

Another Iterative Construct: the **while** Loop

A **while** loop

- **only specifies a <test> and a loop body**, but is
- **otherwise equivalent to a for loop**.

```
while (<test>) {
    /* loop body */
}
```

Easy to Map **while** Loop into **for** Loop

```
while (<test>) {
    /* loop body */
}
```

is completely equivalent to
(with empty <init> and <update>):

```
for ( ; <test>; ) {
    /* loop body */
}
```

Execution of a **while** Loop

How does the computer execute a **while** loop?

```
while (<test>) {
    /* loop body */
}
```

We can simplify the rules for a **for** loop...

1. ~~Evaluates <init>~~. **Skip this step.**
2. Evaluates <test>, and stops if it is false (0).
3. Executes the **loop body**.
4. ~~Evaluates <update>~~ and returns to Step 2.
Skip this part.

while Loop Performs the Iterative Decomposition

The **while** loop is **identical to the iterative decomposition**.

```
while (<test>) {
    /* body */
}
```

