

# A GUIDE TO THE NATURE INDEX

*A description of the terminology and methodology used in this supplement, and a guide to the functionality available free online at [natureindex.com](http://natureindex.com)*

The Nature Index is a database of author affiliations and institutional relationships. The index tracks contributions to research articles published in 82 high-quality natural science journals, chosen by an independent group of researchers.

The Nature Index provides absolute and fractional counts of article publication at the institutional and national level and, as such, is an indicator of global high-quality research output and collaboration. Data in the Nature Index are updated regularly, with the most recent 12 months made available under a Creative Commons licence at [natureindex.com](http://natureindex.com). The database is compiled by Springer Nature.

## NATURE INDEX METRICS

The Nature Index provides several metrics to track research output and collaboration. These include article count, fractional count, and multilateral and bilateral collaboration scores.

The simplest is the article count (AC). A country/region or an institution is given an AC of 1 for each article that has at least one author from that country/region or institution. This is the case regardless of the number of authors an article has, and it means that the same article can contribute to the AC of multiple countries/regions or institutions.

To glean a country's, a region's or an institution's contribution to an article, and to ensure they are not counted more than once, the Nature Index uses fractional count (FC), which takes into account the share of authorship on each article. The total FC available per article is 1, which is shared among all authors under the assumption that each contributed equally. For instance, an article with 10 authors means that each author receives an FC of 0.1. For authors who are affiliated with more than one institution, the author's FC is then split equally between each institution. The total FC for an institution is calculated by summing the FC for individual affiliated authors. The process is similar for countries/regions, although complicated by the fact that some institutions have overseas labs that will be counted towards host country/region totals.

Two metrics measure collaboration. The multilateral collaboration score (MCS) is an indicator of collaboration between multiple

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*A global indicator of high-quality research*

Subject	AC	FC
Life Sciences	602	209.91
Chemistry	343	155.94
Physical Sciences	645	219.87
Earth & Environmental Sciences	148	52.51

**natureindex.com** users can search for specific institutions or countries/regions and generate their own reports, ordered by article count (AC) or fractional count (FC).

Each query will return a profile page that lists the country/region or institution's recent outputs, from which it is possible to drill down for more information. Articles can be displayed by journal, and then by article. Research outputs are organized by subject area. The pages list the institution or country/region's top collaborators, as well as its relationship with other organizations. Registering allows users to track an institutions' performance over time, create their own indexes and export table data.

institutions and can be calculated for an individual institution or a group of institutions. MCS takes account of the number of collaborating institutions on a given article, so it can be added across multiple institutions, always resulting in a total FC of 1 for each article. To calculate an individual institution's FC on an article, each collaborating institution's FC on the article is divided by one less than the total number of institutions (n) that collaborated on the article (n-1).

The bilateral collaboration score (CS) between two institutions A+B is the sum of each of their FCs on the papers to which both have contributed. A bilateral collaboration can be between any two institutions or countries/regions co-authoring at least one article in the journals tracked by the Nature Index.

## THE SUPPLEMENT

Nature Index 2019 Japan is based on data from [natureindex.com](http://natureindex.com), covering articles published during the period 1 January 2012 to 31 October 2018. All references to the year 2018 in tables and graphs include data for the 12 months preceding 31 October. The tables rank institutions by their international MCS for articles published between January 2015 and October 2018. The international MCS sums the contribution of each Japanese institution and their overseas partners to high-quality research papers. Each institution's total MCS (including domestic partners), FC and AC are also provided. In addition, separate tables rank Japanese institutions by their international MCS according to subject, and by sector. ■