# Probability & Statistics 1

A-Level Mathematics · Vocabulary in context

| Word | Example |
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| **Probability & Statistics** /ˌprɒbə'bɪlɪti ænd stə'tɪstɪks/ | **Probability & Statistics** studies chance and data. |
| **stem-and-leaf diagram** /stem ænd li:f 'daɪəgræm/ | A **stem-and-leaf diagram** shows every value in order. |
| **back-to-back** /bæk tə bæk/ | A **back-to-back** stem-and-leaf diagram compares two groups. |
| **box-and-whisker plot** /bɒks ænd 'wɪskə plɒt/ | A **box-and-whisker plot** shows the median, the quartiles and the smallest and largest values. |
| **histogram** /'hɪstəgræm/ | Draw a **histogram** with the bars touching. |
| **cumulative frequency** /'kju:mjʊlətɪv 'fri:kwənsi/ | **Cumulative frequency** is a running total. |
| **frequency density** /'fri:kwənsi 'densɪti/ | **Frequency density** is frequency divided by class width. |
| **measure of central tendency** /'meʒə ɒv 'sentrəl 'tendənsi/ | The median is a **measure of central tendency**. |
| **central tendency** /'sentrəl 'tendənsi/ | The mean, median and mode are measures of **central tendency**. |
| **mean** /mi:n/ | The **mean** is the total divided by the number of values. |
| **median** /'mi:di:ən/ | Put the values in order before you find the **median**. |



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| **mode** /məʊd/ | The **mode** is the most common value. |
| **variation** /ˌveərɪˈeɪʃn/ | There is a lot of **variation** in the students' heights. |
| **range (of data)** /reɪndʒ/ | The **range (of data)** is the largest value minus the smallest. |
| **interquartile range** /ˌɪntəˈkwɔːtaɪl reɪndʒ/ | Subtract the lower quartile from the upper for the **interquartile range**. |
| **standard deviation** /ˈstændəd ˌdiːvɪˈeɪʃn/ | A larger **standard deviation** means the values are more spread out. |
| **variance** /ˈveərɪəns/ | The **variance** is the square of the standard deviation. |
| **mid-interval value** | Use the **mid-interval value** of each class to estimate the mean. |
| **Coding** /ˈkəʊdɪŋ/ | **Coding** with $y = x - 100$ makes the numbers smaller and easier to add.<br>$y = x - 100$ |
| **assumed mean** /əˈsjuːmd miːn/ | Using 50 as an **assumed mean** makes the sums easier.<br>50 |
| **permutation** /ˌpɜːmjuːˈteɪʃn/ | In a **permutation**, changing the order changes the arrangement. |
| **combination** /ˌkɒmbɪˈneɪʃn/ | In a **combination**, the order of chosen items does not matter. |
| **mutually exclusive events** /ˈmjuːtʃuːəli eksˈkluːsɪv ɪˈvents/ | Rolling a 2 and rolling a 5 are **mutually exclusive events**.<br>2 5 |
| **independent events** /ˌɪndɪˈpendənt ɪˈvents/ | Two coin tosses are **independent events**. |



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| **conditional probability** /kənˈdɪʃənl ˌprɒbəˈbɪlɪti/ | Find the **conditional probability** using only the chosen group. |
| **discrete random variable** /dɪˈskriːt ˈrændəm ˈveərɪəbl/ | The number of heads in three coin flips is a **discrete random variable**. |
| **probability distribution table** /ˌprɒbəˈbɪlɪti ˌdɪstrɪˈbjuːʃn ˈteɪbl/ | A **probability distribution table** lists each value and its probability. |
| **expectation** /ekspɪkˈteɪʃn/ | The **expectation** of a fair die's score is 3.5. $3.5$ |
| **binomial distribution** /baɪˈnəʊmɪəl ˌdɪstrɪˈbjuːʃn/ | A **binomial distribution** counts the number of heads in 20 coin tosses. $20$ |
| **geometric distribution** /ˌdʒiːəʊˈmetrɪk ˌdɪstrɪˈbjuːʃn/ | The **geometric distribution** counts the throws until the first six. $6$ |
| **normal distribution** /ˈnɔːml ˌdɪstrɪˈbjuːʃn/ | A **normal distribution** has a symmetric bell-shaped density curve. |
| **continuous random variable** /kənˈtɪnjuːəs ˈrændəm ˈveərɪəbl/ | A person's height is a **continuous random variable**. |
| **standardisation** /ˌstændədaɪˈzeɪʃn/ | **Standardisation** turns X into $Z = (X - \mu)/\sigma$. $X$ $Z = (X - \mu)/\sigma$ |
| **approximation** /əˌprɒksɪˈmeɪʃn/ | An **approximation** simplifies a calculation when a change is small. |
| **continuity correction** /kɒntɪˈnjuːɪti kəˈrekʃn/ | Use a **continuity correction**: $P(X \leq 5)$ becomes $P(Y < 5.5)$. $P(X \leq 5)$ $P(Y < 5.5)$ |



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