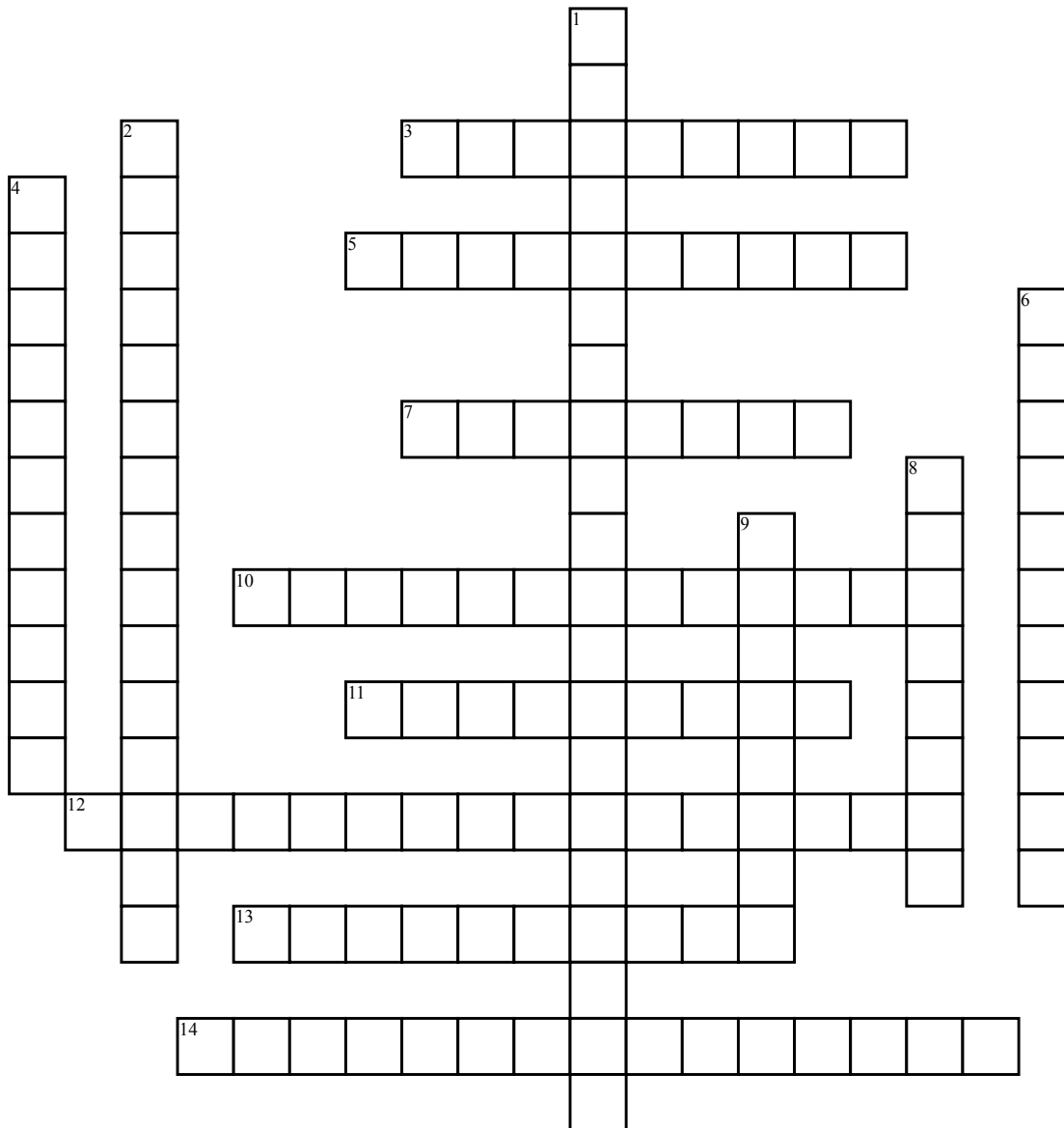


# Gene Regulation Cross Word Puzzle



## Across

**3.** random errors in gene replication that lead to a change in the sequence of nucleotides; the source of all genetic diversity

**5.** (jumping genes) short strands of DNA capable of moving from one location to another within a cell's genetic material

**7.** one type of eukaryotic mRNA processing in which introns are removed from the primary transcript and exons are ligated together

**10.** the increase in range of a single signal to many cells

**11.** a DNA segment containing multiple control elements that may be located far away from the gene it regulates

**12.** barriers that prevent protein synthesis from occurring

**13.** proteins that turn genes on by binding to DNA (makes it easier for RNA polymerase to bind to the promoter)

**14.** the transfer of a phosphate group, usually from ATP, to a molecule. Nearly all cellular work depends on ATP energizing other molecules by phosphorylation

## Down

**1.** regulatory proteins that respond to a signal and bind to specific DNA sequences near a gene and allow RNA to attach to the promoter

**2.** the time it takes proteins to digest a cell

**4.** attached to histone tails to loosen chromatin structure, thereby promoting the initiation of transcription

**6.** addition of a methyl group (-CH<sub>3</sub>) to DNA or RNA, a process that plays a role in the control of genetic expression, initiation of DNA replication, protection against viral infection, and repair of DNA

**8.** regulation at the level of DNA where there's total or partial deletion of a gene resulting in the loss of capability to produce mRNA

**9.** a lipid molecule that sends out signals to other cells, but first had to enter the nucleus