

Blues Skies and Orange Sunsets

To an astronaut in space the Sun appears white. However, to us on Earth the Sun appears to be yellow. This occurs because some of the blue light in the Sun's rays is scattered as it passes through the Earth's atmosphere. When light is scattered it becomes visible. The sunlight that is not scattered consists of red, orange, yellow and green light. When these colours of light are combined within our eyes, it makes the Sun appear yellow.

When the Sun is low in the sky (at dawn and dusk) the rays of light from the Sun have to pass through more of our atmosphere. This means almost all of the blue light is scattered out, as well as most of the green. This means the red, yellow and orange colours reach the observer or illuminate clouds that the observer can see.

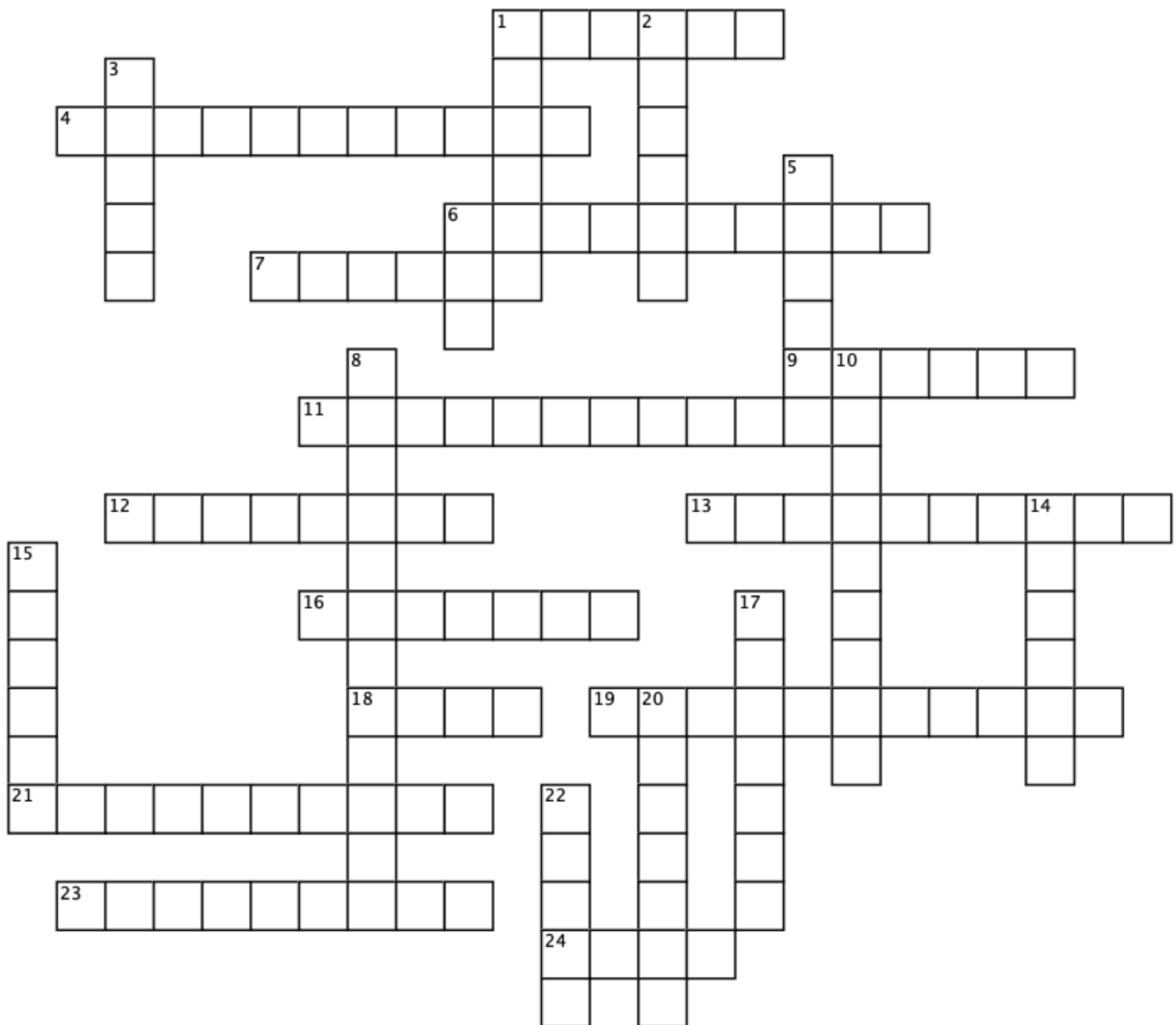


- Using the letters 'A' or 'B' (from the diagram), state where the Sun would be:
 - at midday. _____
 - at 7pm. _____
 - if the observer was seeing blue sky. _____
 - if the observer was seeing a sunset. _____
- Using your answers from question 1 and the information above, explain why the observer would appear to see:
 - Blue sky. _____

 - A red sunset. _____

- There is no atmosphere on the Moon. State what colour you would expect the Sun to appear if you were standing on the Moon. _____

End of Chapter Crossword



Across

1. Part of your eye that light enters first.
4. Term used to describe objects that only let some light through.
6. Term used to describe the bending of light.
7. Type of lens used in magnifying glasses. A converging lens.
9. Term used to describe objects that do not let light through.
11. Fibre made of glass or plastic that can carry light from one end to the other.
12. Light rays that strike a mirror.
13. Nerve that carries electrical impulses from your eye to your brain.
16. Type of lens in which the light rays spread out (diverge) after travelling through it.
18. Allows you to change the focus of your eye.
19. A term used to describe objects that let all light pass through.
21. A mixture of all the colours of the spectrum.
23. Light rays that leave a mirror.
24. The coloured part of your eye.

Down

1. Type of mirror from which reflected light diverges (spreads out).
2. Imaginary line at 90° to a mirror's surface.
3. Triangle of glass which splits light into seven colours.
5. Shiny surface that reflects light.
6. Light colour refracted the least from a prism.
8. $300\,000\,000\text{ m s}^{-1}$.
10. Instrument used on submarines to see above the water surface.
14. Light-sensitive region at the back of your eyes.
15. An area that light rays cannot reach because an object is blocking its path.
17. Type of mirror from which light rays converge (come together).
20. Used to remember the colours of the spectrum.
22. Name for the hole in your iris.