

Approaches to C++

- **Deductive learning**
 - Rules and principles first
- **Inductive learning**
 - Study working programs
 - Principles in context
- **Apply principles (write programs)**

Combine theory and practice

Anatomy of a Simple Program

- **Convenience store program**
 - Text, pages 9-15
 - Modified for ANSI C++
- **Input price**
 - U.S. pennies per pound
- **Output price**
 - Canadian dollars per kilogram

Convenience Store Program

Text, page 35

```

// Name: Convenience store owner (convr.cpp)
// Version: 1.0 (ANSI C++ version)
// Purpose: Convert the price of an item in U.S. pennies per pound to
//          Canadian dollars per kilogram.
#include <iostream>
using namespace std;

//----- calculator object -----
void main()
{
    double theOutput; // Amount displayed to the user
    double dollarPerKg; // Item's cost in Canadian dollars per kilogram
    int theInput; // Input entered by the user
    int penniesPerLb; // Price in U.S. pennies per pound of an item

    //----- input object -----
    // Get the input.
    cin >> theInput;
    //----- end of input object -----

    penniesPerLb = theInput;

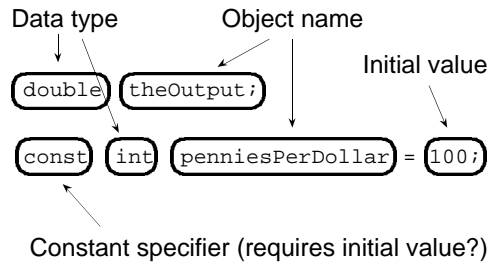
    //----- computing object -----
    const double kgPerLb = .45359237; // Number of kilograms in a pound
    const double dollarPerPenny = .01; // Number of Canadian dollars per
    const int penniesPerDollar = 100; // U.S. dollar (exchange rate)
    dollarPerKg = penniesPerLb*kgPerLb + dollarPerPenny*penniesPerDollar;
    //----- end of computing object -----

    theOutput = dollarPerKg;

    //----- output object -----
    // Display the answer.
    cout << theOutput << endl;
    //----- end of output object -----
}
//----- end of calculator object -----

```

Definition Details



Data Types

- **int** More data types later
 - Integer value; no fractional part
 - Range limited; e.g., -32768...32767
- **double**
 - Real number (approximation)
 - Range & precision limited (but big!)

Purpose of Data Objects

- **Store a value**
 - Of a specified type
- **May represent attributes**
 - Of objects in a design
 - E.g., height of a person in cm.
 - double PersonHeight;

