Peer review didn't seem to work
There are bugs in Canvas
We'll try again...

Try to encourage people to do more programming

Mini-Assignments: Programming Puzzles
Readings: Objects

We'll come back to this, since it's important
Manipulating Web Pages

It will give us something to do
Is this the right way?

There are libraries to make it more convenient

Understanding the **concepts** makes it easier

Apprec
Representing a Web Page

1. The Conceptual Model of it
2. What gets drawn on the screen
3. The textual representation the browser reads
4. The internal data structures of the browser
5. What the browser exposes to scripts
What does this mean?

1. Not everything is convenient for scripts
2. There are many ways to do things
(see examples 1-5)
The Document Object Model (DOM)
(in concept)

A tree of nodes

A tree because of "containment"

The root is the document
What is a node?

One of (at least) three different things

1. an **element**
2. a block of **attributes**
3. **text**

Beware of Terminology:

- **nodes vs. elements vs. objects**
- **text nodes vs. elements**
Traversing the Tree

Nodes have links to children and siblings

- firstChild (lastChild)
- nextSibling (prevSibling)
- parent

Nodes have an "array like" list (childNodes)

Examples 5-8
How about those elements...

- They have a **tag name**
- They have **attributes**
- They can have an **id**
- They can have a **class** or many

Element attributes seem to be different than attribute nodes
(example 2-1)
Styles

• set from HTML
• a string attribute
• an object containing values

This is a **live object** - auto-update
You can change any one
(example 3-1)
HTML Programming from JavaScript

A Pattern:

• Find some element(s) you're interested in
• Do something to it

Selection oriented programming
Examples so far

1. find the body
2. make something new
3. add it to the body
Some useful html tags

- P - paragraph
- BR - line break
- HR - horizontal rule
- SPAN - horizontal container
- DIV - general purpose container
- BUTTON - push button
- INPUT - general input (set type)
Some examples

Put stuff into Divs

Use Input

(need handler functions)