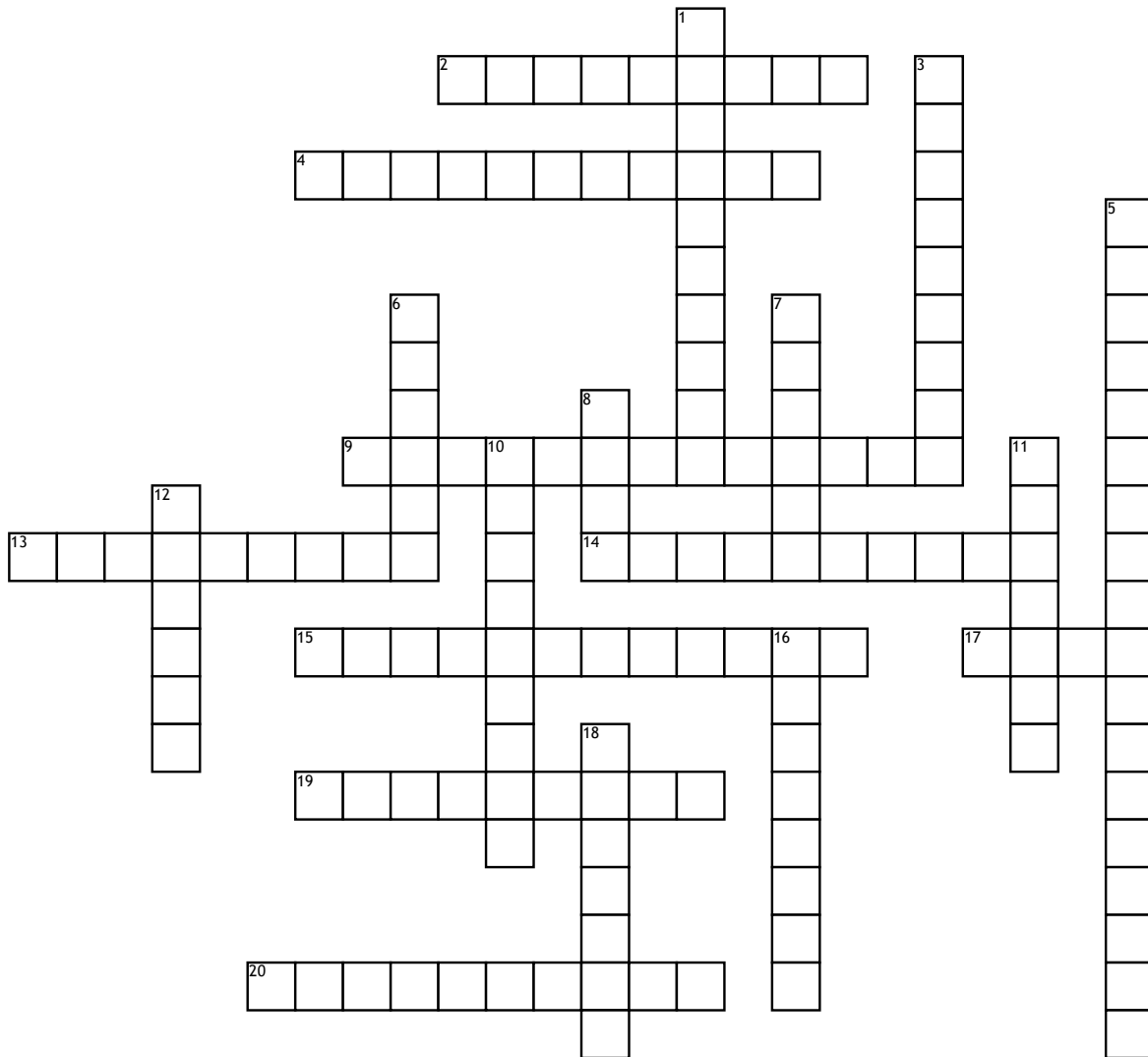


# The Sun Puzzle



**Across**

- 2. a theoretical massive object, formed at the beginning of the universe or by the gravitational collapse of a star exploding as a supernova, whose gravitational field is so intense that no electromagnetic radiation can escape
- 4. an extremely dense, compact star composed primarily of neutrons, especially the collapsed core of a supernova
- 9. a nuclear reaction in which atomic nuclei of low atomic number fuse to form a heavier nucleus with the release of energy
- 13. the explosion of a star, possibly caused by gravitational collapse, during which the star's luminosity increases by as much as 20 magnitudes and most of the star's mass is blown away at very high velocity, sometimes leaving behind an extremely dense core
- 14. a brief eruption of intense high-energy radiation from the sun's surface, associated with sunspots and causing electromagnetic disturbances on the earth, as with radio frequency communications and power line transmissions
- 15. a spectroscopy for photographing or producing a representation of a spectrum

17. any of the large, self-luminous, heavenly bodies, as the sun, Polaris

19. Hertzsprung-Russell Diagram. The Hertzsprung-Russell Diagram is a graphical tool that astronomers use to classify stars according to their luminosity, spectral type, color, temperature and evolutionary stage

20. a system of two stars that revolve about their common center of mass

**Down**

- 1. a star, approximately the size of the earth, that has undergone gravitational collapse and is in the final stage of evolution for low-mass stars, beginning hot and white and ending cold and dark
- 3. an increase by natural growth or by gradual external addition; growth in size or extent
- 5. Absolute magnitude is the measure of intrinsic brightness of a celestial object. It is the hypothetical apparent magnitude of an object at a standard distance of exactly 10 parsecs (32.6 light years) from the observer, assuming no astronomical extinction of starlight

6. Also called diffuse nebula. a cloud of interstellar gas and dust. Compare dark nebula, emission nebula, reflection nebula

7. one of over a thousand known extragalactic objects, starlike in appearance and having spectra with characteristically large redshifts, that are thought to be the most distant and most luminous objects in the universe

8. a body of coherent matter, usually of indefinite shape and often of considerable size

10. the distance traversed by light in one mean solar year, about 5.88 trillion mi. (9.46 trillion km): used as a unit in measuring stellar distances

11. the property of matter by which it retains its state of rest or its velocity along a straight line so long as it is not acted upon by an external force

12. the amount or quantity of heaviness or mass; amount a thing weighs

16. the apparent displacement of an observed object due to a change in the position of the observer

18. the force of attraction by which terrestrial bodies tend to fall toward the center of the earth