

Data types

int: integer
float, double: decimal/fraction
char: text character

Variables

Declaring a variable:

Syntax: *datatype varname* ;
Examples: int count;
 double velocity;

Assigning a value to a variable:

Syntax: *varname = value* ;
Examples: count = 0;
 velocity = 9.81 * height;

Output with printf

Syntax: printf(*format*);
 printf(*format, values*);

Examples: printf("Hello, world\n");
 printf("Count is %i\n", count);
 printf("Velocity is %.2lf m/s\n",
 velocity);

Input with scanf

Syntax: scanf(*format, &varname*);

Examples: scanf("%i", &count);
 scanf("%lf", &velocity);

printf/scanf placeholders

int	%i or %d
float	%f
double	%lf
char	%c

if/else statements

```
if ( condition ) {  
    statements  
}  
  
if ( condition ) {  
    statements  
} else {  
    statements  
}  
  
if ( condition1 ) {  
    statements  
} else if ( condition2 ) {  
    statements  
} else {  
    statements  
}
```

“Keep going” loop

```
int keep_going = 1;  
while (keep_going == 1) {  
    statements  
    if ( need_to_stop ) {  
        keep_going = 0;  
    }  
}
```

Comparisons

Syntax: *value op value*
op is one of:
==, != : equals, does not equal
<, <= : less than, less than or equal
>, >= : greater than, greater than or equal

Logic

Syntax: *condition op condition*
op is one of:
|| : or, true if either condition is true
&& : and, true if both conditions are true

Loop recipes

Count from 1 to *n*:

```
for (int i = 1; i <= n; i++) {  
    statements  
}
```

Count from 0 to *n-1*:

```
for (int i = 0; i < n; i++) {  
    statements  
}
```

Count down from *n* to 1:

```
for (int i = n; i >= 1; i--) {  
    statements  
}
```

Count from 1 to *n* by increments:

```
for (int i = 1; i <= n; i += incr) {  
    statements  
}
```

Compute sum of *n* terms:

```
double sum = 0.0;  
for (int i = 1; i <= n; i++) {  
    double term = compute_term i;  
    sum += term;  
}
```

Arithmetic

Syntax: *value op value*
op is one of:
+ : addition (lower precedence)
- : subtraction (lower precedence)
* : multiplication (higher precedence)
/ : division (higher precedence)
% : integer modulus (higher precedence)

Good luck!
...and don't panic!