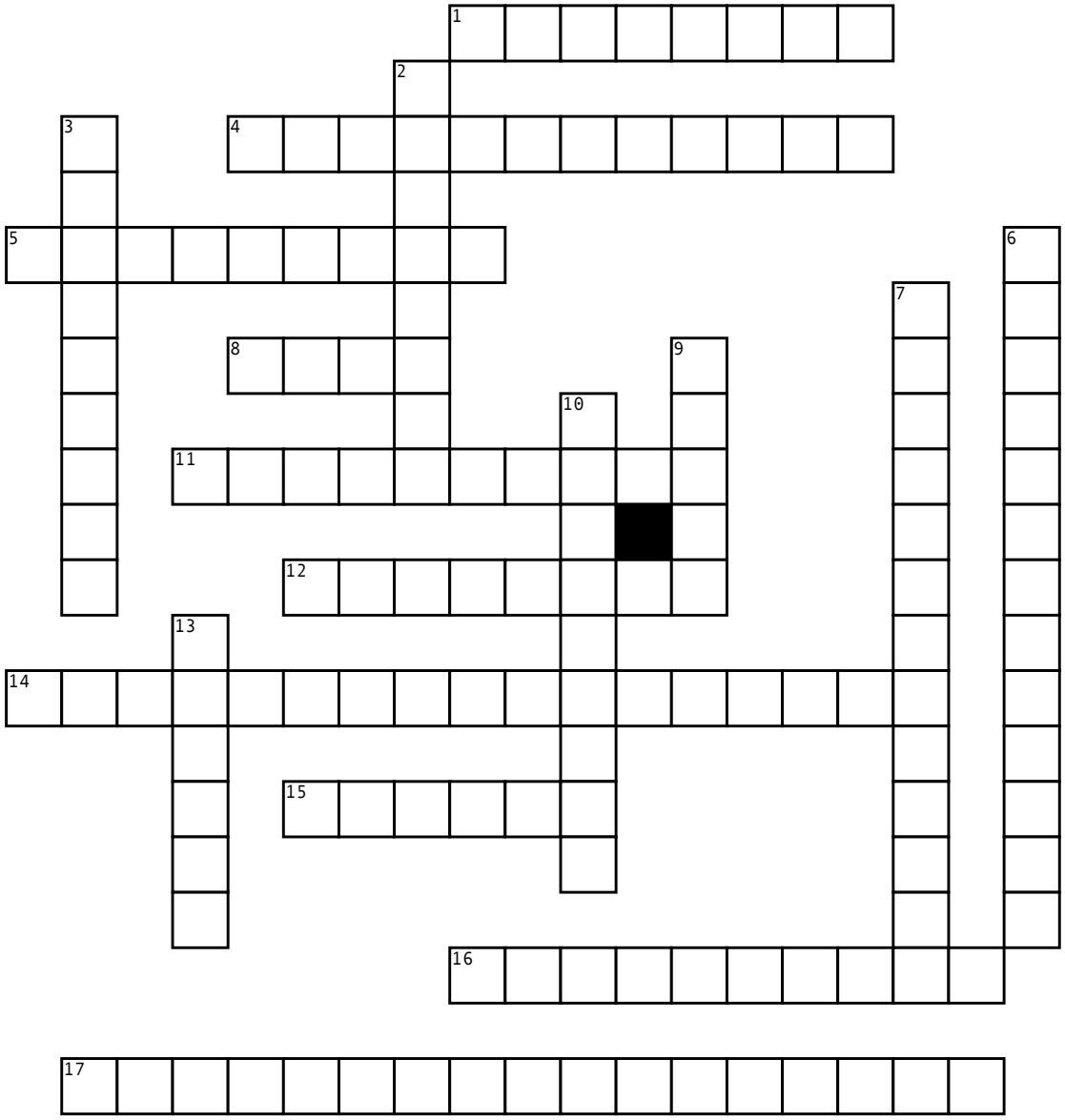
Astronomy



Across

1. a small rocky body orbiting the sun. Large numbers of these, ranging in size from nearly 600 miles (1,000 km) across (Ceres) to dust particles, are found (as the asteroid belt) especially between the orbits of Mars and Jupiter, though some have more eccentric orbits, and a few pass close to the earth or enter the atmosphere as meteors.

4. a series of star types to which most stars belong, represented on a Hertzsprung–Russell diagram as a continuous band extending from the upper left (hot, bright stars) to the lower right (cool, dim stars).

5. a star that suddenly increases greatly in brightness because of a catastrophic explosion that ejects most of its mass.

8. a fixed luminous point in the night sky which is a large, remote incandescent body like the sun.

11. the range of wavelengths or frequencies over which electromagnetic radiation extends.

12. the displacement of spectral lines toward longer wavelengths (the red end of the spectrum) in radiation from distant galaxies and celestial objects. This is interpreted as a Doppler shift that is proportional to the velocity of recession and thus to distance.

14. the magnitude of a celestial object as it is actually measured from the earth.

15. a cloud of gas and dust in outer space, visible in the night sky either as an indistinct bright patch or as a dark silhouette against other luminous matter.

16. the intrinsic brightness of a celestial object (as distinct from its apparent brightness diminished by distance).

17. the magnitude (brightness) of a celestial object as it would be seen at a standard distance of 10 parsecs.

Down

2. all existing matter and space considered as a whole; the cosmos. The universe is believed to be at least 10 billion light years in diameter and contains a vast number of galaxies; it has been expanding since its creation in the Big Bang about 13 billion years ago.

3. the displacement of the spectrum to shorter wavelengths in the light coming from distant celestial objects moving toward the observer.

6. theory in astronomy: the universe originated billions of years ago in an explosion from a single point of nearly infinite energy density.

7. an increase (or decrease) in the frequency of sound, light, or other waves as the source and observer move toward (or away from) each other. The effect causes the sudden change in pitch noticeable in a passing siren, as well as the redshift seen by astronomers.

9. a celestial object consisting of a nucleus of ice and dust and, when near the sun, a “tail” of gas and dust particles pointing away from the sun.

10. a scatter plot of stars showing the relationship between the stars' absolute magnitudes or luminosities versus their stellar classifications or effective temperatures.

13. a system of millions or billions of stars, together with gas and dust, held together by gravitational attraction