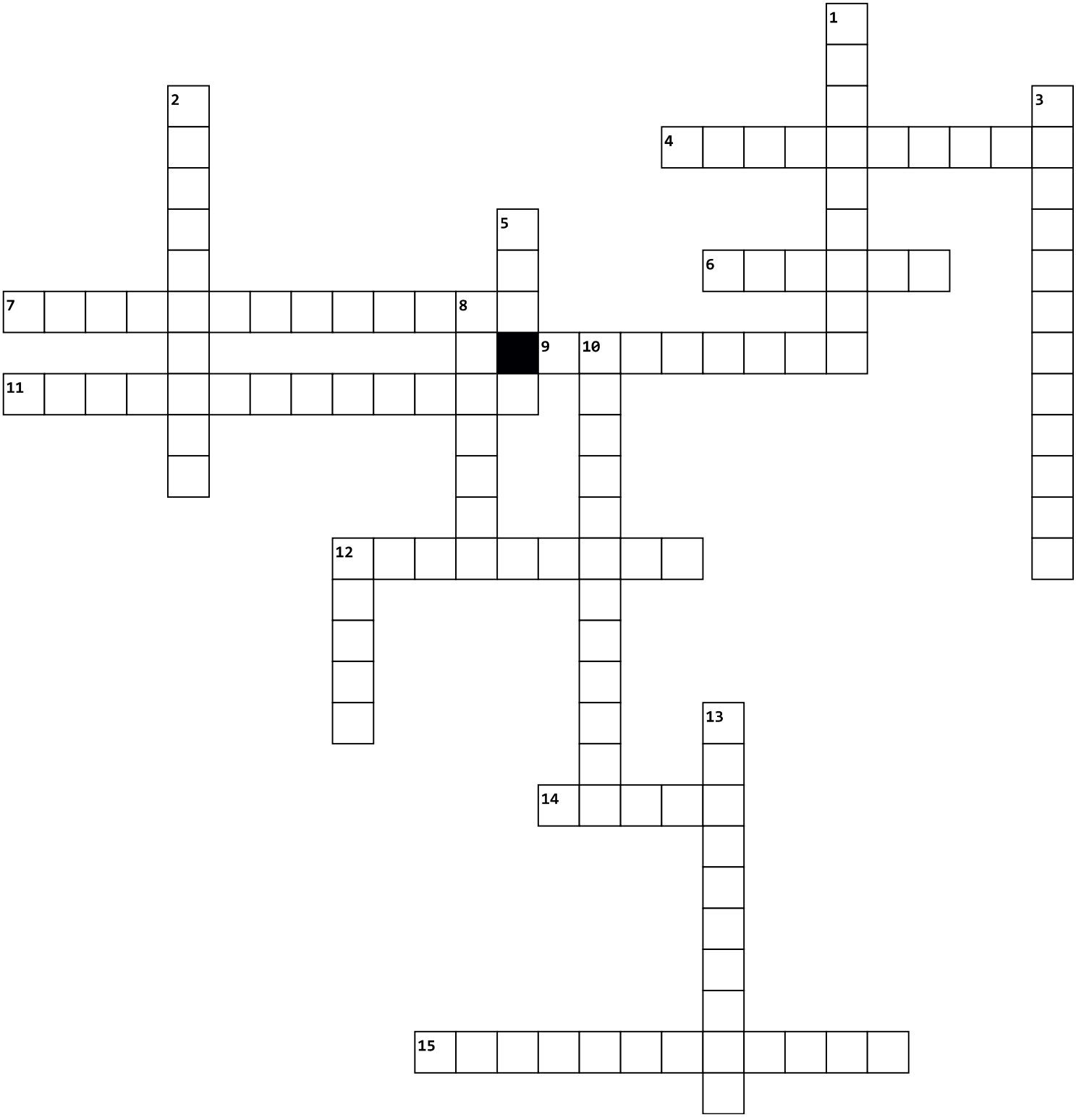
# Sets




**Across**

**4.** The set of all elements that are in set \( A \) but not in set \( B \). Denoted by \( A - B \) or \( A \setminus B \). For example, if \( A = \{1, 2, 3\} \) and \( B = \{2, 3, 4\} \), then \( A - B = \{1\} \) .

**Down**

**1.** The set of all subsets of a set \( A \), including \( A \) and the empty set. Denoted by \( P(A) \). For example, if \( A = \{1, 2\} \), then \( P(A) = \{\emptyset, \{1\}, \{2\}, \{1, 2\}\} \) .

**6.** A set $A$ is a subset of a set $B$ if every element of $A$ is also an element of $B$. Denoted by $A \subseteq B$ .

**7.** A set $A$ is a proper subset of $B$ if $A \subseteq B$ and $A \neq B$. Denoted by $A \subset B$ .

**9.** Two sets $A$ and $B$ are disjoint if they have no elements in common, i.e., $A \cap B = \emptyset$ .

**11.** The set that contains all the objects under consideration, usually denoted by $U$ .

**12.** A set with no elements, denoted by $\emptyset$ or $(\{\})$ .

**14.** The set of all elements that are in either set $A$ or set $B$ or in both. Denoted by $A \cup B$. For example, if $A = \{1, 2, 3\}$ and $B = \{3, 4, 5\}$, then $A \cup B = \{1, 2, 3, 4, 5\}$ .

**15.** A set with an uncountable number of elements, such as the set of all natural numbers, $N = \{1, 2, 3, \ldots\}$ .

**2.** The set of all elements in the universal set $U$ that are not in set $A$. Denoted by $A'$ or $\overline{A}$ .

**3.** A diagram that shows all possible logical relations between a finite collection of sets. Used to illustrate set operations like union, intersection, and difference .

**5.** A well-defined collection of objects. For example, the set of all natural numbers, $N = \{1, 2, 3, \ldots\}$ .

**8.** (or Member) An object contained within a set. Denoted by the symbol $\in$. For instance, if $a$ is an element of set $A$, we write $a \in A$ .

**10.** The set of all elements that are in both sets $A$ and $B$. Denoted by $A \cap B$. For example, if $A = \{1, 2, 3\}$ and $B = \{2, 3, 4\}$, then $A \cap B = \{2, 3\}$ .

**12.** Two sets $A$ and $B$ are equal if they contain exactly the same elements, i.e., $A = B$ if $A \subseteq B$ and $B \subseteq A$ .

**13.** A set with a countable number of elements. For example, the set of vowels in the English alphabet, $\{a, e, i, o, u\}$ .