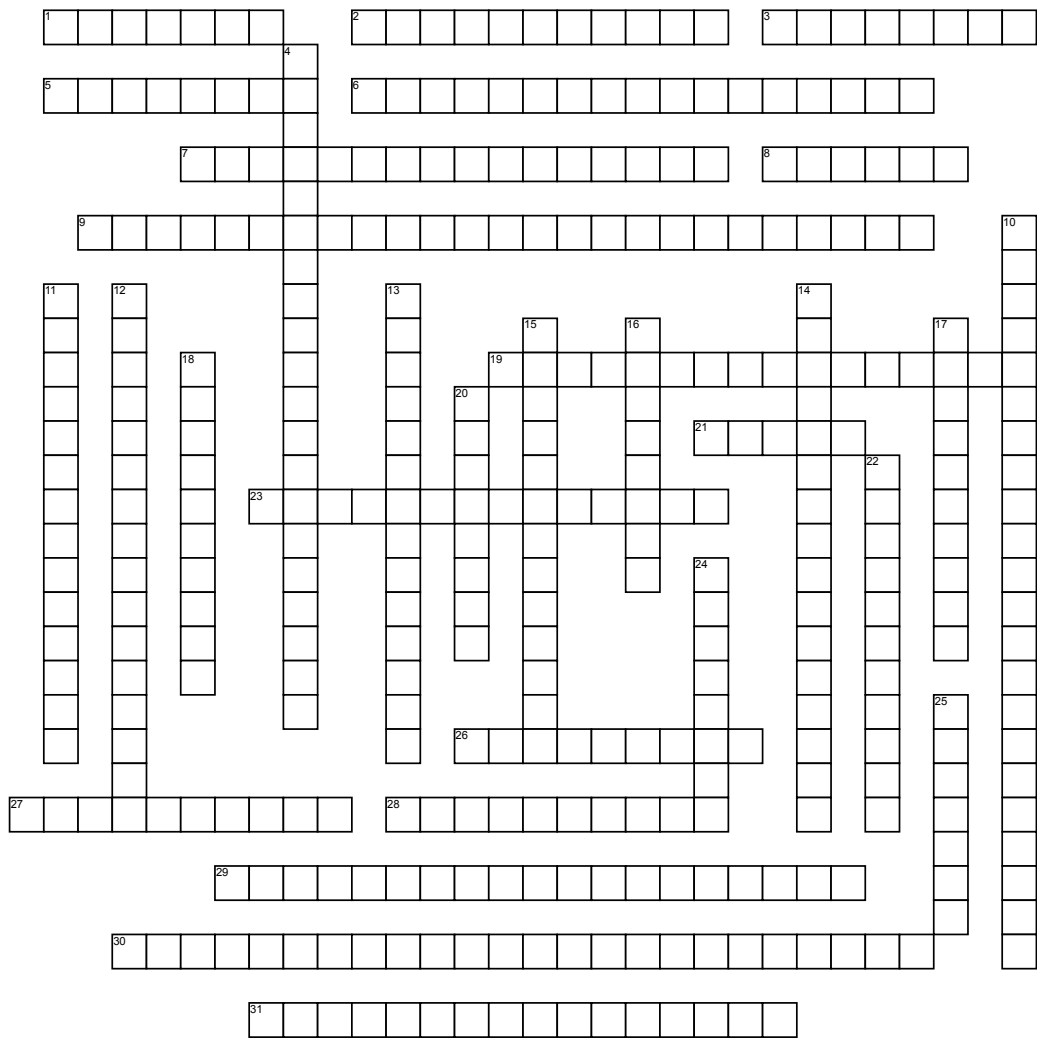


Name: _____

Energy Vocabulary



Across

- 1. machine that converts mechanical energy (wind, moving water, steam) into electrical energy by use of a generator
- 2. process in which rock and soil are stripped from the earth's surface to expose the underlying materials to be mined
- 3. highest environmental impact, severe land use and disturbance, severe land/air/water pollution, severe human health impacts, high CO2 and CH4 emissions, mercury and heavy metals, radioactive isotopes
- 5. length of time required for half of the radioactive atoms in a sample to decay
- 6. involves the sinking of shafts to reach underground deposits. In this type of mining, networks of tunnels are dug or blasted and humans enter these tunnels in order to manually retrieve the coal.
- 7. a temperature increase in a body of water that is caused by human activity and that has a harmful effect on water quality and on the ability of that body of water to support life
- 8. the capacity of a physical system to do work
- 9. a law stating that mechanical work can be derived from a body only when that body interacts with another at a lower temperature, when energy is changed from one form to another, some useful energy is always degraded into lower quality energy (usually heat)
- 19. Three mile Island (U.S.) had a meltdown occurred through one half of one reactor core. Chernobyl (Ukraine) was worst, with an explosion that destroyed the reactor and sent clouds of radioactive debris into the atmosphere. Recent example Fukushima, Japan with earthquake and tsunami leading to meltdown and explosions.
- 21. rate of doing work

- 23. Releases CO2 when burned, methane can leak- pipelines, shipped across oceans (Explosive LNG), burned off and wasted because of low price
 - 26. A device that uses electromagnetic induction to induce electrical current by rotating loops of wire through a magnetic field
 - 27. are watts and horsepower
 - 28. nonrenewable energy resource formed from the remains of organisms that lived long ago
 - 29. nuclear reactor in which water is allowed to boil in the core. The resulting steam is used to drive a turbine generating electric power
 - 30. The principle of conservation of energy. Energy can be transferred and transformed, but it cannot be created or destroyed. Energy is neither created nor destroyed, but may be converted from one form to another (Law of Conservation of Energy)
 - 31. large fuel supply, low environmental impact and emits 1/6 amount of CO2 as coal, less land disruption, low risk of accidents
- Down**
- 4. cheap, easily transported, high-quality energy. Cons: reserves depleted soon, pollution during drilling, transport and refining, land subsidence, burning oil produces CO2
