

### Directives & Preprocessors

Description	Syntax
Import C library header	<b>#include</b> <filename.h>
Import custom header	<b>#include</b> "filename.h" <b>#include</b> "../filename.h"
Remove ANSI C deprecation message (Visual Studio)	<b>#pragma warning(disable: 4996)</b>
Define a constant	<b>#define</b> NAME value
String with current date in "mmm dd yyyy" format	<b>__DATE__</b>
String with full path and file name of current file	<b>__FILE__</b>
Integer of current line number	<b>__LINE__</b>

### Control Symbols

Symbol	Description
<b>%d</b>	Integer
<b>%f</b>	Floating point
<b>%c</b>	Character
<b>%s</b>	String

### Standard Library

Description	Directive
Input/Output	<b>#include &lt;stdio.h&gt;</b>
Utility functions	<b>#include &lt;stdlib.h&gt;</b>
Mathematical operations	<b>#include &lt;math.h&gt;</b>
String operations	<b>#include &lt;string.h&gt;</b>
Character classification	<b>#include &lt;ctype.h&gt;</b>
Debugging	<b>#include &lt;assert.h&gt;</b>

### Pointers

Operator	Description
<b>*</b>	Returns value at memory address
<b>&amp;</b>	Returns memory address

### Example C Program

```
1. #include <stdio.h>
2.
3. /*
4.  * Here is a sample C program with
5.  * comments.
6.  */
7. int main() {
8.
9.     // Single-line comment
10.    printf("Hello World!");
11.
12.    return 0;
13. }
```

### Functions & Keywords

Functionality	Syntax	Notes
Receive input	<b>scanf</b> (control sequence, &variable_1, ... &variable_n)	
Display on console	<b>printf</b> (control sequence, expressions)	Multiple expressions can be separated by commas.
Returns byte size of variable	<b>sizeof</b> (variable)	
Define a constant	<b>const</b>	Slower than a macro-defined constant
Returns a pointer to allocated memory with given byte size	<b>malloc</b> (byteSize)	
Deallocate memory	<b>free</b> (pointer)	
Create a synonym for a data type name	<b>typedef</b> dataType NewName	Helps with semantics