Numbers, Whole Encyclopedia Article

Numbers, Whole

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Numbers, Whole

The whole number set contains the counting numbers 1, 2, 3,… and the number 0. In mathematics, the whole number set is the most basic number set. Whole numbers are part of the real number set, which contains other number sets, such as the integers and the rational numbers.

Using the basic mathematical definition of a set as a collection of objects that share a well-defined property, the whole number set is expressed as **W** = {0, 1, 2, 3,…}. Starting from 0, each element *x* of the whole number set is generated by adding one to its predecessor, the number before *x,* which is *x* - 1. The use of the ellipsis (…) within the braces signifies that the number of elements in the set is not finite (that is, infinite).

Except 0, every whole number *x* has exactly one immediate predecessor—the number that comes before *x*. Every whole number *y* has exactly one immediate successor—the number that comes after *y*.

An interesting characteristic of the whole number set is that there is no largest whole number. Suppose *b* is the largest whole number, then by definition, *b* + 1 is also a whole number. But *b* + 1 is larger than *b*. This method shows that a larger whole number can always be found.

If 0 is removed from the set **W,** the resultant is the positive integer set **P.** Thus, **P** = {1, 2, 3,…}. Some mathematicians also call **P** natural numbers

Young students first experience whole numbers because they represent things that can be counted. As the photograph shows, learning to add numbers correctly takes practice.

or counting numbers.

See Also

Integers; Numbers, Rational; Numbers, Real.

Bibliography

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