PHP (Hypertext Preprocessor) is a versatile server-side scripting language widely used for web development. It offers a range of characteristics related to variables, functions, and reserved words that make it a popular choice among developers.

When it comes to variables, PHP provides support for various data types, including integers, floats, strings, booleans, arrays, objects, and more. It also allows for dynamic typing, meaning variables can hold values of different types without explicit type declarations. Variable interpolation is another useful feature in PHP, enabling the direct embedding of variables within double-quoted strings without the need for concatenation. This simplifies string manipulation and enhances code readability.

PHP supports different variable scopes, including global, local, static, and superglobal. Global variables can be accessed from anywhere in the script, while local variables are limited to their respective scopes, such as within a function or block. Static variables retain their values between function calls, providing a means to persist data across invocations. Variable naming in PHP follows the convention of starting with a dollar sign ($) followed by a letter or underscore. It is important to note that PHP variable names are case-sensitive, distinguishing between variables like `$myVar` and `$myvar`.

In terms of functions, PHP offers a range of features that facilitate modular and reusable code. Functions are declared using the `function` keyword, followed by the function name and parentheses for parameters. PHP functions can have optional parameters, allowing developers to define default values for parameters. This flexibility enhances the usability of functions in different contexts. Additionally, PHP supports passing arguments by reference, enabling functions to modify the original values of variables passed as arguments.

PHP functions can return values using the `return` statement. This allows functions to provide results or data back to the calling code. Multiple values can be returned from a function using arrays or objects. In cases where no explicit return statement is used, the function returns NULL by default. Recursive functions are also supported in PHP, allowing functions to call themselves. This feature is particularly useful for solving problems that can be divided into smaller subproblems, such as traversing tree structures or implementing sorting algorithms.

PHP has a set of reserved keywords that are part of the PHP language syntax and have specific meanings. These keywords cannot be used as identifiers, such as variable names or function names. Examples of reserved keywords in PHP include control flow keywords like `if`, `else`, `while`, `for`, `switch`, and `break`, as well as language constructs like `echo`, `class`, `function`, `return`, and `namespace`. Additionally, PHP has reserved constants that are predefined and cannot be redefined or assigned new values. Examples of reserved constants include boolean constants (`true` and `false`), the NULL constant, and predefined constants like `PHP\_VERSION`, `PHP\_OS`, and `PHP\_INT\_MAX`. PHP also reserves certain class names that are used internally by PHP or its extensions, preventing their use as user-defined classes. Examples of reserved class names include `stdClass`, `Exception`, `DateTime`, and classes starting with the `Reflection` prefix.

In conclusion, PHP's characteristics related to variables, functions, and reserved words make it a powerful and flexible language for web development. Its support for various data types, variable scoping, and variable interpolation provide developers with the tools to handle complex data structures and manipulate strings efficiently. The features of PHP functions, such as optional parameters, return values, and support for recursion, enable the creation of modular and reusable code. Lastly, the presence of reserved keywords, constants, and class names ensures the integrity and consistency of the PHP language syntax. With its extensive documentation, large community, and wide range of features, PHP continues to be a popular choice for server-side scripting in web development.