

# Variables and Fundamental Types

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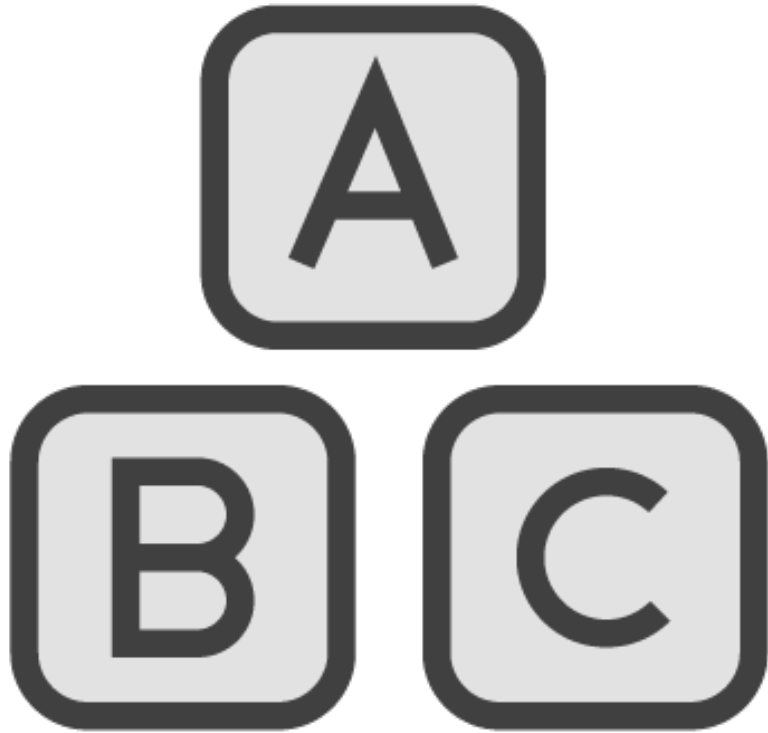


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# Language Basics - Variables



## **C++ is a strongly typed language**

- Variables can hold only certain types of values
- Must be declared before they're used, and can't change type
- “The compiler is your friend”

## **Fundamental types built into the language**

- Numbers, boolean, single characters

## **User defined types**

- Strings, dates, business objects
- Structs and classes

**User defined types are full participants in the language**

# Fundamental Types

## Integers

short, long, int

## Real numbers

float, double

## Character

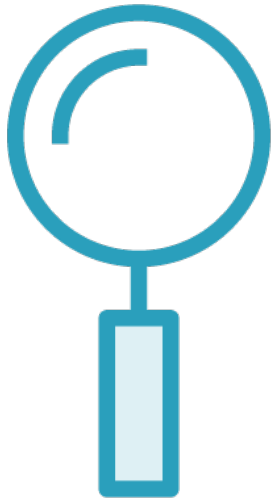
char, unsigned char

## Boolean (true/false)

bool



# Auto



Asks the compiler to  
deduce the type



Variable is still  
strongly typed



Useful for  
ugly declarations

# Casting

Compiler will  
convert types

By casting, you  
make your  
intention clear

This can backfire

Always use  
safe casts

Suffixes to show  
type of a literal



## Summary



**Variables have a type and must be declared before they're used**

**Different types hold different kinds of data**

- Have different lengths and maximum values
- The compiler knows and will help you

**Be aware that overflow can happen silently**

- Avoid using very small types like char for numbers

**To tell the compiler you know what you're doing, use a safe cast**

