Dimensional weight reconsidered

- [ ] If your neighbor does not get along, help him/her without being asked explicitly!
- [ ] Checklist before you start coding:
  - Go to a working directory where you are allowed to save files
  - If you are in `AppData/Roaming`, change to your home directory
  - Open a terminal and navigate to your working directory
- [ ] Create an Org-mode file "dweight.org"
- [ ] Add one named C code block (use `<s [TAB]` to do this)
- [ ] Name the code block `dweight`
- [ ] Start with the code that we created last week, or take the code from `dweight.c` in GitHub (in cc100/3_basics/src).
- [ ] Check: your code block should now look like this:

Listing 1:

```
#include <stdio.h>

int main(void)
{
  const int INCHES_PER_POUND = 166;
  int height, length, width, volume, weight;

  height = 8;
  length = 12;
  width = 10;
  volume = height * length * width;
  weight = (volume + INCHES_PER_POUND-1) / INCHES_PER_POUND;

  printf("Dimensions: %dx%dx%d\n", length, width, height);
  printf("Volume (cubic inches): %d\n", volume);
  printf("Dimensional weight (pounds): %d\n", weight);

  return 0;
}
```

- [ ] You do not need any code block header arguments except `C` and `:results output`.
- [ ] Note that the number `166` is now defined as `const`.
- [ ] Run the code block in Emacs with `C-c C-c` to make sure it is correct. You should get this output:

```
#+RESULTS: dweight
: Dimensions: 12x10x8
: Volume (cubic inches): 960
: Dimensional weight (pounds): 6
```

- [ ] Copy the code block into a second code block, and name it `dweight1`.

- [ ] Alter the code so that the three variables `height`, `length`, and `width` have to be given as input:
  - Add three `printf` statements asking for these variables
  - After each of these, add a `scanf` statement to take the input
  - You must delete the assignments to these variables
  - Make sure that you use the correct format identifier `%d`
- [ ] Your code block should now look like this (without the comments):

Listing 2:

```
#include <stdio.h>

int main(void)
{
  // declare variables and constants
  const int INCHES_PER_POUND = 166;
  int height, length, width, volume, weight;

  // Enter input
  printf("Enter the box height: ");
  scanf("%d", &height);
  printf("Enter the box length: ");
  scanf("%d", &length);
  printf("Enter the box width: ");
  scanf("%d", &width);

  // compute volume and dimensional weight
  volume = height * length * width;
  weight = (volume + INCHES_PER_POUND-1) / INCHES_PER_POUND;

  printf("Dimensions: %dx%dx%d\n", length, width, height);
  printf("Volume (cubic inches): %d\n", volume);
  printf("Dimensional weight (pounds): %d\n", weight);

  return 0;
}
```

- [ ] Add the necessary tangle information to the code block header:

```
:tangle dweight1.c
```

- [ ] Tangle the code block with the key sequence `C-c C-v t` to get the C source code file `dweight1.c`
- [ ] Compile and run it on the Windows command line, and you're done!

```
C:\Users\birkenkrahe\Documents\GitHub\cc100>gcc -o dw dweight1.c

C:\Users\birkenkrahe\Documents\GitHub\cc100>dw
Enter the box height: 8
Enter the box length: 10
Enter the box width: 12
Dimensions: 10x12x8
Volume (cubic inches): 960
Dimensional weight (pounds): 6
```