 - 11. core, control rods, moderator, steam, generator, turbine, containment building
 - 12. ample supply, high net energy yield, low cost, low pollution emissions and environmental impact, easily transported, low land use, good fuel
 - 13. Particles from a nuclear reaction that emit radiation; contact with such particles may be harmful or lethal to people and must therefore be safely stored for thousands of years.

- 13. Nuclear change in which the nuclei of certain isotopes with large mass numbers (such as uranium-235 and plutonium-239) are split apart into lighter nuclei when struck by a neutron. This process releases more neutrons and a large amount of energy
- 14. Waste product (spent fuels) and other radioactive waste difficult to store and contain. Must first be stored in pools to cool the fuel or in specialized dry storage; Water used in cooling process causes thermal pollution; Half-life of uranium used for fuel is 704 million years
- 15. 2 isotopes of light elements (H) forced together at high temperatures till they fuse to form a heavier nucleus. Happens in the Sun, very difficult to accomplish on Earth, prohibitively expensive.
- 16. severe overheating of a nuclear reactor core, resulting in melting of the core and escape radiation
- 17. cleanest-burning coal; almost pure carbon
- 18. naturally occurring gaseous hydrocarbon (predominantly methane) generally produced in association with crude oil or from gas wells; an important efficient and clean-burning fuel commonly used in homes and industry
- 20. ample supplies, high net energy yield, low cost
- 22. joule, calorie, british thermal unit, kilowatt hour
- 24. petroleum as it comes out of the ground and before it has been refined or processed into useful products
- 25. colorless, odorless, flammable gas present in natural gas and formed by the decomposition of organic matter; can be produced by living organisms

Word Bank

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|------------------------------|----------------------------|--------------------|-----------------------------|
| energy | nuclear power pros | anthracite | coal cons |
| crude oil | power units | nuclear fusion | first law of thermodynamics |
| second law of thermodynamics | nuclear power cons | energy units | nuclear accidents |
| fossil fuel | turbine | power | generator |
| strip mining | half life | thermal pollution | nuclear fission |
| coal pros | parts of a nuclear reactor | natural gas | methane |
| petroleum pros and cons | boiling water reactor | natural gas pros | meltdown |
| radioactive waste | natural gas cons | underground mining | |